

K.2 CULTURAL RESOURCE CONSULTATION

This section provides detailed information on the status of compliance with Section 106 of the NHPA and consultation on cultural resources for the Solar PEIS.

K.2.1 Introduction

The BLM is coordinating with and soliciting input from the State Historic Preservation Offices (SHPOs) in each of the six states in the study area and the Advisory Council on Historic Preservation (ACHP) in accordance with the National Historic Preservation Act (NHPA). Section K.2.2 provides copies of the official correspondence to date regarding the PEIS. In addition, the National Council of SHPOs (NCSHPO), the National Trust for Historic Preservation,¹ and Tribal Governments (also see Section K.1) have been invited to consult on the PEIS and the preparation of a National Programmatic Agreement (PA) regarding solar energy development. The PA will provide for a phased consultation process for complying with Section 106 of the NHPA related to potential adverse effects on historic, traditional, and cultural resources as a result of developing a solar energy program under the PEIS and subsequent activities that could tier from the PEIS Record of Decision. The PA is currently under development and will be available as part of this Appendix (Section K.2.3) when it has been completed. Copies of the 1997 National PA among the BLM, ACHP, and NCSHPO, as well as the current state protocols of the six individual states involved in this PEIS have been included in Section K.2.4 for reference.

¹ The NCSHPO and National Trust for Historic Preservation have participated in meetings (June and Aug. 2009) with the BLM, SHPOs, and ACHP, although no formal letter or correspondence has been sent to them directly from the BLM and is therefore not included in this Appendix. They are also intended to be concurring parties on the National PA for Solar Energy Development.

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1 **K.2.2 Letters**
2



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Washington, D.C. 20240

<http://www.blm.gov>

September 25, 2008



In Reply Refer To:
1600 (300)

Mr. Don Klima, Director
Office of Federal Agency Programs
1100 Pennsylvania Avenue, NW., Suite 109
Washington, D.C. 20004

Dear Mr. Klima:

Please accept this letter as official notification of the Bureau of Land Management (BLM) and the Department of Energy's (DOE) intent to initiate a joint Programmatic Environmental Impact Statement (PEIS) to evaluate utility-scale solar energy development on BLM-administered lands. In accordance with Section 4(b)(1) of the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers, the BLM requests the advice, guidance, and assistance of the ACHP on the application of Section 106 of the National Historic Preservation Act to the PEIS for Solar Energy Development and on the process by which the BLM will meet its responsibilities for compliance with section 106.

The Energy Policy Act of 2005 establishes a goal for the BLM to approve a minimum of 10,000 megawatts of non-hydropower renewable energy on BLM-administered lands by the year 2015. The DOE and the BLM have identified utility-scale solar energy development, which distributes electricity to consumers through the electric power transmission grid, as one of several critical components in meeting this goal and the Nation's energy needs.

The study area for the PEIS has been limited to the States of Arizona, California, Colorado, New Mexico, Nevada, and Utah based on an initial resource assessment showing that these states encompass the most prospective solar energy resource suitable for utility-scale development over the next 20 years. The BLM has already received more than 200 utility-scale solar energy project proposals for BLM-administered lands, mainly in southern California, Nevada, and Arizona. A single utility-scale solar energy project can include hundreds or even thousands of acres. The PEIS is intended to provide a better understanding of the environmental effects of and appropriate mitigation measures for this type of large scale development on the public lands. The PEIS will not authorize any solar energy projects, and the BLM will continue to do site specific environmental analyses for individual projects.

Preparation of the PEIS is a multistep process that BLM projects to be completed by the summer of 2010. The effort will include the preparation of a draft PEIS, a final PEIS, and Records of Decision by the BLM and the DOE. As such, we anticipate very short, concurrent review time

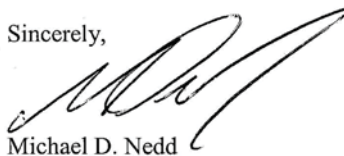
frames for the BLM and the DOE, our cooperating agencies, and consulting parties. The BLM has already begun the initial process of identifying consulting parties and formally notifying Tribal governments, and we anticipate that our local BLM offices will be contacting State Historic Preservation Offices (SHPOs) about the PEIS in the next few weeks.

We began the PEIS with initial public scoping which included 11 public meetings held in June and July 2008. Argonne National Laboratory is assisting the BLM and the DOE with the PEIS and is currently preparing a summary of public scoping comments that should be available later this month. All of the public comments received as well as the transcripts from the meetings are posted on the PEIS project Web site: <http://solareis.anl.gov>.

Recently BLM and DOE staff met with you and others at the ACHP to explain the objectives and elements of the PEIS and to begin informal discussions on the way in which the agencies can meet their respective responsibilities under section 106. As a result, the BLM would like to continue to explore the possibility of a programmatic agreement with the ACHP and the affected SHPOs that would serve as a roadmap for section 106 consultation in the BLM's solar energy program. We look forward to our continued interaction and discussions with the ACHP on this issue.

The BLM point of contact for the Solar Energy Development PEIS is Linda Resseguie. She can be reached by telephone at 202-452-7774 or by electronic mail at linda_resseguie@blm.gov. Rolla Queen, the BLM Liaison to the ACHP, is also available as a point of contact and to facilitate and coordinate meetings with the ACHP for the PEIS.

Sincerely,



Michael D. Nedd
Assistant Director, Minerals and Realty Management



December 3, 2008

Mr. Michael D. Nedd
BLM Assistant Director
Minerals and Realty Management
Bureau of Land Management
1849 "C" Street N.W.
Washington, D.C. 20240


RE: *Solar Energy Development Programmatic Environmental Impact Statement
Arizona, California, Colorado, New Mexico, Nevada, and Utah*

Dear Mr. Nedd:

The Advisory Council on Historic Preservation recently received your notification of preparation of a Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development. We are committed to working closely with BLM as it moves forward with this PEIS: it will address important policy questions and affect multiple states and historic resources. We appreciate the briefing BLM provided to our staff in September on this issue, and reiterate our advice that BLM develop a programmatic agreement to provide a clear and specific Section 106 process that this energy development will necessitate.

We look forward to working with BLM, the State Historic Preservation Officers, and other consulting parties regarding this undertaking. Should you have any questions or wish to discuss this matter further, please contact Nancy J. Brown by phone at (202) 606-8582 or by e-mail at nbrown@achp.gov.

Sincerely,


Reid J. Nelson
Assistant Director
Federal Property Management Section
Office of Federal Agency Programs

ADVISORY COUNCIL ON HISTORIC PRESERVATION

1101 Pennsylvania Avenue NW, Suite 803 • Washington, DC 20004
Phone: (202) 406-8503 • Fax: (202) 406-8647 • achp@achp.gov • www.achp.gov



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California Desert District
22835 Calle San Juan de los Lagos
Riverside, CA 92553
www.ca.blm.gov/cdd



In Reply Refer To:
CR CA610-09-01/8100 (CA610.25)

February 23, 2009

Mr. James Garrison
State Historic Preservation Officer
Arizona State Parks
1300 W. Washington
Phoenix, AZ 85007

Dear Mr. Garrison:

The Bureau of Land Management (BLM) and the Department of Energy (DOE) are currently preparing a joint Programmatic Environmental Impact Statement (PEIS) to evaluate utility-scale solar energy development on BLM-administered lands. The BLM is the lead federal agency for purposes of compliance with Section 106 of the National Historic Preservation Act (NHPA). The study area for the PEIS includes the states of Arizona, California, Colorado, New Mexico, Nevada, and Utah. This study area is based on an initial resource assessment showing that these states encompass the most prospective solar energy resource suitable for utility-scale development over the next 20 years. The PEIS is intended to provide a better understanding of the environmental effects of and appropriate mitigation measures for this type of large scale energy development on the public lands. The Energy Policy Act of 2005 establishes a goal for the BLM to approve a minimum of 10,000 megawatts of non-hydropower renewable energy on BLM-administered lands by the year 2015. The DOE and the BLM have identified utility-scale solar energy development, which distributes electricity to consumers through the electric power transmission grid, as one of several critical components in meeting this goal and the Nation's energy needs.

Preparation of the PEIS is a multistep process that BLM projects to be completed by the summer of 2010. We expect that the PEIS will result in the BLM identifying lands that would be open to solar energy development applications and mitigation measures that would be applied to all solar energy development projects on BLM-administered land. The PEIS will not authorize any solar energy projects, and the BLM will continue to do project specific environmental analyses, including section 106, for individual projects. The effort will include the preparation of a draft PEIS, a final PEIS, and Records of Decision by the BLM and the DOE. As such, we anticipate very short, concurrent review time frames for the BLM and the DOE, our cooperating agencies, and consulting parties. The BLM has already begun the process of identifying other consulting parties and has formally notified Tribal governments about the PEIS.

Scoping for the PEIS began with 11 public meetings held in June and July 2008. Argonne National Laboratory is assisting the BLM and the DOE with the PEIS and has prepared a summary of public scoping comments. All of the public comments received and the transcripts from the meetings are posted on the PEIS project Web site:

<http://solareis.anl.gov>


The BLM, pursuant to Section 4(b)(1) of the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO), has initiated consultation with the ACHP regarding the application of section 106 to the PEIS and on the process by which the BLM will meet its responsibilities for compliance with section 106. Because of the non-routine, interagency and interstate nature of the decisions being analyzed in the PEIS, BLM (in consultation with the ACHP) has determined that a phased or "tiered" approach provides the best strategy to identify and manage effects to historic properties. A Programmatic Agreement (PA) will be used to document the specifics of this tiered approach. The PA will be developed in consultation with the concerned State Historic Preservation Officers (SHPO), the ACHP, and other consulting parties and will serve as a roadmap for subsequent section 106 consultations in the BLM's and DOE's solar energy programs.

The BLM is inviting the SHPO to join the BLM and the ACHP in consultation on this PEIS and the development of the PA. For purposes of facilitating consultation and the development of the PA, the BLM has designated its California Desert District Office as the lead for this effort. Rolla Queen, BLM District Archaeologist, will serve as the principal point of contact and will be coordinating the consultation and working closely with the SHPOs, the ACHP, consulting parties, and the BLM headquarters and State Offices to draft a PA and successfully conclude our responsibilities under section 106. He can be reached by telephone at 951-697-5386 and by electronic mail at rolla_queen@ca.blm.gov. The BLM point of contact for the Solar Energy Development PEIS is Linda Resseguie in the BLM Washington Office. She can be reached by telephone at 202-452-7774 or by electronic mail at linda_resseguie@blm.gov. Please feel free to contact either Mr. Queen or Ms. Resseguie for additional information or clarification about the PEIS or the PA process.

The BLM plans to coordinate an initial conference call between the SHPOs, ACHP, and BLM to discuss this undertaking and the development of the PA. It would facilitate logistics and scheduling if your office could identify to Mr. Queen who your point of contact will be for this consultation. Mr. Queen also will be contacting your office shortly to follow-up on this letter, discuss this undertaking and the PA, and answer any questions you may have at this time. We hope to schedule a conference call with all the consulting parties to discuss the PEIS and the PA sometime in mid-March.

We look forward to our consultations on this important renewable energy initiative. If we can provide any additional information or answer any questions, please do not hesitate to contact us.

Sincerely,


Steven J. Borchard
District Manager

cc electronically

Robin Burgess, WO240
Linda Resseguie, WO350
Reid Nelson (Nancy Brown), ACHP
Linda Jorgenson, DOE
Byron Loosle, UT934

Dan Haas, CO931
Michael Johnson, AZ931
Tom Burke, NV933
Signa Larralde, NM930
Gina Jorgenson, CA930



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California Desert District
22835 Calle San Juan de los Lagos
Riverside, CA 92553
www.ca.blm.gov/cdd



In Reply Refer To:
CR CA610-09-01/8100 (CA610.25)

February 23, 2009

Mr. Milford Wayne Donaldson
State Historic Preservation Officer
California Department of Parks and Recreation
Office of Historic Preservation
1416 9th Street, Room 1442-7,
Sacramento, CA 95814

Dear Mr. Donaldson:

The Bureau of Land Management (BLM) and the Department of Energy (DOE) are currently preparing a joint Programmatic Environmental Impact Statement (PEIS) to evaluate utility-scale solar energy development on BLM-administered lands. The BLM is the lead federal agency for purposes of compliance with Section 106 of the National Historic Preservation Act (NHIPA). The study area for the PEIS includes the states of Arizona, California, Colorado, New Mexico, Nevada, and Utah. This study area is based on an initial resource assessment showing that these states encompass the most prospective solar energy resource suitable for utility-scale development over the next 20 years. The PEIS is intended to provide a better understanding of the environmental effects of and appropriate mitigation measures for this type of large scale energy development on the public lands. The Energy Policy Act of 2005 establishes a goal for the BLM to approve a minimum of 10,000 megawatts of non-hydropower renewable energy on BLM-administered lands by the year 2015. The DOE and the BLM have identified utility-scale solar energy development, which distributes electricity to consumers through the electric power transmission grid, as one of several critical components in meeting this goal and the Nation's energy needs.

Preparation of the PEIS is a multistep process that BLM projects to be completed by the summer of 2010. We expect that the PEIS will result in the BLM identifying lands that would be open to solar energy development applications and mitigation measures that would be applied to all solar energy development projects on BLM-administered land. The PEIS will not authorize any solar energy projects, and the BLM will continue to do project specific environmental analyses, including section 106, for individual projects. The effort will include the preparation of a draft PEIS, a final PEIS, and Records of Decision by the BLM and the DOE. As such, we anticipate very short, concurrent review time frames for the BLM and the DOE, our cooperating agencies, and consulting parties. The BLM has already begun the process of identifying other consulting parties and has formally notified Tribal governments about the PEIS.

Scoping for the PEIS began with 11 public meetings held in June and July 2008. Argonne National Laboratory is assisting the BLM and the DOE with the PEIS and has prepared a summary of public scoping comments. All of the public comments received and the transcripts from the meetings are posted on the PEIS project Web site:

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The BLM is inviting the SHPO to join the BLM and the ACHP in consultation on this PEIS and the development of the PA. For purposes of facilitating consultation and the development of the PA, the BLM has designated its California Desert District Office as the lead for this effort. Rolla Queen, BLM District Archaeologist, will serve as the principal point of contact and will be coordinating the consultation and working closely with the SHPOs, the ACHP, consulting parties, and the BLM headquarters and State Offices to draft a PA and successfully conclude our responsibilities under section 106. He can be reached by telephone at 951-697-5386 and by electronic mail at rolla_queen@ca.blm.gov. The BLM point of contact for the Solar Energy Development PEIS is Linda Resseguie in the BLM Washington Office. She can be reached by telephone at 202-452-7774 or by electronic mail at linda_resseguie@blm.gov. Please feel free to contact either Mr. Queen or Ms. Resseguie for additional information or clarification about the PEIS or the PA process.

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Sincerely,



Steven J. Borchard
District Manager

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United States Department of the Interior

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Riverside, CA 92553
www.ca.blm.gov/cdd



In Reply Refer To:
CR CA610-09-01/8100 (CA610.25)

February 23, 2009

Mr. Edward Nichols
State Historic Preservation Officer
Colorado Historical Society
1300 Broadway
Denver, CO 80203

Dear Mr. Nichols:

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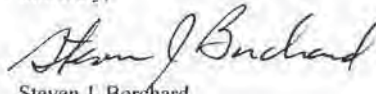
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Sincerely,



Steven J. Borchard
District Manager

cc electronically

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United States Department of the Interior

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Riverside, CA 92553
www.ca.blm.gov/edd



In Reply Refer To:
CR CA610-09-01/8100 (CA610.25)

February 23, 2009

Ms. Katherine Slick
State Historic Preservation Officer
Historic Preservation Division
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

Dear Ms. Slick:

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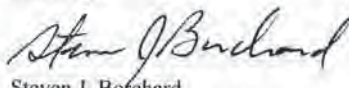
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Steven J. Borchard
District Manager

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In Reply Refer To:
CR CA610-09-01/8100 (CA610.25)

February 23, 2009

Mr. Ronald James
State Historic Preservation Officer
Nevada State Historic Preservation Office
100 North Stewart Street
Carson City, NV 89701-4285

Dear Mr. James:

The Bureau of Land Management (BLM) and the Department of Energy (DOE) are currently preparing a joint Programmatic Environmental Impact Statement (PEIS) to evaluate utility-scale solar energy development on BLM-administered lands. The BLM is the lead federal agency for purposes of compliance with Section 106 of the National Historic Preservation Act (NHPA). The study area for the PEIS includes the states of Arizona, California, Colorado, New Mexico, Nevada, and Utah. This study area is based on an initial resource assessment showing that these states encompass the most prospective solar energy resource suitable for utility-scale development over the next 20 years. The PEIS is intended to provide a better understanding of the environmental effects of and appropriate mitigation measures for this type of large scale energy development on the public lands. The Energy Policy Act of 2005 establishes a goal for the BLM to approve a minimum of 10,000 megawatts of non-hydropower renewable energy on BLM-administered lands by the year 2015. The DOE and the BLM have identified utility-scale solar energy development, which distributes electricity to consumers through the electric power transmission grid, as one of several critical components in meeting this goal and the Nation's energy needs.

Preparation of the PEIS is a multistep process that BLM projects to be completed by the summer of 2010. We expect that the PEIS will result in the BLM identifying lands that would be open to solar energy development applications and mitigation measures that would be applied to all solar energy development projects on BLM-administered land. The PEIS will not authorize any solar energy projects, and the BLM will continue to do project specific environmental analyses, including section 106, for individual projects. The effort will include the preparation of a draft PEIS, a final PEIS, and Records of Decision by the BLM and the DOE. As such, we anticipate very short, concurrent review time frames for the BLM and the DOE, our cooperating agencies, and consulting parties. The BLM has already begun the process of identifying other consulting parties and has formally notified Tribal governments about the PEIS.

Scoping for the PEIS began with 11 public meetings held in June and July 2008. Argonne National Laboratory is assisting the BLM and the DOE with the PEIS and has prepared a summary of public scoping comments. All of the public comments received and the transcripts from the meetings are posted on the PEIS project Web site:

<http://solareis.anl.gov>

The BLM, pursuant to Section 4(b)(1) of the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO), has initiated consultation with the ACHP regarding the application of section 106 to the PEIS and on the process by which the BLM will meet its responsibilities for compliance with section 106. Because of the non-routine, interagency and interstate nature of the decisions being analyzed in the PEIS, BLM (in consultation with the ACHP) has determined that a phased or "tiered" approach provides the best strategy to identify and manage effects to historic properties. A Programmatic Agreement (PA) will be used to document the specifics of this tiered approach. The PA will be developed in consultation with the concerned State Historic Preservation Officers (SHPO), the ACHP, and other consulting parties and will serve as a roadmap for subsequent section 106 consultations in the BLM's and DOE's solar energy programs.

The BLM is inviting the SHPO to join the BLM and the ACHP in consultation on this PEIS and the development of the PA. For purposes of facilitating consultation and the development of the PA, the BLM has designated its California Desert District Office as the lead for this effort. Rolla Queen, BLM District Archaeologist, will serve as the principal point of contact and will be coordinating the consultation and working closely with the SHPOs, the ACHP, consulting parties, and the BLM headquarters and State Offices to draft a PA and successfully conclude our responsibilities under section 106. He can be reached by telephone at 951-697-5386 and by electronic mail at rolla_queen@ca.blm.gov. The BLM point of contact for the Solar Energy Development PEIS is Linda Resseguie in the BLM Washington Office. She can be reached by telephone at 202-452-7774 or by electronic mail at linda_resseguie@blm.gov. Please feel free to contact either Mr. Queen or Ms. Resseguie for additional information or clarification about the PEIS or the PA process.

The BLM plans to coordinate an initial conference call between the SHPOs, ACHP, and BLM to discuss this undertaking and the development of the PA. It would facilitate logistics and scheduling if your office could identify to Mr. Queen who your point of contact will be for this consultation. Mr. Queen also will be contacting your office shortly to follow-up on this letter, discuss this undertaking and the PA, and answer any questions you may have at this time. We hope to schedule a conference call with all the consulting parties to discuss the PEIS and the PA sometime in mid-March.

We look forward to our consultations on this important renewable energy initiative. If we can provide any additional information or answer any questions, please do not hesitate to contact us.

Sincerely,



Steven J. Borchard
District Manager

cc electronically

Robin Burgess, WO240
Linda Resseguie, WO350
Reid Nelson (Nancy Brown), ACHP
Linda Jorgenson, DOE
Byron Loosle, UT934

Dan Haas, CO931
Michael Johnson, AZ931
Tom Burke, NV933
Signa Larralde, NM930
Gina Jorgenson, CA930



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California Desert District
22835 Calle San Juan de los Lagos
Riverside, CA 92553
www.ca.blm.gov/cdd



In Reply Refer To:
CR CA610-09-01/8100 (CA610.25)

February 23, 2009

Mr. Wilson Martin
State Historic Preservation Officer
Utah State History
300 Rio Grande
Salt Lake City, UT 84101

Dear Mr. Martin:

The Bureau of Land Management (BLM) and the Department of Energy (DOE) are currently preparing a joint Programmatic Environmental Impact Statement (PEIS) to evaluate utility-scale solar energy development on BLM-administered lands. The BLM is the lead federal agency for purposes of compliance with Section 106 of the National Historic Preservation Act (NHPA). The study area for the PEIS includes the states of Arizona, California, Colorado, New Mexico, Nevada, and Utah. This study area is based on an initial resource assessment showing that these states encompass the most prospective solar energy resource suitable for utility-scale development over the next 20 years. The PEIS is intended to provide a better understanding of the environmental effects of and appropriate mitigation measures for this type of large scale energy development on the public lands. The Energy Policy Act of 2005 establishes a goal for the BLM to approve a minimum of 10,000 megawatts of non-hydropower renewable energy on BLM-administered lands by the year 2015. The DOE and the BLM have identified utility-scale solar energy development, which distributes electricity to consumers through the electric power transmission grid, as one of several critical components in meeting this goal and the Nation's energy needs.

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Sincerely,



Steven J. Borchard
District Manager

cc electronically

Robin Burgess, WO240
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Byron Loosle, UT934

Dan Haas, CO931
Michael Johnson, AZ931
Tom Burke, NV933
Signa Larralde, NM930
Gina Jorgenson, CA930

1 Richard Hanes/WO/BLM/DOI
 2 07/01/2009 01:06 PM
 3 To
 4 Linda Resseguie/WO/BLM/DOI@BLM, Rolla Queen/CASO/CA/BLM/DOI@BLM
 5 cc
 6 Robin Burgess/WO/BLM/DOI@BLM
 7 bcc
 8
 9 Subject
 10 Fw: Solar Energy Study Areas and Historic Preservation
 11
 12 History:
 13
 14 This message has been forwarded.
 15
 16 fyi - a comment from the Advisory Council regarding the Monday press
 17 conference.
 18
 19 Richard
 20
 21 ----- Forwarded by Richard Hanes/WO/BLM/DOI on 07/01/2009 01:05 PM -----
 22 "John Fowler" <jfowler@achp.gov>
 23 07/01/2009 12:08 PM
 24 To
 25 <Ned_Farquhar@ios.doi.gov>, <mike_pool@blm.gov>
 26 cc
 27 <Will_Shafroth@ios.doi.gov>, <Laura_Davis@ios.doi.gov>, "Caroline Hall"
 28 <chall@achp.gov>, "Reid Nelson" <rnelson@achp.gov>, "Nancy Brown"
 29 <nbrown@achp.gov>, "Nancy Schamu" <schamu@sso.org>, "D. Bambi Kraus"
 30 <bambi@nathpo.org>, "Robin L. Burgess" <robin_burgess@blm.gov>, "Richard
 31 Hanes" <richard_hanes@or.blm.gov>, "John" <jfowler@achp.gov>, "John Nau"
 32 <Nau@sedbud.com>, "Lannis Jenkins" <ljenkins@sedbud.com>
 33 Subject
 34 Solar Energy Study Areas and Historic Preservation
 35
 36
 37 I was pleased to see the Secretary's announcement Monday that the
 38 Department has committed to identifying appropriate lands for solar energy
 39 development that would limit conflicts with natural resources and
 40 recreational land uses. While the absence of any references to cultural
 41 resources may have simply been an oversight of the press office, I want to
 42 bring to your attention that another critical part of this evaluation is
 43 the consideration of historic properties, in particular those sites of
 44 importance to Indian tribes. Integrating this into your identification
 45 efforts will allow DOI to get an early start on assessing compliance needs
 46 for Section 106 of the National Historic Preservation Act. Most
 47 importantly, addressing historic resources in the effort to identify
 48 appropriate lands will go a long way to avoid controversy and delay when
 49 individual projects move through the approval process.
 50
 51
 52

1 I was also encouraged by the parallel efforts that MMS has underway to
2 address similar issues for renewable energy projects on the Outer
3 Continental Shelf. We participated in their meeting last week on the
4 subject and are working with them to ensure effective and early engagement
5 with Section 106 as they move forward.

6
7 We at the ACHP, along with our partner State Historic Preservation
8 Officers and Tribal Historic Preservation Officers, look forward to
9 working closely with you and your staff on historic preservation matters
10 as you proceed with the expanded evaluation of the Solar Energy Study
11 Areas. Please let me know how we can be of assistance. John
12
13



United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Washington, D.C. 20240
<http://www.blm.gov>



SEP 09 2009

In Reply Refer To:
1610 (240)

Mr. John Fowler
Executive Director
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW, Suite 109
Washington, D.C. 20004

Dear Mr. Fowler:

This letter is to acknowledge receipt of your July 1, 2009, email message responding to Secretary Salazar's announcement of the addition of 24 solar energy study areas to the joint Bureau of Land Management (BLM), Department of Energy Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development on BLM-administered lands. Thank you for your support and encouragement as we move forward with the identification of areas suitable to solar energy development. We regret that our public announcement failed to highlight cultural resources as we consider the nation's cultural resources and environmental resources to be of equal import in this process.

On behalf of the BLM, we want to personally assure the Advisory Council that we are mindful of our responsibilities under Section 106 of the National Historic Preservation Act to take into account the effects solar energy development may have on historic properties. We anticipate a robust and effective section 106 consultation process in conjunction with the Solar PEIS and look forward to working with the Advisory Council, the Tribes, and other consulting parties in this effort.

If you have any questions concerning this correspondence or the Solar PEIS, please contact our Preservation Officer, Robin Burgess, at (202) 912-7241, or our Solar PEIS Project Manager, Linda Resseguie, at (202) 912-7337.

Sincerely,

Edwin L. Roberson
Assistant Director
Renewable Resources and Planning

Cc: 240 LS 204

[Redacted] Resseguie;sdw:912-7337:Response to JF-ACHP

1 **K.2.3 National Programmatic Agreement for the Solar PEIS**
2

3 The Programmatic Agreement is currently under development and will be provided when
4 available.
5

6
7 **K.2.4 National Programmatic Agreement of 1997 and State Protocols**
8
9

K.2.4.1 National Programmatic Agreement of 1997

PROGRAMMATIC AGREEMENT
AMONG
THE BUREAU OF LAND MANAGEMENT,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND
THE NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS
REGARDING
THE MANNER IN WHICH BLM WILL MEET ITS RESPONSIBILITIES
UNDER THE NATIONAL HISTORIC PRESERVATION ACT

Preamble

Bureau of Land Management. The Bureau of Land Management (BLM), consistent with its authorities and responsibilities under the Federal Land Policy and Management Act of 1976 (FLPMA), is charged with managing public lands principally located in the States of Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, and Wyoming in a manner that will "protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values," and "that will provide for outdoor recreation and human occupancy and use."

The BLM also has specific responsibilities and authorities to consider, plan for, protect, and enhance historic properties and other cultural properties which may be affected by its actions in those and other States, including its approval for Federal mineral resource exploration and extraction, under the National Environmental Policy Act, the National Historic Preservation Act of 1966 (NHPA), the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, the Historic Sites Act of 1935, the Antiquities Act, the American Indian Religious Freedom Act, the Religious Freedom Restoration Act, Executive Order 13007 ("Sacred Sites"), and related authorities.

In carrying out its responsibilities, the BLM has developed policies and procedures through its directives system (BLM Manual Sections 8100-8160) to help guide the BLM's planning and decision making as it affects historic properties and other cultural properties, and has assembled a cadre of cultural heritage specialists to advise the BLM's managers and to implement cultural heritage policies consistent with these statutory authorities.

State Historic Preservation Officers. State Historic Preservation Officers (SHPOs), as represented by the National Conference of State Historic Preservation Officers (NCSHPO), have responsibilities under State law as well as under Section 101(b)(3) of the National Historic Preservation Act that include to "advise and assist as appropriate, Federal and State agencies and local governments in carrying out their historic preservation responsibilities," and to "consult with the appropriate Federal agencies in accordance with [NHPA] on Federal undertakings that may affect historic properties, and the content and sufficiency of any plans developed to protect, manage, or to reduce or mitigate harm to such properties."

In certain cases others may be authorized to act in the SHPO's place. Where the Secretary has approved an Indian tribe's preservation program pursuant to Section 101(d)(2) of the NHPA, a Tribal Preservation Officer may perform some SHPO functions with respect to tribal lands. A local historic preservation commission acting through the chief local elected official may fulfill some SHPO-delegated functions, where the Secretary has certified the local government pursuant to Section 101(c)(1) of the NHPA, and its actions apply to lands in its jurisdiction. Pursuant to the regulations implementing Section 106 of the NHPA [36 CFR 800.1(c)], the Council may at times act in lieu of the SHPO.

Advisory Council on Historic Preservation. The Advisory Council on Historic Preservation (Council) has the responsibility to administer the process implementing Sections 106, 110(f), and 111(a) of the National Historic Preservation Act, to comment with regard to Federal undertakings subject to review under Sections 106, 110(f) and 111(a) in accordance with its implementing regulations (36 CFR Part 800), and to "review the policies and programs of Federal agencies and recommend to such agencies methods to improve the effectiveness, coordination, and consistency of those policies and programs with the policies and programs carried out under [NHPA]" under Section 202(a)(6) of the NHPA.

The above-named parties now wish to ensure that the BLM will organize its programs to operate efficiently, effectively, according to the spirit and intent of the NHPA, and in a manner consistent with 36 CFR Part 800; and that the BLM will integrate its historic preservation planning and management decisions with other policy and program requirements to the maximum extent. The BLM, the SHPOs, and the Council desire and intend to streamline and simplify procedural requirements, to reduce unnecessary paperwork, and to emphasize the common goal of planning for and managing historic properties under the BLM's jurisdiction and control in the public interest.

Basis for Agreement

Proceeding from these responsibilities, goals, and objectives, the parties acknowledge the following basis for agreement:

WHEREAS the BLM's management of lands and mineral resources may affect cultural properties, many of which are historic properties as defined by the National Historic Preservation Act and are therefore subject to Sections 106, 110(f), and 111(a) of the NHPA; and

WHEREAS, among other things, the BLM's program established in response to Section 110(a)(2) and related authorities provides a systematic basis for identifying, evaluating, and nominating to the National Register historic properties under the bureau's jurisdiction or control; for managing and maintaining properties listed in or eligible for the National Register in a way that considers the preservation of their archaeological, historical, architectural, and cultural values and the avoidance of adverse effects in light of the views of local communities, Indian

tribes, interested persons, and the general public; and that gives special consideration to the preservation of such values in the case of properties designated as having National significance; and

WHEREAS the BLM's program is also intended to ensure that the bureau's preservation-related activities are carried out in consultation with other Federal, State, and local agencies, Indian tribes, and the private sector; and

WHEREAS the BLM's program also has as its purpose to ensure that the bureau's procedures for compliance with Section 106 are consistent with regulations issued by the Council pursuant to Section 211 of the NHPA (36 CFR Part 800, "Protection of Historic Properties"), and provide a process for the identification and evaluation of historic properties for listing in the National Register and the development and implementation of agreements, in consultation with State Historic Preservation Officers, local governments, Indian tribes, and the interested public, as appropriate, regarding the means by which adverse effects on such properties will be considered; and

WHEREAS the BLM's program also intends to ensure that its Section 106 procedures recognize the historic and traditional interests of Indian tribes and other Native American groups in lands and resources potentially affected by BLM decisions, affording tribes and other groups adequate participation in the decisionmaking process in accordance with Sections 101(d)(6), 110(a)(2)(D), and 110(a)(2)(E)(ii) of the NHPA, and provide for the disposition of Native American cultural items from Federal or tribal land in a manner consistent with Section 3(c) of the Native American Graves Protection and Repatriation Act, in accordance with Section 110(a)(2)(E)(iii) of the NHPA; and

WHEREAS this agreement will not apply to tribal lands, but rather, a proposed BLM undertaking on tribal lands will require consultation among the BLM, the Tribal Preservation Officer, and the Council; or among BLM, tribal officials (where no Tribal Preservation Program exists) the SHPO, and the Council; and such consultation will be outside the compass of this agreement and will follow 36 CFR Part 800 or the Indian tribe's alternative to 36 CFR Part 800; and

WHEREAS the BLM's program, the elements of which were defined in the BLM Manual between 1988 and 1994, does not incorporate some recent changes in legal, regulatory, and Executive Order authorities and recent changes in the nature and direction of historic preservation relationships, rendering the program directives in need of updating, and this need is recognized by the BLM, the Council, and the NCSHPO as an opportunity to work jointly and cooperatively among themselves and with other parties, as appropriate, to enhance the BLM's historic preservation program; and

WHEREAS the States, particularly those containing a high percentage of public land under the BLM's jurisdiction and control, have a strong incentive in forming a cooperative

relationship with the BLM to facilitate and promote activities of mutual interest, including direction and conduct of a comprehensive statewide survey and inventory of historic properties, identification and nomination of eligible properties to the National Register of Historic Places, preparation and implementation of comprehensive historic preservation plans, and development and dissemination of public information, education and training, and technical assistance in historic preservation, and

WHEREAS the parties intend that efficiencies in the Section 106 process, realized through this agreement, will enable BLM, SHPO, and Council staffs to devote a larger percentage of their time and energies to proactive work, including analysis and synthesis of data accumulated through decades of Section 106 compliance; historic property identification where information is needed, not just in reaction to proposed undertakings; long-term preservation planning; purposeful National Register nomination; planning- and priority-based historic resource protection; creative public education and interpretation; more efficient BLM, SHPO, and Council coordination, including program monitoring and dispute resolution; and other activities that will contribute to readily recognizable public benefits and to an expanded view of the Section 106 context, and

WHEREAS the BLM has consulted with the Advisory Council on Historic Preservation (Council) and the National Conference of State Historic Preservation Officers (NCSHPO) regarding ways to ensure that BLM's planning and management shall be more fully integrated and consistent with the above authorities, requirements, and objectives;

NOW, THEREFORE, the BLM, the Council, and the NCSHPO mutually agree that the BLM, after completing the actions summarized in I. below, will meet its responsibilities under Section 106, 110(f), and 111(a) through the implementation of the mechanisms agreed to in this agreement rather than by following the procedure set forth in the Council's regulations (36 CFR Part 800), and the BLM will integrate the manner in which it meets its historic preservation responsibilities as fully as possible with its other responsibilities for land-use planning and resource management under FLPMA, other statutory authorities, and executive orders and policies.

Components Of Agreement

I. Applicability

The Council's regulations (36 CFR Part 800) and existing State programmatic agreements will continue to apply to BLM undertakings under a State Director's jurisdiction until the Director and State Directors, with the advice of the Preservation Board, assisted by the Council, the NCSHPO, the SHPOS, and other participating parties, as appropriate, have updated and revised national BLM policies and procedures; developed State-specific BLM/SHPO operating

protocols; and trained all field managers and their cultural heritage staffs in the operation of the policies, procedures, and protocols. Field offices under a State Director's jurisdiction (including those under the jurisdiction of the Eastern States Director) will not begin to employ the streamlined procedures developed pursuant to this agreement until the Director has certified that the State Director's organization is appropriately qualified to do so.

2. Establishment of Preservation Board

a. The BLM's Director will establish a Preservation Board to advise the Director, Assistant Directors, State Directors, and field-office managers in the development and implementation of BLM's policies and procedures for historic properties. Authority, responsibilities, and operating procedures for the Preservation Board will be specified in the BLM Manual.

b. The Preservation Board will be chaired by the BLM's Preservation Officer designated under Section 110(c) of the NHPA, and will include a professionally qualified Deputy Preservation Officer from each State Office. The field management organization will be represented by at least three line managers (i.e., officials who are authorized by the Director's or State Directors' delegation to make land-use decisions).

c. The Preservation Board will perform primary staff work and make recommendations to the Director and State Directors concerning policies and procedures (3. below); bureauwide program consistency (3. below); training (6. below); certification and decertification of field offices (8. below); monitoring of field offices' historic preservation programs (9. below); and responses to public inquiries (9. below).

d. In addition, the Preservation Board will confer regularly with the Council and NCSHPO and involve them in its activities, as appropriate, including the development of the items listed in 2.c. The Preservation Board will also confer regularly with individual SHPOs and such other parties as have identified themselves to the Board as interested parties, including Tribal Preservation Officers, local governments, and preservation associations, to promote consistency with State, regional, and national practice, to identify recurrent problems or concerns, and to create opportunities in general to advance the purposes of this agreement.

e. The BLM will provide assistance, where feasible and appropriate, with reasonable and prudent expenses of the Council related to its activities pursuant to 2.c. and 2.d. above.

3. Revision of "Cultural Resource Management" Procedures

a. Within 6 months from the date of its establishment under 2. above, the Preservation Board will provide notice to Indian tribes and the public and, in accordance with 2.c. above, will

begin to review, update, revise, adapt, and augment the various relevant sections of its Manual (8100 Series). These are:

- 8100 - "Cultural Resource Management";
- 8110 - "Cultural Resource Identification";
- 8111 - "Cultural Resource Inventory and Evaluation";
- 8130 - "Cultural Resource Planning";
- 8131 - "Cultural Resource Management Plans";
- 8132 - "Cultural Resource Project Plans";
- 8140 - "Cultural Resource Protection";
- 8141 - "Physical and Administrative Protection";
- 8142 - "Recovery of Cultural Resource Data";
- 8143 - "Avoidance and/or Mitigation of Adverse Effects to Cultural Properties";
- 8150 - "Cultural Resource Utilization";
- 8151 - "Cultural Resource Use Permits";
- 8160 - "Native American Coordination and Consultation"; and
- II-8160-1 - "General Procedural Guidance for Native American Consultation."

b. Manuals will be revised in consultation with the Council, NCSHPO, and the SHPOs, and will consider the views of other interested parties who have identified themselves in response to 2.d. (above).

c. Procedures will be revised to be consistent with the purposes of (1) this agreement, (2) the principles and standards contained in the Council's regulations, "Protection of Historic Properties" (36 CFR Part 800); (3) the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* regarding identification, evaluation, registration, and treatment, (4) the Office of Personnel Management's classification and qualification standards as revised under Section 112 of the NHPA, and (5) other applicable standards and guidelines, and will include time frames and other administrative details for actions referred to in this agreement.

d. The BLM will ensure adequate public participation and consultation with parties outside the BLM when revising policy and procedures under 3.a. The BLM's procedures for implementing the National Environmental Policy Act (NEPA) will be used as appropriate for ensuring adequate public participation in the BLM's historic preservation decision making. Provisions of Section 110 of the NHPA and the Council's regulations will be the basis for tailoring the NEPA procedures to historic preservation needs. Mechanisms for continuing public involvement in BLM's historic preservation process will be incorporated in BLM/SHPO protocols under 5. below.

e. The BLM will provide Indian tribes and other Native American groups with appropriate opportunities for involvement. Consultation with tribes pursuant to Sections 101(d)(6) and 110(a)(2)(E) of the NHPA will follow government-to-government conventions. Procedures to ensure timely and adequate Native American participation will follow the direction

in Sections 101(d)(6) and 110(a)(2)(E) of the NHPA, and BLM Manual Section 8160 and Manual Handbook H-8160-1, as revised pursuant to a. and b. above. Revisions to the 8160 Manual Section and Manual Handbook will treat the cited NHPA direction as the minimum standard for Indian tribes' and other Native American groups' opportunities to be involved. Provisions for Native American participation in BLM's procedures for historic property identification, evaluation, and consideration of adverse effects will be incorporated in BLM/SHPO protocols under 5. below. For Indian tribes with historic preservation programs approved by the Secretary under Section 101(d)(2) of the NHPA, Tribal Preservation Officers will be involved in place of SHPOs when tribal land would be affected. Such involvement will occur under the Council's and/or the Tribe's procedures in all cases, not under this programmatic agreement.

f. It will be the Preservation Board's duty in accordance with 3.b. above to ensure that the policies and procedures, as revised pursuant to this section, are being followed appropriately by field offices. Where problems with implementation are found, it will be the Preservation Board's duty to move promptly toward effecting correction of the problems. This responsibility of the Preservation Board, among others, will be spelled out in the BLM Manual under 2.a. above.

4. Thresholds for Council Review

- a. The BLM procedures will identify circumstances calling for the Council's review:
- b. At a minimum, the BLM will request the Council's review in the following classes of undertakings:
 - (1) nonroutine interstate and/or interagency projects or programs;
 - (2) undertakings directly and adversely affecting National Historic Landmarks or National Register eligible properties of national significance;
 - (3) highly controversial undertakings, when Council review is requested by the BLM, an SHPO, an Indian tribe, a local government, or an applicant for a BLM authorization.

5. Cooperation and Enhanced Communication

- a. Immediately following execution of this agreement, the BLM will offer each affected SHPO and the Council (and others who have identified concerns under 2.d. above) the following information, and will provide or update as needed:

- a reference copy of the existing BLM Manual Sections and Manual Handbooks related to "Cultural Resource Management;
- a copy of any Handbook, Manual Supplement, or other standard procedure for "Cultural Resource Management" used by the BLM within an individual State Office's jurisdiction
- a list of Preservation Board members;
- a list of BLM cultural heritage personnel within each State Office's jurisdiction;
- a map of the State showing BLM field office boundaries and responsibilities;
- the best available map of the State showing tribal lands, ceded lands, and ancestral use areas; and
- a brief summary of land holdings, major ongoing development projects or permitted uses, proposed major undertakings such as land exchanges or withdrawals, and particularly significant historic properties on BLM lands within each State Office's jurisdiction.

b. Within 6 months after revised policies and procedures become available, each State Director will meet with each pertinent SHPO to develop a protocol specifying how they will operate and interact under this agreement. Where a State Director has few interactions with an SHPO due to minimal public land holdings, protocols need not be pursued and historic preservation consideration will continue to be carried out under the procedures of 36 CFR Part 800. Adoption of protocols, as formalized by the State Director's and SHPO's signatures, will be a prerequisite for the certification described in 8. The Preservation Board and the Council will be kept informed of the progress of protocol development, and will receive an information copy of any signed BLM/SHPO protocol. The SHPO and State Director may ask the NCSHPO, the Preservation Board, and the Council to assist at any stage in developing protocols.

At a minimum, protocols will address the following:

- the manner in which the State Director will ensure the SHPO's involvement in the BLM State management process;
- data sharing, including information resource management development and support
- data synthesis, including geographical and/or topical priorities for reducing the backlog of unsynthesized site location and report information, and data quality improvement;
- public education and community involvement in preservation;
- preservation planning;
- cooperative stewardship;
- agreement as to types of undertakings and classes of affected properties that will trigger case-by-case review (case-by-case review will be limited to undertakings that BLM finds will affect historic properties; the parties to this agreement agree that such case-by-case review will be minimized);
- BLM/SHPO approaches to undertakings involving classes of, or individual examples of, historic properties for which the present BLM staff lacks specialized capabilities;
- provisions for resolving disagreements and amending or terminating the protocol; and
- relationship of the protocol to 36 CFR Part 800.

c. As agreed under the protocol, but at least annually, the BLM will regularly send to the SHPO copies of forms and reports pertaining to historic properties, in a format appropriate to the SHPO's established recording systems, and consistent with the confidentiality provisions of Section 304 of the NHPA, so that information can be shared to the maximum extent and contribute to State inventories and comprehensive plans as well as to BLM land use and resource management planning.

d. The State Director, with the assistance of the Preservation Board, will seek, as appropriate, the SHPO's active participation in the BLM's land-use planning and associated resource management activities so that historic preservation considerations can have a greater influence on large-scale decisions and the cumulative effects of the more routine decisions, before key BLM commitments have been made and protection options have been limited. Where SHPO participation will be extensive, State Directors may provide funding, if available.

e. Relevant streamlining provisions of BLM Statewide programmatic agreements currently in force in Arizona, California, Colorado, Nevada, New Mexico, and Wyoming (and other programmatic agreements and/or formalized working arrangements between BLM and SHPOs in any State, relative to identifying undertakings, identifying properties, evaluating properties, determining effects, and protecting historic properties) may be incorporated in BLM/SHPO protocols as appropriate and as consistent with 5.b. above, after which the State Directors will notify the SHPO and Council that the Statewide agreements may be suspended for so long as this agreement remains in effect. Project and special purpose programmatic agreements will function normally according to their terms.

f. When potentially relevant to the purposes and terms of this agreement, the BLM will forward to the Council information concerning the following, early enough to allow for timely briefing and consultation at the Council's election:

- major policy initiatives;
- prospects for regulations;
- proposals for organizational change potentially affecting relationships addressed in this agreement;
- the Administration's budget proposals for BLM historic preservation activities;
- training schedules; and
- long-range planning and regional planning schedules.

6. Training Program

In cooperation with the Council and the NCSHPO, and with the active participation of individual SHPOs, the Preservation Board will develop and implement a training program to (a) instruct BLM line managers and cultural heritage program personnel on the policies underlying and embodied in this agreement, as well as specific measures that must be met prior to its

implementation, and (h) enhance skills and knowledge of other BLM personnel involved with "Cultural Resource Management" activities, including land use planning and resource management staffs. Training sessions will be open to Indian tribes, cultural resource consultants, and other parties who may be involved in the implementation of this agreement. The BLM may, where feasible and appropriate, reimburse the Council for assistance in developing training programs.

7. Professional Development

a. The Preservation Board, in consultation with the supervising line manager and cultural heritage specialist, will document each specialist's individual attainments as a preservation professional, consistent with OPM guidance and Section 112 of the NHPA and giving full value to on-the-job experience. Documentation will include any recommended limitations on the nature and extent of authorized functions. Where a field office manager's immediate staff does not possess the necessary qualifications to perform specialized preservation functions (e.g., historical architecture), the documentation will identify available sources of specialized expertise from outside the immediate staff, such as from other BLM offices, the SHPO, other Federal agencies, or non-governmental sources.

b. The Preservation Board, the supervising line manager, and the cultural heritage specialist will assess the manager's needs for special skills not presently available on the immediate staff, and the specialist's opportunities for professional development and career enhancement through training, details, part-time graduate education, and other means.

8. State Office Certification and Decertification

a. The Preservation Board, in consultation with the appropriate SHPO and the Council, will certify each BLM State Office to operate under this agreement upon determining that (1) managers and specialists have completed the training referred to in 7. above, (2) professional capability to carry out these policies and procedures is available through each field office's immediate staff or through other means, (3) each supervising line manager within the State has assigned and delimited cultural heritage specialists' duties, and (4) the State Director and the SHPO have signed a protocol outlining BLM/SHPO interaction in accordance with 5. above.

b. The Preservation Board may choose to review a field office's certification status. The field office's manager, the State Director, the Council, or the SHPO may request that the Preservation Board initiate a review, in which case the Preservation Board will respond as quickly as possible. If a field office is found not to have maintained the basis for its certification (e.g. the professional capability needed to carry out these policies and procedures is no longer available, or the office is not in conformance with the BLM/SHPO protocol, the procedures developed under 3. above, or this agreement) and the office's manager has not voluntarily

suspended participation under this agreement, the Preservation Board will recommend that the State Director decertify the field office. If a suspended or decertified field office is found to have restored the basis for certification, the Preservation Board will recommend that the State Director recertify the office.

c. A State Director may ask the Director to review the Preservation Board's decertification recommendation, in which case the Director will request the Council's participation in the review.

d. The Preservation Board will notify the appropriate SHPO(s) and the Council if the status of a certified office changes.

e. When a field office is suspended or decertified, the responsible manager will follow the procedures of 36 CFR Part 800 to comply with Section 106.

9. Accountability Measures

a. Each State Director will prepare an annual report in consultation with the appropriate SHPO(s), outlining the preservation activities conducted under this agreement. The annual report's content will be specified in the revised Manual. The report will be provided to the Council and made available to the public.

b. Once each year, the Council, in consultation with the BLM, SHPOS, and interested parties, and with assistance from the BLM, may select a certified State or States, or field offices within a State, for a detailed field review limited to the implementation of this agreement. Selecting parties may consider including other legitimate affected parties as participants in the review, as appropriate. The Preservation Officer and the appropriate Deputy Preservation Officer(s) and SHPO(s) will participate in the review. Findings and recommendations based on this field review will be provided to the Director, the State Director, and the Preservation Board for appropriate action.

c. The Preservation Officer and Deputy Preservation Officers will prepare responses to public inquiries for the Director's or a State Director's signature. This applies only to inquiries about the BLM's exercise of its authorities and responsibilities under this agreement, such as the identification, evaluation, and protection of resources, and not to general inquiries. Preparing responses will include establishing the facts of the situation and, where needed, recommending that the Director or State Director prescribe corrections or revisions in a practice or procedure.

d. Each meeting of the Preservation Board will be documented by a report. The Preservation Board will provide a copy of each report to the Council, the NCSHPO, and participating SHPOs.

10. Reviewing and Changing the Agreement

a. The parties to this agreement may agree to revise or amend it at any time. Changes that would affect the opportunity for public participation or Native American consultation will be subject to notice and consultation, consistent with 3.e. above.

b. Should any party to this agreement object to any matter related to its implementation, the parties will meet to resolve the objection.

c. Any party to this agreement may terminate it by providing 90 days notice to the other parties, provided that the parties will meet during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the BLM will comply with 36 CFR Part 800, including any relevant suspended State programmatic agreements (see 5.e. above).

d. Not later than the third quarter of FY 1999, and every two years thereafter, the parties to this agreement will meet to review its implementation.

Affirmation

The signatures below represent the affirmation of the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers that successful execution of the components of this agreement will satisfy the BLM's obligations under Sections 106, 110(f), and 111(a) of the National Historic Preservation Act.

/s/ Sylvia V. Baca	3/26/97
_____ Director, Bureau of Land Management	_____ Date
/s/ Cathryn B. Slater	March 26, 1997
_____ Chairman, Advisory Council on Historic Preservation	_____ Date
/s/ Judith E. Bittner	Mar 26, 1997
_____ President, National Conference of State Historic Preservation Officers	_____ Date

K.2.4.2 Addendum to the National Programmatic Agreement

5 Jan 2009

Addendum to the Programmatic Agreement among the Bureau of Land Management (BLM), The Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) Regarding the Manner in Which BLM will meet its Responsibilities under the National Historic Preservation Act (NHPA).

Basis for Addendum

WHEREAS, the undersigned recognize the complex and challenging mission of the BLM and the reliance of all signatories on the streamlining provisions and partnering commitments made possible by the subject national programmatic agreement (PA) for meeting the BLM's NHPA Section 106 compliance responsibilities;

WHEREAS, the BLM tribal consultation policy calls for State Directors, District Managers, and Field Office Managers to consult with tribes in government-to-government meetings to identify and consider their concerns in land use planning and decision-making, including development or revision of statewide cultural resource protocols and other agency guidance directing tribal consultation processes;

WHEREAS, the BLM has completed the following provisions in the 1997 PA: (1) establishment of a Preservation Board; (2) notification of Indian tribes and the public that it was beginning the review, revision, adaptation and augmentation of various relevant sections of its 8100 Manual series; (3) initial certification of the BLM State and Field Offices; and (4) establishment of a training program; and

WHEREAS, (1) the 36 CFR Part 800 regulations were revised in 1999 and 2004, (2) alternative procedures must be consistent with the regulations, and (3) the BLM is committed to ensuring that the BLM process for complying with the NHPA Section 106 affords tribes and consulting parties opportunities for participation consistent with 36 CFR Part 800 and Section 101 (d) (6) of the NHPA;

WHEREAS, the BLM completed a revision of the Guidelines for Conducting Tribal Consultation Handbook (H-8120-1 formerly H-8160-1), and Tribal Consultation under Cultural Resource Authorities Manual Section (8120 formerly 8160) and other manual sections to reflect the latest legal authorities in 2004;

WHEREAS, the signatories have determined the need to update the PA to incorporate further the role of Indian tribes;

WHEREAS, the BLM initiated an outreach effort in August 2008 that, through correspondence and listening sessions, invited tribal leaders to provide suggestions to the BLM on the PA and for making tribal coordination and consultation more effective;

NOW, THEREFORE, the BLM, the ACHP and the NCSHPO agree to the following addendum to this agreement:

Addendum 1: Consultation with Indian tribes:

The BLM shall continue holding listening sessions with tribes to achieve the goals of this addendum.

No later than 60 days from the date of the appointment of its new director, the BLM shall initiate the notification process to the public of its intent to update the PA in order to incorporate further the role of Indian tribes in the PA and any implementing mechanisms consistent with 36 CFR Part 800 and Section 101 (d) (6) of the NHPA.

No later than 6 months from the date of this addendum, the signatories (1) shall meet to discuss preliminary findings from tribal listening sessions, and (2) shall begin developing revisions to the PA consistent with 36 CFR Part 800 and Section 101 (d) (6) of the NHPA.

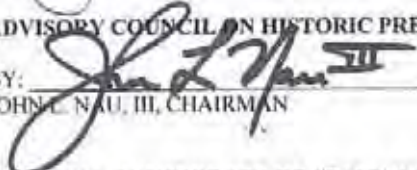
No later than 8 months from the date of this addendum, (1) the BLM shall provide signatories with a report on findings from the listening sessions, including any appropriate recommendations from the tribal listening sessions on the PA revisions, and (2) signatories shall report any new emphases resulting from the change in Administration that need to be considered.

No later than 12 months from the date of this addendum, the BLM, in consultation with the signatories and Indian tribes, shall develop mutually agreeable revisions to the PA to provide appropriate opportunities for tribal consultation and a process for developing subsequent implementing actions. Within 30 days after the BLM provides the proposed revisions, the signatories shall either (1) adopt the revisions; (2) determine that significant progress has been made to reach mutually agreeable revisions and allow additional time for such revisions to be made or a process for implementing actions to be developed; or (3) decide to revert to operation under 36 CFR Part 800.

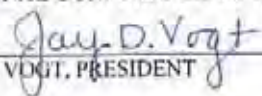
BUREAU OF LAND MANAGEMENT

BY: 
JAMES L. CASWELL, DIRECTORDATE: 1/16/09

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: 
JOHN L. NAU, III, CHAIRMANDATE: 2/4/09

NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS

BY: 
JAY D. VOGT, PRESIDENTDATE: 01-26-2009

1 Feb 2010

Amendment to Addendum to the Programmatic Agreement among the Bureau of Land Management (BLM), The Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) Regarding the Manner in Which BLM will meet its Responsibilities under the National Historic Preservation Act (NHPA).

WHEREAS, the BLM, the ACHP, and the NCSHPO executed the referenced Addendum on February 4, 2009;

WHEREAS, the signatories to the Addendum have determined it necessary to extend the time period provided in the Addendum for the development of mutually agreeable revisions to the Programmatic Agreement due to requests from consulting parties for an extension of the review period for various documents and due to the BLM's commitment to enhanced tribal consultation procedures under the agency's new leadership;

NOW, THEREFORE, the BLM, ACHP and NCSHPO agree to amend the referenced Addendum as follows:

In the first sentence of the last paragraph of the referenced Addendum, strike "No later than 12 months" and replace it with "No later than 18 months".

1 Feb 2010

Amendment to Addendum to the Programmatic Agreement among the Bureau of Land Management (BLM), The Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) Regarding the Manner in Which BLM will meet its Responsibilities under the National Historic Preservation Act (NHPA).

BUREAU OF LAND MANAGEMENT

BY: *Robert V. Abbey* DATE: 3-22-10
ROBERT V. ABBEY, DIRECTOR

K.2.4.3 Arizona Protocol

PROTOCOL FOR MANAGING CULTURAL RESOURCES ON LANDS ADMINISTERED BY THE BUREAU OF LAND MANAGEMENT IN ARIZONA

Purpose. This Protocol implements the Bureau of Land Management's (BLM) national cultural resources Programmatic Agreement (PA) in Arizona by describing how the Arizona State Historic Preservation Officer (SHPO) and the BLM will interact and cooperate under that agreement. The goal of this Protocol and the PA is to forge a more meaningful and productive partnership with the SHPO that will enhance the management of cultural resources under the BLM's jurisdiction.

Relationship of this Protocol to PMOA's and PA's. The Arizona statewide cultural resources Programmatic Memorandum of Agreement (PMOA) signed March 26, 1985, will be suspended when the State Director notifies the SHPO that Arizona BLM has begun operating under the terms of the national PA. The statewide PMOA will remain suspended for as long as the national PA and this Protocol are in effect.

The PMOA for land exchanges with the State of Arizona signed September 9, 1984, and its associated Memorandum of Agreement (MOA) signed December 31, 1984, will remain in effect and unmodified by the terms of the national PA. The land exchange PMOA and MOA are attached as Appendix 1.

Other PAs and MOAs may be developed when specific agreement documents are needed to define procedures for Section 106 compliance. When more than one federal agency is involved in an undertaking and BLM accepts lead responsibility for Section 106 compliance, the BLM and the SHPO may agree to follow the procedures of the national PA instead of developing a separate PA or MOA for the undertaking. When more than one federal agency is involved in an undertaking, and an agency other than BLM takes lead responsibility for Section 106 compliance, the national PA will not apply.

Opportunities for Involvement in BLM Management Processes. To encourage broader and more proactive participation by the SHPO in BLM's management activities, the BLM offers the following opportunities:

Planning Efforts. Each Field Office responsible for preparing a land use plan at the regional or local level will, when beginning its planning effort, invite the SHPO to participate in scoping for the purpose of identifying issues that should be addressed in the plan. The BLM will invite the SHPO to comment on any proposed cultural resource use allocations, whether these are made in regional, local, or project plans. Field Offices will send all draft and final land use plans and cultural resource project plans to the SHPO for review and comment.

Field Tours. BLM Field Offices will invite the SHPO to participate on public field tours relating to land use planning efforts or specific undertakings whenever cultural resources may be affected. The SHPO's views will specifically be requested with regard to management of the cultural resources involved.

Annual Work Plans. When Annual Work Plans are made final for a fiscal year, each Field Office Manager and/or cultural resource program manager will, at the discretion of the SHPO, meet with the SHPO to discuss the major tasks planned by that Field Office that are likely to affect cultural resources. The BLM will make every effort to answer any questions the SHPO has and will welcome any suggestions the SHPO offers to facilitate the accomplishment of these tasks in ways that meet heritage preservation goals. Such meetings may be at the State Historic Preservation Office or the BLM Field Office, as agreed between the Field Office Manager and the SHPO. For fiscal year 1998, Field Office Managers will personally attend the Annual Work Plan meeting with the SHPO.

Meetings. The SHPO is encouraged to meet with the Arizona State Office or a Field Manager at any time to discuss annual work plans, specific undertakings, outreach efforts, or other issues related to the BLM's management of cultural resources. The BLM will make every effort to arrange such meetings in a timely manner and to provide information requested by the SHPO.

Informal Consultation. The SHPO and Field Office personnel may consult informally at their discretion on specific undertakings or any aspect of the BLM's cultural resource management program. Such consultation is encouraged to take full advantage of the SHPO's experience with a broad range of agencies and historic preservation efforts statewide.

Cooperative Efforts. The BLM and the SHPO recognize the advantages of working together on a wide range of heritage preservation activities and will cooperatively pursue the following efforts:

Sharing and Facilitating the Use of Data. Each Field Office will send the SHPO copies of all cultural resource inventory reports, treatment (data recovery) reports, and BLM Project Records (Form AZ-8111-4) generated by actions initiated or authorized by BLM. This includes project records and inventory reports for actions in which no cultural resources are identified. Field Offices will provide these documents to the SHPO semi-annually, in January and June, to assist in keeping the State repository files current. Standards for preparing inventory and treatment reports are attached as Appendix 2.

Each Field Office will ensure that records for cultural properties under its jurisdiction are entered into the statewide automated cultural resource database (AZSITE). Because the SHPO is a partner in this database, no additional submission of cultural property records by Field Offices will be necessary.

The BLM and the SHPO will work together on an interagency cooperative data sharing project to develop a second-generation AZSITE database that will better serve the needs of agencies, academia, and the private sector. In Fiscal Year 1998, the BLM will enter into a data assistance agreement with the SHPO to facilitate development and cooperative use of this statewide database. Once the new AZSITE database is operational, allowing data entry through BLM Field Office computer terminals, and Field Office personnel are trained in its use, each Field Office will ensure that its cultural property records are entered into the database quarterly. This applies to cultural properties recorded by contractors as well as BLM personnel. Each Field Office will also ensure that the boundaries of areas inventoried for cultural properties are entered into the AZSITE Geographic Information System (GIS) quarterly. Existing cultural property records that have not yet been entered into AZSITE will be submitted to Arizona State Museum for data entry by the end of Fiscal Year 1998. Boundaries of inventoried areas for all Field Offices will be digitized into BLM's GIS by the end of Fiscal Year 1998. The SHPO will have unrestricted, read-only access to this automated data. The BLM will not enter into AZSITE information about traditional cultural places identified by Indian tribes as sensitive.

The BLM and SHPO will collaborate on ways to synthesize and use BLM data to meet mutual goals. For example, BLM data might be used in developing historic contexts to assist in evaluating and treating cultural properties.

Public Outreach. The BLM and SHPO will continue to work together as follows:

- *Project Archaeology.* Support Project Archaeology as a component of BLM's Heritage Education Program, with the goal of integrating the teaching of archaeological concepts and preservation ethics in Arizona schools statewide.
- *Archaeology Awareness Month.* Participate in Archaeology Awareness Month activities, including public presentations, field tours, and exhibits.
- *Avocational Societies.* Participate as advisors to avocational archaeological society members, encouraging their interest in learning about archaeology and their use of professional standards in field work.
- *Adventures in the Past.* Interpret cultural properties appropriate for use as exhibits-in-place, when funds are available, consistent with BLM's Adventures in the Past initiative.
- *Wonderful Outdoor World.* Participate in the Wonderful Outdoor World partnership program to increase environmental awareness, including historic preservation ethics, among urban youth.

Cooperative Stewardship. The BLM and SHPO will continue their strong partnership in the Arizona Site Steward Program. The BLM will support the Arizona Site Steward program financially, as funding permits, and through participation as land managers' representatives. In

some cases, BLM personnel may serve as Regional Coordinators to further the goals of the program.

Public Participation. The public will be encouraged to raise issues, express concerns, provide information and identify resources and places they would like the BLM to consider in decision making. The BLM will solicit such input through the public participation opportunities afforded by BLM's land use planning and environmental review processes. In addition, the BLM will be guided by the following document:

- *Public Participation in Section 106 Review: A Guide for Agency Officials*, issued by the Advisory Council on Historic Preservation, February 1989.

Native American Participation. The BLM, as an agency of the United States Government, has a unique legal relationship with Indian tribal governments that requires it to consult to the greatest extent practicable, and to the extent permitted by law, prior to taking actions that affect those tribal governments. The BLM recognizes that some cultural properties of traditional importance to Indian tribes can be identified only by those tribes, and that effects on such properties can be fully assessed only with tribal participation. The BLM also recognizes that, to be effective, consultation with tribes should be initiated at the beginning of project planning or land use planning. In meeting its responsibilities to consult with tribes under the National Historic Preservation Act, the BLM will, in addition to the public participation opportunities described above, be guided by the following documents:

- BLM Manual 8160, *Native American Coordination and Consultation*.
- BLM Handbook H-8160-1, *General Procedural Guidance for Native American Consultation*.
- *Suggested Consultation Guidelines for Agencies and Indian Tribes in Arizona*, developed at the Arizona Traditional Cultural Properties Workshop sponsored by the SHPO, October 5-6, 1995 (attached as Appendix 3).

Information pertaining to the nature and location of sites or areas that are of concern to Indian tribes or groups for religious or cultural reasons will be protected by BLM from public disclosure to the extent allowed by statute.

In meeting its responsibilities under the National Historic Preservation Act, the BLM will provide for the disposition of Native American human remains, funerary objects, sacred objects and objects of cultural patrimony from Federal land or tribal land in a manner consistent with section 3(c) of the Native American Graves Protection and Repatriation Act (NAGPRA). This may include the preparation of separate agreements with culturally affiliated tribes covering treatment and disposition of NAGPRA items.

Case-By-Case Review. The BLM will request the SHPO's review of the following kinds of undertakings. To facilitate review, the BLM will provide the SHPO with the associated environmental document for all such undertakings.

- Non-routine interstate and/or interagency projects or programs, as determined by either the BLM or the SHPO. Examples are interstate pipelines or transmission lines which involve multiple jurisdictions and require the preparation of Environmental Impact Statements.
- Undertakings directly and adversely affecting National Historic Landmarks or National Register-listed properties determined to be of national significance in accordance with Chapter V of *National Register Bulletin No. 16A*.
- Controversial undertakings when Council review is requested by the BLM, the SHPO, an Indian tribe, a local government, an applicant for a BLM authorization, or a member of the public who has a concern for an undertaking's effect on specific historic properties. Controversial undertakings are understood to be those which have received a high level of media attention and/or have been brought to the attention of BLM's Washington Office through requests for assistance.
- Undertakings that will have an adverse effect on historic properties when BLM determines that the adverse effect cannot be satisfactorily avoided, minimized or mitigated through treatment.
- Land exchanges and sales exceeding 640 acres of public land when the BLM proposes to do less than a Class III survey to identify cultural properties. In such cases, the BLM will consult with the SHPO to ensure that the survey will adequately characterize past human use of the area and address relevant research questions.

Obtaining Specialized Expertise. When the BLM is involved in an undertaking requiring expertise not possessed by available BLM staff (e.g., architectural history, Native American oral traditions), it will obtain that expertise for the purpose of determining National Register eligibility, effects and treatment for the cultural properties in question. The BLM may request the assistance of SHPO staff in such cases or may obtain the necessary expertise through contracts, BLM personnel from other states, or cooperative arrangements with other agencies.

Annual Report. The Arizona State Office will provide an annual report to the SHPO containing summary information on activities conducted under the PA. This report will be limited to information excerpted from the Cultural Resource Program Annual Report submitted to BLM's Washington Office and will be provided to the SHPO by December 15th each year. Any questions the SHPO may have about the information in this report will be answered by the Arizona State Office or the appropriate Field Office. The current format for the annual report to be provided to the SHPO is attached as Appendix 4.

Resolving Issues. If, at any time, the BLM or the SHPO question an action taken by the other under this Protocol, they will consult to resolve the issue. If the issue concerns an action taken by a Field Office, the questioning party will consult with the Field Manager to resolve it. If the issue cannot be resolved, the questioning party will request the Deputy Preservation Officer to assist in

resolving it. If the issue still cannot be resolved, the Deputy Preservation Officer will refer it to the BLM Preservation Board. The BLM Preservation Board will provide recommendations to the State Director, who will make a final decision.

If the BLM and SHPO do not agree on the National Register eligibility of a cultural property, the question will be referred to the Keeper of the Register for a final determination.

If a member of the public or an Indian tribe objects at any time to the manner in which this Protocol is being implemented, the BLM and the SHPO will together consult with the objecting party to resolve the issue. If the BLM, SHPO and objecting party are unable to resolve the objection, the BLM will refer the issue to the BLM Preservation Board. The BLM Preservation Board will provide recommendations to the State Director, who will make a final decision. In accordance with the 36 CFR 800 regulations, any member of an Indian tribe or the interested public may request the Council to review determinations made by the BLM or SHPO on a specific undertaking before the final decision has been made.

Amending the Protocol. If the BLM or the SHPO wish to amend this Protocol at any time, they will consult to consider requested changes. Amendments will become effective when signed by both parties.

Terminating the Protocol. The BLM or the SHPO may terminate this Protocol by providing ninety days notice to the other party, providing that they consult during this period to seek agreement on amendments or other actions that would avoid termination. The Deputy Preservation Officer may request the assistance of the BLM Preservation Board, National Conference of State Historic Preservation Officers, or the Council in the consultation. If the Protocol is terminated, the BLM will resume operating under the provisions of its statewide PMOA.

Other State-Specific Procedures. In addition to the procedures described in Bureauwide directives, Arizona will be guided by manual supplements issued by the Arizona State Office. Presently, these consist of Arizona Manual Supplements 8111 (Inventory and Evaluation), 8141 (Physical and Administrative Protection Measures), 8142 (Recovery of Cultural Resource Data), 8143 (Avoidance and/or Mitigation of Effects), and 9239 (Unauthorized Uses). The BLM will update these manual supplements as needed to conform to Bureauwide directives, policies issued by the Arizona State Director, new laws, and new regulations. The SHPO will participate in revising the Arizona Manual Supplements.

Appendices:

1. Arizona PMOA and MOA for land exchanges with the State of Arizona.
2. BLM Standards for Preparing Cultural Resource Reports
3. Suggested Consultation Guidelines for Agencies and Indian Tribes in Arizona
4. Annual Report format

Approved by:

Denise P. Merdith
Arizona State Director, Bureau of Land Management

11/9/97
Date

James W. Garrison
Arizona State Historic Preservation Officer

11/7/97
Date

K.2.4.4 California Protocol

STATE PROTOCOL AGREEMENT

AMONG

**THE CALIFORNIA STATE DIRECTOR OF THE BUREAU OF LAND
MANAGEMENT**

AND

THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

AND

THE NEVADA STATE HISTORIC PRESERVATION OFFICER

REGARDING

**THE MANNER IN WHICH THE BUREAU OF LAND MANAGEMENT WILL
MEET ITS RESPONSIBILITIES UNDER**

THE NATIONAL HISTORIC PRESERVATION ACT

AND

THE NATIONAL PROGRAMMATIC AGREEMENT

**AMONG THE BLM, THE ADVISORY COUNCIL ON HISTORIC
PRESERVATION, AND THE NATIONAL CONFERENCE OF STATE HISTORIC
PRESERVATION OFFICERS**

Please note: Only the Main Protocol, Appendix D, and Appendix E are included in this EIS; the other portions of the document may be accessed online at:
http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning_and_Renewable_Resources/coop_agencies/cr_publications.Par.40951.File.dat/CA_Protocol_Distribution_Copy.pdf.

Revised 2007

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STATE PROTOCOL AGREEMENT

AMONG

THE CALIFORNIA STATE DIRECTOR OF THE BUREAU OF LAND
MANAGEMENT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
AND
THE NEVADA STATE HISTORIC PRESERVATION OFFICER

REGARDING

THE MANNER IN WHICH THE BUREAU OF LAND MANAGEMENT WILL
MEET ITS RESPONSIBILITIES UNDER
THE NATIONAL HISTORIC PRESERVATION ACT
AND
THE NATIONAL PROGRAMMATIC AGREEMENT
AMONG THE BLM, THE ADVISORY COUNCIL ON HISTORIC
PRESERVATION, AND THE NATIONAL CONFERENCE OF STATE HISTORIC
PRESERVATION OFFICERS

PREAMBLE

The Bureau of Land Management (BLM) has developed a National Programmatic Agreement (National PA) that governs the manner in which the BLM shall meet its responsibilities under the National Historic Preservation Act (NHPA).

This State Protocol Agreement has been developed pursuant to provisions of the National Programmatic Agreement (Appendix A) and revises the provisions of State Protocol Agreement between the California State Director of the Bureau of Land Management and the California State Historic Preservation Officer, executed on October 23, 2004. This revised State Protocol Agreement (Protocol) will have full force and effect upon its execution by signature of all parties.

Authorities and Responsibilities

Bureau of Land Management. The California State BLM, consistent with its authorities and responsibilities under the Federal Land Policy and Management Act of 1976 (FLPMA), is charged with managing public lands located in the States of California and Nevada, in a manner that will "protect the quality of scientific, scenic, historical, ecological,

environmental, air and atmospheric, water resource, and archaeological values," and "that will provide for outdoor recreation and human occupancy and use."

Authorities for managing cultural resources and programs of historic preservation exist under the National Environmental Policy Act (NEPA, Pub. L. 91-190), the Federal Lands Policy and Management Act (FLPMA, Pub. L. 91-579), the Archaeological Resources Protection Act (ARPA, 16 USC 470), the Native American Graves Protection and Repatriation Act (NAGPRA, 25 USC 3001), the Historic Sites Act of 1935 (Pub. L. 73-292), the Antiquities Act of 1906 (16 USC 431-433), the American Indian Religious Freedom Act (AIRFA, Pub. L. 95-341), Executive Order 13007 ("Sacred Sites", 61 FR 105), and the National Historic Preservation Act of 1966 as amended (NHPA, Pub. L. 89-665).

A National PA among the BLM, the Advisory Council on Historic Preservation (Council), and the National Conference of State Historic Preservation Officers (NCSHPO) sets forth the manner in which responsibilities deriving from the NHPA shall be met. In the event of termination of the National PA, the parties to this Protocol shall promptly enter consultations to convert this Protocol into a statewide Programmatic Agreement pursuant to 36 CFR 800.6 and 800.14(b) (August 5, 2004) (Appendix C).

In carrying out its responsibilities both under the National PA and statutory authorities, the BLM has developed policies and procedures through its directives system (BLM Manual Series 8100-8170) (Appendix B) to guide the BLM's planning and decision making as it pertains to historic properties and historic preservation. BLM employs a professional staff of Cultural Resource specialists to advise the BLM's managers, to represent the State Historic Preservation Officers for California and Nevada solely for the purposes of Protocol implementation, and to implement cultural resource policies consistent with these authorities throughout its lands in California and those it manages in Nevada.

State Historic Preservation Officers. The State Historic Preservation Officers (SHPO) for California and Nevada have responsibilities under Section 101(b)(3) of the NHPA including to "advise and assist as appropriate, Federal and State agencies and local governments in carrying out their historic preservation responsibilities," and to "consult with the appropriate Federal agencies in accordance with the NHPA on Federal undertakings that may affect historic properties, and the content and sufficiency of any plans developed to protect, manage, or to reduce or mitigate harm to such properties." The acronymic term "SHPO" as used in this Protocol refers to both the California and Nevada State Historic Preservation Officers unless specified otherwise.

In certain cases others may be authorized to act in place of the SHPO; this Protocol authorizes, within certain limits, BLM professional Cultural Resource staff to act in the place of the SHPO for California and Nevada solely within the scope of this Protocol. Where the Secretary of the Interior has approved an Indian tribe's preservation program pursuant to Section 101(d)(2) of the NHPA, a Tribal Historic Preservation Officer (THPO) may perform SHPO functions with respect to tribal lands. This Protocol does not apply to tribal lands.

Purpose of this Protocol

This Protocol prescribes the manner in which the BLM and the SHPO shall cooperatively implement the National PA in California and in portions of Nevada managed by California BLM. It is intended to ensure that the BLM organizes its programs to operate efficiently and effectively in accordance with the intent and requirements of the NHPA and that the BLM integrates its historic preservation planning and management decisions with other policy and program requirements. The Protocol streamlines the NHPA Section 106 (Section 106) process by eliminating case-by-case consultation with the SHPO on undertakings that culminate in “no historic properties affected” (36 CFR 800.4(d)(1)) and “no adverse effect” findings (36 CFR 800.5(b)). The Protocol also requires development and management of a Historic Preservation Program (Section 110 of the NHPA) and implementation of the Program by each Field Office in partial exchange for relief from the case-by-case procedural requirements of 36 CFR 800. The Historic Preservation Program (Appendix E) is attached to this Protocol and will have immediate force and effect upon execution of this Protocol.

Supplemental procedures attached to this Protocol by approved amendments provide procedures that are specific to individual programs or functions (refer to Stipulation IX.C). Such supplemental procedures may not necessarily have the same geographic scope as this Protocol. Such limits, if any, are defined within the Amendments or in an ancillary implementing agreement pertaining to a particular Amendment.

Applicability of this Protocol

This Protocol, subject to threshold limitations specified in Stipulation VI, applies to all programs, funding initiatives, actions or decisions under the statutory or regulatory authority of the BLM that, regardless of land ownership, may affect historic properties. Public lands administered by California BLM within California and Nevada and other public lands within California administered by the Arizona offices of BLM are included within the scope of applicability of this Protocol unless alternative agreements are reached subsequent to adoption of this Protocol and which are attached to this Protocol by approved amendments. However, this Protocol shall not apply to tribal lands, but rather, a proposed BLM undertaking on tribal lands will require consultation among the BLM, the THPO, tribal officials, the SHPO (where no Tribal Preservation Program exists), and the Council; and such consultation shall be outside the compass of this Protocol and shall follow 36 CFR Part 800 or the Indian tribe's program alternative to 36 CFR Part 800.

Effect of this Protocol

This Protocol establishes the procedures that govern the interaction between BLM and the SHPO under the National PA. The goals of this Protocol and the National PA are to enhance management of historic properties under the BLM's jurisdiction or control and to ensure appropriate consideration of historic properties beyond the BLM's jurisdiction, but which may be affected by its actions. Undertakings involving non-federal lands for which BLM is the lead agency or for which the BLM has provided funding shall be considered federal actions and shall be subject to requirements outlined in this Protocol.

1 The BLM and the SHPO mutually agree that execution of this Protocol and implementation
 2 of its terms will evidence satisfactory compliance by the BLM with the requirements of the
 3 National PA and 36 CFR 800, the implementing regulations for Section 106 of the National
 4 Historic Preservation Act.

5 6 **Roles of Agency Personnel with Responsibilities under this Protocol**

7
8 **State Director:** Meets annually with State Historic Preservation Officer and may meet more
 9 frequently upon request of either the BLM or the SHPO. Enters into Programmatic
 10 Agreements of statewide, multiple states, or multiple Field Offices scope with the SHPO, the
 11 Council, and other Agencies for implementing Section 106 in specific circumstances not
 12 covered by this Protocol.

13
14 **Field Office Managers:** Concur in recommendations and determinations developed by
 15 professional Cultural Resource staff, including but not limited to, Area of Potential
 16 Effect (APE), eligibility, no historic properties affected, and no adverse effect. Consult
 17 formally with SHPO as appropriate (Stipulation VI) and when there is unresolved
 18 disagreement with Cultural Resource staff determinations. Ensure necessary training for
 19 cultural staff, availability of cultural resources funding for preservation projects and
 20 implementation of the Historic Preservation Program and American Indian consultation for
 21 Section 106 projects consistent with Manual direction and 36 CFR 800. Execute Memoranda
 22 of Agreement for adverse effects and Programmatic Agreements which are limited to specific
 23 Field Offices. The Field Office Manager is responsible for ensuring that all cultural
 24 resources documentation for an undertaking is completed within 30 calendar days of the
 25 execution of its decision document. The Field Office manager may delegate the authority to
 26 operate under Protocol to others who have received the required training in its use and
 27 application.

28
29 **Deputy Historic Preservation Officer:** Oversees implementation of the Protocol; conducts
 30 reviews and Protocol training; recommends certification, provisional certification,
 31 decertification, and recertification of Field Offices; reviews or develops Programmatic
 32 Agreements and Memoranda of Agreement; may lead consultation with the SHPO in specific
 33 cases; and submits reports and information to the SHPO concerning implementation of the
 34 Protocol.

35
36 **Field Office Cultural Resource Staff:** Make, without formal SHPO consultation,
 37 determinations of Areas of Potential Effect (APE) and NHRP eligibility and make findings of
 38 no historic properties affected and no adverse effect. Develop sample-based inventories and
 39 seek informal opinion of SHPO staff when appropriate. Maintain cultural resource records
 40 and transmit reports and records to electronic and physical repositories appropriate for each
 41 State party to this Protocol. Maintain professional knowledge and ability. Develop and
 42 implement Section 110 programs and projects according to the guidance provided in the
 43 Historic Preservation Program (Appendix E).

Definitions of Terms Used in this Protocol

The terms used in this Protocol are defined within the body of the Protocol itself or in appended documents. Definitions may be found in BLM Manual Series 8100 at "Glossary of Terms" and in 36 CFR 800.16 (a-z).

I. RELATIONSHIP OF PROTOCOL TO OTHER AGREEMENTS

Existing California statewide programmatic agreement documents were terminated in the Statewide Protocol executed on October 25, 2004. No programmatic agreements in Nevada were affected by that termination or are terminated by this Protocol.

Future development of programmatic agreement documents pertaining to specific aspects of the Cultural Resource Program is not precluded by this Protocol. Undertaking-specific programmatic agreements in force at the time of the execution of this Protocol shall continue to function normally according to their terms.

II. PROCEDURES

The following procedures shall be implemented by the BLM under this Protocol:

A. MEETINGS

The SHPO and the State Director, with their respective staffs shall meet annually to review BLM's implementation of the Protocol, annual reports of activities, and other pertinent issues. The Advisory Council may be invited to participate in order to facilitate the Council's general oversight of the Section 106 process. At the annual meeting, the SHPO and BLM shall exchange information relevant to achieving the goals and objectives set forth in this Protocol. At any time the SHPO or the State Director may convene a meeting to discuss issues. This Protocol encourages its parties, including staff and cultural resource specialists, to meet and to consult informally and frequently in order to maintain appropriate communication, to seek informal opinion and advice, and share information and knowledge.

B. COMMUNICATING BY REPORTING

The BLM shall inform the SHPO of activities carried out under this Protocol by developing and submitting reports annually to the SHPO as specified below.

1. Field Offices.

- Information by Field Office detailing use of the Protocol, including exemptions and determinations of eligibility, for Section 106 actions no later than December 1 following the prior fiscal year, or by an alternative date negotiated with SHPO by the Deputy Historic Preservation Officer. Information may be provided by approved electronic means.

Information by Field Office detailing Historic Preservation Program (Section 110) accomplishments for each Field Office no later than December 1 following the prior fiscal year, or by an alternative date negotiated with SHPO by the Deputy Historic Preservation Officer. Information may be provided by approved electronic means.

2. State Office. The Deputy Historic Preservation Officer shall review the annual reports on Section 106 actions and Section 110 activities submitted by the Field Offices. Based on that review, the Deputy Historic Preservation Officer shall develop a summary report for submission to SHPO by the State Director. The report may identify need for further review of specific Field Office programs if necessary. Information may be provided by approved electronic means.

C. PROFESSIONAL FINDINGS, DETERMINATIONS AND RECOMMENDATIONS

This Protocol authorizes BLM's professional cultural resource staff to act on the SHPO's behalf under limited circumstances. Within those limits, BLM's cultural resource staff may define APEs, define scope of inventory, conduct and oversee inventory, develop determinations of eligibility, no historic properties affected, and no adverse effect, and apply exemptions (Appendix D of this Protocol), without involvement of the SHPO. The Field Office Manager may elect to concur with the recommendations and determinations prepared by the Cultural Resource staff. When professional findings, determinations and recommendations are accepted by the Field Office Manager, no SHPO consultation is required. However, when professional determinations or recommendations including, but not limited to, APE, scope of inventory, determinations of National Register eligibility, findings of no historic properties affected and no adverse effect, and application of exemptions are not accepted by the Field Office Manager, the Field Office Manager shall in each such case initiate consultation with the SHPO under 36 CFR 800 and BLM Manual Series 8110.

D. SHPO INVOLVEMENT IN THE BLM CULTURAL RESOURCE PROGRAM

To encourage broad participation by the SHPO in the BLM Cultural Resource Program, the following involvement opportunities are extended to the SHPO:

1. Planning Efforts. At the earliest stage of the planning process, each Field Office responsible for preparing a land use plan or significant amendments or revisions at the regional or local level shall ensure invitation of the SHPO to participate in the planning effort (Manual 8130), including seeking SHPO comment on proposed resource use allocations. In writing, the SHPO may elect not to participate in specific planning efforts. The BLM shall consider the views of the SHPO on specific planning efforts when those views are expressed in writing. An agreement document specific to the planning effort may be requested by either party. All draft and final land use plans shall be submitted to the SHPO for review and comment. Completion of the consultation process for planning will be indicated by BLM's written response to the SHPO's comments on the draft land use or cultural resource project plans. No decision documents for planning shall be issued prior to completion of the consultation.

2 Use Allocations. The BLM may invite the SHPO to comment on proposed use
3 allocations for evaluated cultural resources (Manual 8110.4); the SHPO may elect to review
4 resource use allocations at any time.

5 3. Field Tours. BLM Field Offices may invite the SHPO to participate in field tours relating
6 to land use planning efforts or specific undertakings whenever cultural resources may be
7 affected

8
9 4. Contact. Formal consultation outside the scope of this Protocol will be conducted between
10 the SHPO and the BLM Field Office Managers in consultation with the Deputy Historic
11 Preservation Officer. BLM Field Office Managers, in coordination with Field Office
12 Cultural Resource staff, may also contact SHPO staff informally regarding specific project
13 review status. The SHPO staff and BLM Cultural Resource staff are encouraged to
14 communicate at their discretion on general concerns or issues related to specific
15 undertakings. Informal consultation shall be documented by BLM Field Office staff;
16 documentation shall be retained in appropriate files under the control of the BLM Field
17 Office Cultural Resources staff.

18
19 5. Internal BLM Program Review. BLM shall invite SHPO participation in internal Field
20 Office program reviews and shall provide reports of reviews, exclusive of findings and
21 recommendations specific to personnel matters. The scope of review opportunities is
22 detailed in Stipulation III.E of this Protocol.

23
24 In keeping with the Protocol's stated goal of encouraging participation by SHPO in BLM's
25 Cultural Resource Program, additional opportunities may be identified by BLM or may be
26 requested by the SHPO.

27 28 29 **III. PROGRAM DEVELOPMENT AND ACTIVITIES**

30
31 **A. Preservation Planning.** In return for the procedural flexibility that this Protocol provides
32 in meeting 36 CFR 800 responsibilities, BLM commits to fulfill the responsibilities
33 enumerated in Section 110 of NHPA. The State Director shall implement a Heritage
34 Preservation Program (HPP). The HPP (Appendix E) shall become an Amendment to this
35 Protocol and shall guide BLM in achieving measurable progress toward compliance with
36 Section 110 of NHPA. The HPP may include, but shall not be limited to, programs of
37 evaluation and National Register nomination, monitoring for historic property condition and
38 ARPA, stabilization and preservation, inventory, documentation of known but unrecorded
39 properties, research, interpretation, training and professional contributions, and public
40 involvement in historic preservation activities.

41
42 **B. Curation.** BLM will ensure to the greatest extent possible that curation and disposition of
43 all archaeological materials and data from Federal lands conform to Manual Sections 8110
44 and 8160 and other Sections as appropriate. Management of non-Federal archaeological
45 materials and data will be consistent with applicable law and professional curation
46 requirements as negotiated with non-Federal landowners or managers. Non-museum

collections may be maintained at Field Offices, but only under appropriate curatorial conditions and with appropriate documentation.

C. Data Sharing and Information Management.

1. Documentation of Findings. All cultural resources investigations associated with implementing this Protocol regardless of findings shall be documented to the standards stipulated in Manual 8110.5 and written guidance of the SHPO of California and of Nevada. BLM cultural staff shall document all determinations, findings, and recommendations made under this Protocol. Such determinations, findings, and recommendations include, but are not limited to, delineating areas of potential effect, determining National Register eligibility, applying exemptions, findings of effect, and other findings and determinations. Documented determinations, findings, and recommendations shall be retained as described in Stipulation III.C.3 of this Protocol.

The procedures governing the manner in which such documentation is submitted to each SHPO and the manner in which such documentation is incorporated into permanent repositories shall be made explicit in codicillary agreements between or among the BLM and the SHPO of California and Nevada within three months of the execution date of this Protocol. Such agreements shall become part of this Protocol.

2. Exchange of Data. BLM has developed and maintains a geodatabase for cultural resources and cultural resource investigations in a Geographic Information System (GIS) in accordance with Section 112(2) of the NHPA and Manual 8110.5.52(B). The geodatabase shall be updated with newly recorded and re-recorded resource and investigation data. Initiatives shall be undertaken to input legacy data. BLM and SHPO shall jointly work to implement the electronic submission of records for tracking agency actions. BLM and SHPO will work to insure the program meets BLM and SHPO needs.

3. Records Management. BLM shall maintain complete, current, and permanent records for cultural resources activities, including but not limited to survey areas, findings, determinations, reports, historic property records, archaeological site records, and correspondence, to fully document fulfillment of its responsibilities under this Protocol, and other laws, regulations, and policies. Records management shall conform to the standards and policies at Manual 8110.5 and standards and procedures developed subsequent to execution of this Protocol. Records pertaining to undertakings shall be retained in files, under the control of Field Office professional Cultural Resource staff, which document inventory efforts, research designs, peer reviews, assessment of effects and impacts, and use of exemptions (Appendix D). Records shall include, but shall not be limited to, site records, monitoring and condition reports, effect findings, determinations of eligibility, images, use allocations, and cross references to other files or archived documents which contain information pertaining to the individual property.

Non-sensitive cultural resource compliance documents, including findings, determinations, and recommendations may be disclosed to the public. However, the State Director has determined, under the authority of Section 304 of NHPA and consistent with Section 9 of

ARPA, that public disclosure of the location and character of cultural resources may risk harm to those resources. Sensitive cultural resource information under the control of BLM, regardless of ownership of the resource, shall not be disclosed to the general public and such information shall not be stored in documents open to the general public. This determination notwithstanding, the BLM may characterize cultural resources in writing sufficiently for the purposes of required analyses under NEPA and cultural resource information may be disclosed when such disclosure is deemed to advance management purposes.

D. Professional Development and Training

Training and development are key elements in maintaining the effectiveness of the Protocol. Field Managers and others who may act in the role of Field Office managers within the scope of this Protocol shall receive training at the beginning of their tenure and annually thereafter.. The SHPO shall be offered the opportunity to assist the BLM in Protocol training

Annually, Cultural Resource staff shall receive training in the use and implementation of the Protocol including the procedural requirements of 36 CFR 800 which are to be implemented in instances where the Protocol does not apply. The Deputy Historic Preservation Officer shall identify and arrange annual opportunities for specialized cultural resource training. BLM Cultural Resource staff shall meet yearly, usually in conjunction with the Society for California Archaeology meetings, to participate in workshops, training, exchange information, and to discuss issues concerning the Cultural Resource program. The SHPO shall be offered the opportunity to assist the BLM in on-going training of supervisors and Cultural Resources staff in the implementation of the Protocol.

Field Offices, in consultation with State Office Cultural Resources staff, shall devise professional development plans for their Cultural Resource staff to ensure that current professional standards in the discipline can be met and maintained, and training needs identified. Training received shall be reported as a component of annual reporting (Stipulation II.B).

BLM recognizes that staying current in relevant professional literature and participation of Cultural Resource staff in professional societies and annual meetings (e.g., Society for California Archaeology, Society for American Archaeology, Society for Historical Archaeology, California Council for the Promotion of History, Society of Architectural Historians) is integral to staying abreast of developments and advances in the discipline, for enhancing professional knowledge and skills, and for providing opportunities for leadership and service to the profession.

Annual participation by Field Offices in Protocol training and implementation of professional development in appropriate individual development plans (IDP) for Cultural Resource staff shall be key considerations for continuing certification of individual Field Offices.

E. Reviews of Field Office Performance under this Protocol

Professional review of Field Office program operations is an essential and mandatory component of the BLM's Cultural Resource program and this Protocol, especially as it pertains to certification (Stipulation VIII of this Protocol). Ensuring that such review takes place is a primary function of the Deputy Historic Preservation Officer. Reviews may involve any aspect of a program's function including, but not limited to, documentation, findings and recommendations, record keeping and curation, security, and professional contributions. The intent of such reviews is to improve operations at individual Field Offices and to improve the Cultural Resource Program.

Three levels of internal review are available to the Deputy Historic Preservation Officer: Annual Review; Technical Review; and Program Review.

Annual Review. Consistent with provisions of the National PA, the Deputy Historic Preservation Officer shall assess annually each Field Office's ability to implement the provisions of the Protocol. The Annual Review will be based primarily on information and data submitted for the Annual Report required in Stipulation II.B of this Protocol, however, other data may be considered. The Deputy Historic Preservation Officer shall document the findings of the annual review and the State Director shall submit that report to the SHPO. When recommendations to correct deficiencies receive SHPO concurrence and are accepted by the State Director, implementation of such recommendations shall become the responsibility of each Field Office manager who shall be required to initiate corrective actions within sixty (60) days from the date the recommendations are accepted by the State Director. Depending on the nature of the identified deficiencies, the State Director may elect to place a Field Office in provisional status according to the procedures described at Stipulation VIII.B of this Protocol.

Technical Review. Consistent with provisions of the National PA, the Deputy Historic Preservation Officer shall determine whether Field Offices are maintaining an appropriate level of technical capability and performance in particular program elements. Such elements may include, but are not limited to, record-keeping, documentation of Protocol actions, Section 110 actions, curation, inventory documentation, determinations, budget issues, and findings from Annual Reviews. The Deputy Historic Preservation Officer shall document the findings of the Technical Review and the State Director shall submit that report to the SHPO. When recommendations to correct deficiencies receive SHPO concurrence and are accepted by the State Director, implementation of such recommendations shall become the responsibility of each Field Office Manager, who shall be required to initiate corrective actions within sixty (60) days from the date the recommendations are accepted by the State Director. Failure to initiate corrective actions within the specified time or failure to correct the deficiencies shall require the State Director to consider, in consultation with the Deputy Historic Preservation Officer and SHPO, actions under Stipulation VIII of this Protocol.

Program Review. Consistent with provisions of the National PA, the Deputy Historic Preservation Officer shall determine whether Field Office Cultural Resource programs are fully functional in their ability to implement the Protocol. Program reviews are broad-based

1 reviews of the entire Cultural Resource program at a Field Office, although such a review
 2 may focus on particular areas of interest. The Deputy Historic Preservation Officer shall
 3 invite the participation of the SHPO, document the findings of the Program Review and the
 4 State Director shall submit that report to the SHPO. Should deficiencies be identified, the
 5 Deputy Historic Preservation Officer shall develop corrective recommendations. When such
 6 recommendations receive SHPO concurrence and are accepted by the State Director,
 7 implementation of such recommendations shall become the responsibility of each Field
 8 Office manager, who shall be required to initiate corrective actions within sixty (60) days
 9 from the date the recommendations are accepted by the State Director. Failure to initiate
 10 corrective actions within the specified time or failure to correct the deficiencies shall require
 11 the State Director to consider, in consultation with the Deputy Historic Preservation Officer
 12 and SHPO, actions under Stipulation VIII of this Protocol.

13
 14 From time to time, in order to ensure that actions of BLM professional staff retain a high
 15 level of professionalism, the SHPO may request that particular documents be subjected to
 16 external professional peer review. BLM may prepare peer review guidelines in consultation
 17 with the SHPO or may elect to accept existing peer review guidelines proffered by the
 18 SHPO. The SHPO and the BLM agree that peer review shall not delay the implementation
 19 of undertakings.

20 21 22 **IV. AMERICAN INDIAN PARTICIPATION**

23
 24 BLM recognizes the importance of the continuing government-to-government relationship
 25 with tribal entities and the importance of consultation on specific undertakings. BLM shall
 26 follow 36 CFR 800.2(c)(2) and the procedures and guidelines established in BLM Manual
 27 8120 and BLM Handbook 8120-1 in order to conduct consultation with the American Indian
 28 community for undertakings under this Protocol or any of its Amendments. BLM supports
 29 and encourages the reciprocal sharing of sensitive cultural information with Federally
 30 recognized tribes during consultation for specific undertakings.

31
 32 Non-Federally recognized tribes, Indian communities and individual members shall be
 33 encouraged to raise issues, express concerns during public scoping for specific undertakings.
 34 BLM supports and encourages the reciprocal sharing of sensitive cultural information with
 35 non-Federally recognized tribes, Indian communities and individual members during
 36 planning for specific undertakings. The BLM shall solicit such input through the public
 37 participation opportunities afforded by BLM's land use planning and environmental review
 38 processes, government-to-government consultation and the development of Agency/Tribe
 39 protocol agreements. BLM shall take into account any confidentiality concerns raised by
 40 Indian tribes and American Indian traditional practitioners during the identification process.

V. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

A. Consultation with Tribes and Traditional Practitioners

Consultation with tribes and traditional practitioners underlies all subsequent identification and evaluation activities conducted under this Protocol. The Field Office Manager shall ensure that consultation with tribes and traditional practitioners takes place at the earliest stages of planning for projects. The Field Office Manager shall be prepared to continue consultation throughout the planning and implementation stages of an undertaking. Guidance for consultation is provided in BLM Manual 8120 and BLM Handbook 8120-1.

B. Public Involvement

BLM shall provide adequate opportunity for the public to express views by seeking and considering those views when carrying out actions under this Protocol. BLM shall coordinate this public participation requirement with those of NEPA, FLPMA, other pertinent statutes, and the BLM Planning System. Interested parties shall be invited to consult early in the review process if they have expressed an interest in a BLM undertaking or action subject to the Protocol. Such interested parties may include, but are not limited to, local governments; grantees, permittees, or owners of affected lands or land surfaces; Indian Tribes, organizations, families and individuals; and those seeking to participate as consulting parties in a particular undertaking.

C. Area of Potential Effect

Field Office Cultural Resources Staff shall apply the definition of APE (36 CFR 800.16(d)) and shall document the determination and the rationale used in reaching that determination. In defining the APE, the BLM shall consider potential direct, indirect, and cumulative effects to historic properties and their associated settings as applicable, regardless of land ownership. In cases where the APE is subject to question or in which there are multiple jurisdictions, the Field Office shall seek the opinion of the SHPO.

D. Identification

Unless otherwise agreed in consultation with the SHPO, BLM shall ensure that project-specific surveys and other efforts to identify historic properties are conducted in accordance with the appropriate professional standards as defined in the BLM 8100 Manual series, and to the extent prudent and feasible with the California Office of Historic Preservation guidelines, and the Secretary's Standards and Guidelines. All surveys and other efforts to identify historic properties shall be documented according to standards set forth by the Secretary, the BLM 8100 Manual, and the SHPO. Prior surveys may be accepted as adequate inventory for all or part of a project area based on review by the Field Office cultural staff and completion of documentation of such review.

1. BLM will generally conduct BLM Class III inventory, as defined in BLM Manual 8110, to identify historic properties and traditional cultural properties on BLM-administered lands or other lands where a BLM undertaking will occur.

2. In all cases where BLM's Cultural Resource staff determines that less than a Class III inventory is appropriate for an undertaking, a written justification and research design or strategy shall be prepared and retained in appropriate files. When Class II inventories (Probabilistic Field Survey) are deemed appropriate, Field Office Cultural Resource staff shall seek informally the views of the SHPO staff concerning the justification and research design/strategy for the reduced level of inventory. The SHPO may concur with the proposed approach or may determine that formal consultation shall be initiated (Stipulation VLC). Class I inventories are limited to landscape level planning and are never sufficient for the purposes of Section 106 compliance for specific undertakings.

3. Where Amendments to this Protocol apply to a particular undertaking and also address alternative inventory procedures, those alternative inventory procedures will be followed.

E. Evaluation

1. Unless otherwise agreed to in consultation with SHPO, BLM will ensure that historic properties that cannot be protected are evaluated in accordance with BLM's 8110 Manual (Appendix B), the National Register criteria (36 CFR 60.4), and, to the extent prudent and feasible, with the Secretary's Standards and Guidelines for Archaeology and Historic Preservation (Vol. 48, Federal Register, No. 190, Part IV). This Protocol suspends the allocation of unevaluated cultural resources to "use categories" (BLM Manual 8110.4); however, this Protocol does not constrain allocation of evaluated cultural resources to use categories.

2. BLM shall document all evaluations, including applicable National Register criteria, and disclose those evaluations in project tracking systems implemented by the Nevada SHPO and the California BLM. The SHPO may elect to review any evaluation as an element of its oversight role in this Protocol.

3. Where the Protocol requires BLM to consult with the SHPO regarding the National Register eligibility of a property, any unresolved disagreement resulting from such consultation shall be submitted to the Keeper of the National Register in accordance with 36 CFR 63.3(d).

4. Where avoidance will be implemented as the management strategy for managing effects, BLM may treat cultural resources as potentially eligible for inclusion in the National Register of Historic Places without consultation with the SHPO. Such treatment for a particular property neither precludes nor prejudices evaluation in the future.

F. Human Remains

In the event that any human remains are encountered or in the event that unassociated funerary objects, or grave goods are discovered, work in the immediate vicinity of the discovery shall cease other than non-disturbing documentation and BLM shall comply with applicable State laws, NAGPRA as outlined at 43 CFR 10, and ARPA at 43 CFR 7.

G. Discoveries

In the event that properties are discovered during implementation of an undertaking which has been duly considered under the terms of this Protocol and in which the property cannot be protected, BLM shall address the discovery in accordance with the provisions of 36 CFR 800.13. In consultation with the SHPO, BLM shall select the appropriate mitigation option. In the event that properties are discovered during implementation of an undertaking which has been exempted under Stipulation V.I., the discovery procedures set forth in Appendix D shall be followed.

H. Emergency Undertakings

BLM shall amend this Protocol with procedures for protecting historic properties during emergency undertakings, including wildfire. Until such an amendment is developed and approved, the following shall apply: should BLM find it necessary to implement an emergency undertaking as an immediate response to a declared emergency, undeclared emergency, or another immediate threat to life or property, in a manner that would preclude the use of this Protocol, BLM and its mutual aid partners, will implement to the extent prudent and feasible any measures that could avoid or minimize harm to historic properties and shall implement rehabilitation measures and evaluations for properties which may have been adversely affected. BLM shall comply with the provisions of 36 CFR Part 800.12 and 36 CFR Part 78 for such emergency undertakings. BLM shall document properties discovered or affected by the emergency undertaking or post-fire rehabilitation and shall submit a report to the SHPO.

I. Exempt Undertakings

The definitions and procedures for application of Exemptions are developed in Appendix D. Class A undertakings are generally exempt from further review or consultation. In addition, Field Office Cultural Resource staff may determine that any specific undertaking subsumed under the list of Class B undertakings qualifies as an exempt undertaking. Documentation regarding an undertaking's exemption from review under this Protocol shall be retained and entered into an electronic database. The list of exemptions may be revised to add, delete, or modify specific exemptions.

However, the following exceptions apply:

1. Any Field Office may elect to review a normally exempted, specific undertaking under the terms of this Protocol or 36 CFR Part 800.

2. Should an objection by the public arise to a Class B exempt undertaking prior to implementation, the Field Office shall consult with the objecting party and the SHPO for not more than 30 calendar days following receipt to resolve the objection. If the objection is resolved within this timeframe, the parties shall proceed in accordance with the terms of that resolution. If the objection cannot be resolved within this time frame, and the Field Office and the SHPO have not agreed to extend the consultation period, the Field Office shall submit the disputed exemption for review by the SHPO either under this Protocol or under 36 CFR 800.

3. Any party to this Protocol may propose that Appendix D be modified by removal or revision of exempted undertakings or by addition of a previously non-exempted class of undertakings. Such proposals for modification of Appendix D shall be considered pursuant to the provisions for revisions of this Protocol at Stipulation IX.B. Appendix D may be revised as a component of Protocol revision or may be revised at any time upon written agreement of the parties to this Protocol.

VI. THRESHOLDS FOR SHPO REVIEW

BLM shall initiate formal consultation with the SHPO in the following situations and shall follow the procedures set forth in 36 CFR 800. Notwithstanding, BLM and SHPO may agree to proceed under the Protocol in consideration of specific conditions or characteristics of a specific undertaking which would normally require continuation of formal consultation.

A. Where undertakings may have an adverse effect as defined by 36 CFR 800.5(a)(1), including adverse effects to National Historic Landmarks (NHL) or properties either considered eligible for, or which are listed in, the National Register of Historic Places.

B. Where BLM acts either as lead agency on behalf of other Federal agencies or in cooperation with other Federal agencies for undertakings that may have effects beyond the boundaries of the State and which involve other State Historic Preservation Officers. In such cases, BLM will either consult with the respective SHPOs and agencies regarding an appropriate compliance process and proceed accordingly, or comply with 36 CFR 800.

C. Where BLM proposes to complete less than a BLM Class III survey of the affected (selected) lands and when informal consultation with SHPO staff yields consensus agreement to proceed with formal consultation (Stipulation V.D.2).

D. Where an undertaking involves a transfer or allocation of public lands exceeding 10,000 acres regardless of the survey class.

E. Where BLM proposes to transfer lands to the State of California absent an agreement document governing the undertaking.

F. Where traditional cultural properties or sacred sites may be affected.

G. Where professional cultural resources expertise necessary to implement this Protocol is unavailable to a Field Office.

H. Where land use plans and amendments are initiated.

I. Where unresolved disagreements or disputes concerning professional findings exist between Cultural Resource staff and Field Office Managers.

J. Where unresolved disagreements or disputes, internal to BLM, arise concerning an exempt undertaking.

K. Where a Field Office declines to participate in any supplemental procedures (Amendments) which would normally govern the undertaking or class of undertaking, and when the undertaking cannot be covered under this Protocol.

L. Where protocols and procedures in the BLM 8100 Manual procedures may conflict with the procedures established in 36 CFR 800.

M. Where data recovery or other treatment to mitigate adverse effect is proposed.

N. Where supplemental procedures appended to this Protocol require such consultation.

O. Where unanticipated, potentially adverse effects are discovered after completing the procedural steps at Stipulation V of this Protocol.

P. Where an objection by the public arises to a Class B exempt undertaking, stipulated at V.I.2 of this Protocol.

Q. Where BLM proposes to vacate a prior determination of eligibility or to remove a historic property from the National Register of Historic Places (36 CFR 60.15).

In instances where the involvement of the SHPO occurs after steps have been taken under the Protocol, the Field Office Manager or other Agency Official shall not be required to reconsider previous findings or determinations unless those findings or determinations are the subject of unresolved disputes or disagreements.

VII. STAFFING

A. Professional Staff

Under this Protocol Agreement, BLM operates with limited external oversight. In order to successfully act on behalf of the SHPO and to maintain the trust of the SHPO, BLM shall continually strive for a high level of professional capability. BLM is committed to employing a professional staff. In hiring new full time professional staff, BLM will follow Section 112(a)(1)(B) of the NHPA and select candidates that meet the Secretary of the

Interior's Professional Qualifications Standards or the education and experience standards set forth in the BLM Manual Series 8150.12.B.2. Field Offices shall ensure the availability of cultural resources expertise at the Field Office level. Field Offices which do not have the services of a BLM Cultural Resource professional, either on staff or through arrangement with another BLM administrative unit, shall consult with the SHPO on all undertakings.

Student training programs, including the Student Career Employment Program (SCEP) and the Student Training Employment Program (STEP), may be used to recruit new staff that may assist the full time Cultural Resource Specialist in the Field Office. The student trainees shall not perform professional duties without appropriate oversight by qualified professional Cultural Resource staff and cannot act on behalf of the SHPO.

B. Professional Capability

When the BLM is involved in an undertaking requiring expertise not possessed by available BLM staff, the BLM may request the assistance of the SHPO in such cases or may obtain the necessary expertise through contracts, BLM personnel from other units, or arrangement with other agencies.

C. Non-Professional Cultural Resource Personnel

The BLM may employ Cultural Resource specialists and trained paraprofessionals (Heritage Resources Assistants) who do not meet Secretary of the Interior's standards for professional Cultural Resources personnel. In such instances, individuals who do not meet these Standards shall work under the direct technical supervision of BLM professional Cultural Resource staff and may not substitute for professional Cultural Resource staff in making findings, determinations, or recommendations regarding the identification and evaluation procedures set out in this Protocol or in Section 36 CFR 800. In addition, trained paraprofessionals may be used only when BLM has developed and implemented a paraprofessional program agreed to by the parties to this Protocol.

VIII. CERTIFICATION

A. Certification

The Preservation Board, in consultation with the SHPO and the Council, has certified each BLM Office to operate under this Protocol based upon the following: (1) managers and specialists have completed required training, (2) professional capability to carry out these policies and procedures is available through each Field Office's immediate staff or through other means, (3) and, each supervising line manager within the State has assigned and delimited Cultural Resource specialists' duties.

The Deputy Historic Preservation Officer shall periodically consider the certification status of each Field Office during the review process delineated in Stipulation III.E of this Protocol.

B. Provisional Certification

The Deputy Historic Preservation Officer or the SHPO may recommend that the State Director place a Field Office on a provisional status based on findings from any of the reviews specified at Stipulation III.E of this Protocol. Provisional status may extend from one to two years, although the term of the provisional status shall be a matter of agreement between the parties to this Protocol and shall reflect the complexity of the deficiencies identified. While on provisional status, a Field Office will have the opportunity to correct deficiencies that have been identified and documented during review of Field Office practices under the Protocol. Upon expiration of the provisional status term, the parties to this Protocol shall convene to determine whether identified deficiencies have been satisfactorily corrected. Should the parties determine that such deficiencies remain uncorrected, or should new deficiencies be identified that the parties deem significant, the decertification process shall be initiated as described at Stipulation IX.C of this Protocol.

C. Decertification

The Preservation Board may choose to review a Field Office's certification status. The Field Office manager, the Deputy Historic Preservation Officer, or the SHPO may request that the Preservation Board initiate such a review, in which case the Preservation Board will respond under the terms of the National PA at Component Eight. If a Field Office is found not to have maintained the basis for its certification (e.g. the professional capability needed to carry out these policies and procedures is no longer available, or the office is not in conformance with this Protocol) and the Office Manager has not voluntarily suspended participation under this Protocol, the Preservation Board will recommend that the State Director decertify the Field Office.

1. A Field Office may ask the State Director to review the Preservation Board's decertification recommendation, in which case the Director will request the Advisory Council's participation in the review.

2. The Preservation Board will notify the SHPO and the Advisory Council if the status of a certified office changes. In consultation with the SHPO, the Deputy Preservation Officer will prepare a Plan of Action to address the identified deficiencies.

3. When a Field Office is decertified, the responsible manager shall follow the procedures of 36 CFR Part 800 to comply with Section 106.

D. Recertification

If a decertified Field Office is found to have restored the basis for certification, the Preservation Board will recommend that the State Director recertify the office.

IX. REVISION, AMENDMENT, TERMINATION AND RESOLVING OBJECTIONS

A. Procedure for Resolving Objections

1. The BLM or the SHPO may object to an action proposed or taken by the other pursuant to this Protocol. The objecting party shall notify the other party in writing of the objection. Within seven (7) calendar days following receipt of notification, the parties shall consult for 30 calendar days to resolve the objection. If the objection is resolved within this time frame, the parties shall proceed in accordance with the terms of that resolution. If the objection is not resolved within this time frame, and the parties have not agreed to extend the consultation period, the Deputy Historic Preservation Officer shall refer the objection to the National Preservation Board, which will provide the State Director with its recommendations. If the State Director accepts the Board's recommendations, the State Director shall promptly notify the SHPO of such acceptance, provide a copy of the Board's recommendations, and afford the SHPO 30 calendar days following receipt of the notification to comment on the recommendations. If the SHPO concurs in the Board's recommendations within this time frame, the State Director and the SHPO shall proceed in accordance with the Board's recommendations and the objection shall thereby be resolved. If either the State Director or the SHPO rejects the Board's recommendations after consideration not to exceed 30 days, the State Director shall promptly notify the Board in writing of the rejection, and immediately thereafter submit the objection, including copies of all pertinent documentation, to the Advisory Council on Historic Preservation for comment in accordance with Component Four of the National PA. Within 30 calendar days following receipt of any Council comments, the State Director shall make a final decision regarding resolution of the objection and in writing notify the Board, the SHPO and the Council of that decision. The objection shall thereupon be resolved. In reaching a final decision regarding the objection, the State Director shall take into account any comments received from the Board, the SHPO, and the Council pursuant to this stipulation.

2. If a member of the public or a Federally recognized Indian tribe or other American Indian group, family or individual objects at any time to the manner in which this Protocol is being implemented in a specific case, the BLM shall consult with the objecting party for a period not to exceed 45 days and, if the objecting party requests, with the SHPO, to resolve the objection. If the objecting party and the BLM resolve the objection within 45 days, the BLM shall proceed in accordance with the terms of that resolution. If the objection cannot be resolved, the Deputy Historic Preservation Officer shall refer the objection to the National Preservation Board, which will provide the State Director and the objecting party with its recommendations for resolving the objection. If the State Director and the objecting party accept the National Preservation Board's recommendations, the State Director shall proceed in accordance with these recommendations and the objection shall thereby be resolved. If either the State Director or the objecting party rejects the National Preservation Board's recommendations for resolving the objection, the State Director shall refer the objection to the Council in accordance with Component Four of the National PA. Within 30 calendar days following receipt of any Council comments, the State Director shall make a final decision regarding resolution of the objection and shall, in writing, notify the Board, the objecting party, the SHPO and the Council of that decision. The objection shall thereupon be

resolved. In reaching a final decision regarding the objection, the State Director shall take into account any comments received from the Board, the objecting party, the SHPO, and the Council pursuant to this paragraph. Any objection filed pursuant to this paragraph shall not prevent the BLM from proceeding with project planning; however, project implementation shall be deferred until the objection is resolved pursuant to the terms of this paragraph.

B. Revision of this Protocol

This Protocol is intended to be responsive to changing circumstances. Therefore, the BLM or the SHPO may propose revision of this Protocol, whereupon the parties shall consult to consider the proposed Revision. "Revision" as used herein refers to the process of review and rewriting of all or portions of the Protocol, including the addition, deletion, or modification of exempt undertakings. Revisions shall only become effective upon written concurrence of the parties.

C. Amendment of this Protocol

1. In keeping with the intended responsive nature of this Protocol, the BLM or the SHPO may propose amendment of this Protocol at any time, whereupon the parties shall consult to consider such amendment. "Amendment" refers to the process of adding supplemental procedures for specific BLM programs or projects when parties to the Protocol wish those procedures to be made explicit. The amendment process culminates in the issuance of Protocol Amendments, which are administratively appended to the Protocol on their effective date. Protocol Amendments shall be housed in Appendix E of this Protocol.

2. The parties to this Protocol agree that upon termination or expiration of this Protocol, any and all Protocol Amendments may continue in full force and effect until a successor Protocol or Programmatic Agreement is executed, whereupon any and all such Protocol Amendments may be appended to the successor document with or without revision as the parties may agree.

D. Termination, Automatic Termination, and Review of this Protocol

1. The BLM or SHPO may terminate this Protocol or any Protocol Amendment. The party proposing termination shall in writing notify the other party of intent to terminate and explain the reasons for proposing termination. Within seven calendar days following receipt of such notification, the parties shall consult for up to 90 days to seek alternatives to termination. Should such consultation result in agreement on an alternative to termination, the parties shall proceed in accordance with the terms of that agreement. Should such consultation fail, the party proposing termination may terminate this Protocol or any Protocol Amendment by providing the other party with written notice of such termination. Termination hereunder shall render this Protocol or any terminated Protocol Amendment without further force or effect.

2. In the event of termination of this Protocol, the BLM shall comply with the provisions of 36 CFR Part 800 for all undertakings covered by this Protocol, with the exception of those

Supplemental Procedures described in Protocol Amendments which, by written agreement of the parties, may remain in full force and effect. In the event a Protocol Amendment is terminated, BLM shall comply with 36 CFR 800 for the program or practices subsumed under the Protocol Amendment except insofar as SHPO and the BLM in writing agree to subsume such program or practices under this Protocol.

3/ At midnight of the fifth anniversary of the date of its execution, this Protocol shall automatically terminate and have no further force or effect, unless it is extended by written agreement of the parties. Should the Protocol not be extended and should no successor agreement document be in place at the time of automatic termination, BLM shall comply with 36 CFR 800, except with regard to those activities addressed in Protocol Amendments which the parties in writing agree shall remain in full force and effect.

X. OTHER PROCEDURES

BLM shall follow procedures and adhere to policies detailed in the BLM 8100 Manual Series along with standards and guidelines promulgated by the Office of Historic Preservation. BLM, in consultation with SHPO, may develop other guidance as necessary and shall consider incorporating such guidance as supplemental procedures to this Protocol (Stipulation IX.C).

1 STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, CALIFORNIA
2
3 
4
5
6 Mike Pool Date: 10/15/07
7
8
9
10 STATE HISTORIC PRESERVATION OFFICER, STATE OF CALIFORNIA
11
12 
13
14
15 By Stephen Mikesell Date: 10/15/07
16 Deputy State Historic Preservation Officer
17
18
19
20 STATE HISTORIC PRESERVATION OFFICER, STATE OF NEVADA
21
22 
23
24
25 By Alice M. Baldrice Date: October 15, 2007
26 Deputy State Historic Preservation Officer
27

APPENDIX D

EXEMPT UNDERTAKINGS

INTRODUCTION

Undertakings listed in this Appendix to the Protocol may be exempt (categorically excluded) from further review or consultation under the terms of this Protocol at stipulation V.G. The listed classes of undertakings are subdivided into Class A and Class B activities, which vary by the degree of review required of the Field Office Cultural Resource staff.

Class A Activities

Class A activities are generally exempt but may require a records check to determine whether the activity may affect a known historic property or an unevaluated cultural resource. Cultural Resource staff shall determine whether a records check is appropriate and shall conduct that check prior to exempting the activity. A Field Office may elect to provide further and more robust review, including field inventory, by Field Office Cultural Resource staff if that staff determines that a specific exempt undertaking may affect a cultural resource which is significant, documented, known but not recorded, or unevaluated.

Class A activities submitted for further review shall be documented and reported in annual reports. Class A exemptions which are not submitted for further review shall be documented in project case files in order to demonstrate compliance with Section 106 of NHPA using an appropriate exemption tracking form.

Class B Activities

Class B activities may be exempt, depending on a finding by professional Field Office Cultural Resource staff. The screening of potentially exempt Class B activities shall consider the nature of the proposed activity, adequacy of prior inventory, adequacy of documentation of historic properties and inventory efforts, information or knowledge of potentially affected cultural resources which were unknown at the time of the original inventory, and the nature or scope of any prior Section 106 review.

If the Field Office Cultural Resource staff determines that an undertaking may be treated as exempt, then that undertaking shall be considered exempt under this Protocol and no further review or consultation would be required. If Field Office Cultural Resource Staff determines that an undertaking has an effect, may have an effect, or will continue an ongoing effect, the undertaking shall not be exempt and shall be subject to the provisions of this Protocol or 36 CFR 800, as appropriate.

This version is effective: 10/15/07.
All earlier versions are superseded.

1 Class B reviews shall be documented on an appropriate exemption tracking form and
 2 reported in annual reports.

3
 4 **Inadvertent Discoveries during Implementation of an Exempted Undertaking**

5
 6 In the event of inadvertent discovery of cultural resources during implementation of an
 7 undertaking which has been exempted under Appendix D, the following procedure shall
 8 be undertaken. Field Office Cultural Staff and the Field Office Manager shall be
 9 immediately notified by personnel responsible for implementation of the exempted
 10 undertaking. All work shall cease at the site of discovery and all other work which may
 11 damage the cultural resource shall also cease. The Field Office Cultural Staff shall make
 12 an assessment of the situation and, in consultation with the Field Office Manager, may
 13 prescribe the emergency implementation of appropriate physical and administrative
 14 conservation measures as enumerated in BLM Manual Series 8140. The Field Office
 15 Cultural Staff shall notify the SHPO in order to develop an agreement on the appropriate
 16 course of action, and such agreement shall reflect the intent of BLM Manual Series
 17 8140.28B. The agreement shall be memorialized in writing and documented in project
 18 files. The Field Office Cultural Staff shall document implementation of the agreed-upon
 19 steps and shall report the discovery event and the manner of its resolution in the annual
 20 accomplishment reporting required under this Protocol.

21
 22 **Addition, Deletion or Modification of Exemptions**

23
 24 This list of exemptions may be changed through addition, deletion, or modification of
 25 exemptions as described in stipulation V.I. of the Protocol. When the list of exemptions
 26 is modified a new Appendix D shall be issued with its effective date entered on the face
 27 of the Appendix. Upon issuance, all prior versions of Appendix D shall be superseded
 28 and shall have no further force or effect. When a specific exemption is deleted, its
 29 deletion shall be shown by striking through its text and, similarly, when terms in a
 30 specific exemption are modified, the modified terms shall be denoted by strikethrough.

CLASS A ACTIVITIES

A1: Activities which involve no more than two (2) square meters of cumulative surface disturbance and no more than one (1) square meter of contiguous disturbance in any given location.

A2: Routine maintenance of existing facilities, including minor routine and preventative maintenance of BLM facilities which do not disturb additional ground surface area or historic properties at the facility including the facility itself.

A3: Rendering formal classification of Federal lands in the United States pursuant to 43 CFR 2400 (Formal Land Classification Procedures).

A4: Removal of log jams and debris dams using hand labor or small mechanical devices.

A5: Special land use designations which do not authorize surface disturbance including ACECs, Wilderness Study Areas, environmental education areas, and Natural Areas.

A6: Alteration of structures which are known to be less than 40 years old in their entirety.

A7: Removing modern materials and trash scatters less than 50 years old and not associated with a larger eligible or unevaluated cultural entity. Abandoned vehicles and modern trash dumps are included in this class.

A8: Withdrawal continuations or extensions which would only establish a specific time period and where there would be essentially no change in use and/or no new uses would be permitted and continuation would not lead to environmental degradation.

A9: Withdrawal terminations, modifications or revocations that, because of overlying withdrawals or statutory provisions, involve merely a record clearing procedure.

A10: Withdrawal terminations, modifications, or revocations and cancellations of classification and opening orders where the land would be opened to discretionary land laws and where future actions would be subject to review under the terms of this protocol.

A11: Withdrawal terminations, modifications or revocations and opening orders that the Secretary of the Interior is under a specific statutory directive to execute, and where future actions would be subject to review under the terms of this protocol.

A12: Transfer of use authorization from one Federal agency to another when an action such as a boundary adjustment necessitates changing a right-of-way from one federal agency to another (e.g., Forest Service Special Land Use Permit to a BLM Title V Right-of-Way).

This version is effective: 10/15/07.
All earlier versions are superseded.

- 1 **A13:** Rights-of-way for overhead line (no pole or tower on BLM land) crossing over a
 2 corner of public land.
 3
- 4 **A14:** Right-of-way which would add or remove another radio transmitter to an existing
 5 communication site that is neither an historic property nor located on or within the
 6 proximate area of an historic property.
 7
- 8 **A15:** Apiary sites adjacent to a designated road or route of travel and which do not
 9 involve ground disturbance.
 10
- 11 **A16:** Acquisition of lands and easements.
 12
- 13 **A17:** Transferring lands or interest in lands to other Federal agencies where future
 14 management will be subject to the Section 106 process.
 15
- 16 **A18:** Cadastral survey.
 17
- 18 **A19:** Designating areas closed to vehicles or areas limited to travel only on existing roads
 19 and trails where such designation does not require or involve Plans or Plan amendments
 20 and where access to traditional or sacred sites by Native Americans is not an issue.
 21
- 22 **A20:** Installation of routine signs or markers on shoulders of existing roads and markers
 23 adjacent to existing roads, or placing recreational, special designation or information
 24 signs, or visitor registers, unless within known historic properties. Disturbance cannot
 25 exceed the restrictions set forth in Exemption A1.
 26
- 27 **A21:** Issuance and modification of regulations, orders, standards, notices to lessees and
 28 operators and field rules where the impacts are obviously limited to administrative,
 29 economic or technological effects.
 30
- 31 **A22:** Approval of off-lease storage in existing facilities.
 32
- 33 **A23:** Approval of suspensions of operations and suspensions of production.
 34
- 35 **A24:** Approval of royalty determinations such as royalty rate reduction and operations
 36 reporting procedures.
 37
- 38 **A25:** Approval of conversion of an existing oil and gas well for disposal of produced
 39 water meeting the standards of NTL-28, when no new ground disturbance will result.
 40
- 41 **A26:** Approval of conversion of an unsuccessful oil and gas well or an exhausted
 42 producer to a water source or observation well when no new ground disturbance will
 43 result.
 44
- 45 **A27:** Routine downhole fracturing of rock formation to enhance production or injection.
 46

This version is effective: 10/15/07.
 All earlier versions are superseded.

- 1 **A28:** Operations in, and reclamation of, existing materials borrow sites when the activity
 2 is entirely within the disturbed area.
 3
- 4 **A29:** Administratively determining that land is mineral in character.
 5
- 6 **A30:** Continued development of borrow sources which have previously removed all
 7 Holocene and Pleistocene sediments and will not extend into any area which contains
 8 Holocene and Pleistocene sediments.
 9
- 10 **A31:** Dispersed non-commercial recreation activities such as rock collection, Christmas
 11 tree cutting, pine nut gathering, and personal use fuelwood.
 12
- 13 **A32:** Issuance of special recreation permits:
 14
- 15 **a.** River use permits where camping and put-in/take-out sites are established facilities
 16 where previous Section 106 consultation has been completed.
 17
- 18 **b.** Long-term visitor use permits in established Long Term Visitor Areas for which
 19 previous Section 106 consultation has been completed.
 20
- 21 **A33:** Placement of recreational, special designation or information signs, visitor registers,
 22 portable kiosks and portable sanitation devices.
 23
- 24 **A34:** Modification of existing fences, gates, grills, or screens to provide improved
 25 wildlife ingress and egress where such modification does not affect the integrity of
 26 potentially historic adits, stopes, or shafts.
 27
- 28 **A35:** Reintroduction of endemic or native animal species into their historical habitats
 29 where no ground-disturbing facilities will be constructed.

CLASS B ACTIVITIES

B1: Repair or stabilization of historic properties using in kind workmanship and materials.

B2: Emergency repair or stabilization of historic properties using methods that do not have an effect upon the values that make the properties significant.

B3: Resource management actions which do not utilize motorized vehicles or create new surface disturbance and that do not have the potential to affect access to or use of resources by American Indians.

B4: Hazards abatement, including elimination of toxic waste sites, filling, barricading, or screening of abandoned mine shafts, adits, and stopes where such features are not historic or contributing properties.

B5: Removal of, recent (less than 50 years old) structures and materials not associated with older remains which may qualify for listing in the National Register and where no historic properties will be affected.

B6: Limited archaeological testing and/or artifact collection during field identification, evaluation, and recording activities, so that the significance or research potential of a cultural property may be better understood but not substantially diminished. Limited testing is defined as affecting no more than four (4) cubic meters of an archaeological deposit or more than 25% of the surface area of the deposit.

B7: Wildland fire use or prescribed burns which will have no effect on historic properties, which do not disturb structures, or might affect rock art, or require disturbance of the ground surface (cutting line, dozer work, fire breaks, fire regarding drops, helipads, etc.), or adversely affect access or use by California and Nevada Indians to harvest or gather traditionally used plant materials.

B8: Wildfires, including initial attack, where suppression activities have required no mechanical disturbance of the surface of the ground, including surfaces which may contain prehistoric art, and where no structures have been disturbed.

B9: Issuance of permits, leases, and rights-of-way where no surface or resource disturbance is authorized, that have no potential for adverse effects, and that do not have the potential to affect access to or use of resources by American Indians.

B10: Designation of existing transportation and utility corridors under Section 503 of FLPMA when current BLM information indicates that such corridors have low probability of containing or being in proximity to historic properties.

B11: Activities at designated communication sites that do not affect historic properties and where Section 106 consultation has been previously completed.

This version is effective: 10/15/07.
All earlier versions are superseded.

- 1 **B12:** Approval of minor modifications to or minor variances from activities described in
 2 an approved mineral exploration plan that does not affect historic properties.
 3
- 4 **B13:** Approval of minor modifications to or minor variances from activities described in
 5 an approved underground or surface mining plan of operations that does not affect
 6 historic properties for which previous Section 106 consultation has been completed.
 7
- 8 **B14:** Seismic operations on maintained roads or trails, and those involving no use of
 9 explosives, grading, or other land modifications, and resulting in no appreciable
 10 disturbance or compaction of vegetation, soils, or desert pavement by vehicle movement
 11 or other means, in areas in which previous Section 106 consultation has been completed.
 12
- 13 **B15:** The removal of oil well stand pipes where there is no other evidence of historic or
 14 archaeological remains.
 15
- 16 **B16:** Approval of Application of a Permit to Drill (APD) or applications for rights-of-
 17 way for ancillary facilities within an established, utilized or developing oil and gas field
 18 for which Section 106 consultation has been completed or that does not involve historic
 19 properties.
 20
- 21 **B17:** Issuance of special recreation permits where permitted use is consistent with
 22 planning decisions or OHV designations for which previous Section 106 consultation has
 23 been completed, and where there will be no new surface disturbance.
 24
- 25 **B18:** Placement or removal of monitoring equipment (e.g., stream gauges) which does
 26 not disturb potentially sensitive ground surface or historic properties or other cultural
 27 resource.
 28
- 29 **B19:** Maintenance of roads that does not widen or otherwise extend surface disturbance,
 30 unless archaeological features are exposed and which have not been evaluated.
 31
- 32 **B20:** Renewals or reassignment of land use authorization where the action conveys no
 33 additional rights beyond those granted in the original authorization and where Section
 34 106 consultation has been previously completed.
 35
- 36 **B21:** Upgrading or adding new lines (power or telephone) to existing pole(s) when there
 37 is no change in pole configuration or number, and when the lines are not historic
 38 properties and no other cultural resources issues are known.

Appendix E - Amendments

SUPPLEMENTAL PROCEDURES FOR DESERT ROUTES OF TRAVEL

A CULTURAL RESOURCES AMENDMENT
TO
THE STATE PROTOCOL AGREEMENT

BETWEEN

CALIFORNIA BUREAU OF LAND MANAGEMENT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

1 The purpose of this Amendment is to provide procedures for resolution of foreclosure of the
2 opportunity of the Advisory Council on Historic Preservation (Council) to comment on the
3 effects to cultural resources of the designation of routes of travel in the California Desert
4 District (CDD) of the California Office of the Bureau of Land Management (BLM). It is also
5 the purpose of this Amendment to provide BLM the approach, tools, information, and
6 management procedures necessary to complete the transition to a fully developed and mature
7 program for management of cultural resources in the context of routes of travel, both in the
8 CDD and on other public lands managed by BLM in California.
9

10 These supplemental procedures are an Amendment to the State Protocol dated April 6, 1998,
11 which is scheduled for termination on October 25, 2004. These supplemental procedures will
12 remain in effect when that Protocol is terminated and automatically will become an
13 Amendment to a successor Protocol document. These supplemental procedures include the text
14 of the Amendment and an administratively appended Interim Management Program
15 (Attachment 1: *Interim Management Program for Identifying, Evaluating, and Protecting*
16 *Cultural Resources along Designated Routes of Travel in the California Desert Conservation*
17 *Area*) that provides implementation and technical details; neither document stands alone.
18

19 This Amendment deviates from the Protocol in Section VI, Thresholds for SHPO (State Office
20 of Historic Preservation) Review, which states, "*BLM shall complete the inventory, evaluation*
21 *and assessment of effects and document all findings, including negative inventories and no*
22 *effect determinations, in BLM files before proceeding with project implementation.*" This
23 Amendment would allow for implementing decisions regarding land management plans for
24 planning regions within the CDCA: Northern and Eastern Colorado Desert Coordinated
25 Management Plan (NECO), the Northern and Eastern Mojave Desert Management Plan
26 (NEMO), and the Western Mohave Off Road Vehicle Designation Project (WEMO). This
27 Amendment will allow BLM to resolve foreclosure for the two planning regions as long as
28 Protocol direction, the BLM 8100 Series Manual guidelines (Protocol Amendment B), the
29 attached Interim Management Program (Attachment 1), the following specific stipulations, and
30 any requirements or stipulations subsequently added to this Amendment, are followed.

Specific Stipulations

I. Develop Assessment of the Cultural Resources Database for CDCA

The Interim Management Program (Attachment 1) provides for an assessment of the cultural resources database. The purpose of this assessment is to determine the adequacy of the corpus of legacy site records for management purposes. The steps outlined in Task 1 of the Interim Management Program shall be completed within one year of the date of the execution of this Amendment.

II. Develop Information on the Impacts of Route Usage on Cultural Resources

The Interim Management Program provides for field inspection of a sample of previously recorded cultural resources along existing routes of travel. The purpose of these field inspections is to provide an informed analysis of the impacts of OHV use and related activities on cultural resources of various classes. The steps outlined in Task II of the Management Program shall be completed within three years of the date of the execution of this Amendment.

III. Develop and Evaluate Predictive Model

The Interim Management Program provides for development of a predictive model which can be used as a tool for prediction of archaeological sensitivities. The model will be tested using data developed during additional archaeological inventory of the route system. The purposes of this model are to provide an aide for project planning and to guide the selection of areas for inventory and targeted management of cultural resources. The approach and steps outlined in Task III of the Management Program shall be completed within four years of the date of the execution of this Amendment.

IV. Inventory Program

The Interim Management Program provides guidance for conduct of archaeological survey along certain routes of travel. The focus of this inventory effort will be on routes and route segments which are deemed to be highly sensitive for discovery of cultural resources where those trails and trail segments correlate with areas of high use. The purpose of this inventory is to most efficiently locate potentially significant properties which may be receiving unacceptable levels of impact so that protection measures may be applied. All of the high sensitivity/high use trails and trail segments shall be inventoried by the termination date of this Amendment.

1 V. Develop Standard Protection Measures

2
3 The Interim Management Program provides for the development of standard protection
4 measures that are based in the findings and determinations made in Steps I-III. The purpose
5 of these protection measures is to provide adequate protection for specific classes of sites
6 under specific circumstances. These standard protection measures are intended to
7 supplement existing, accepted protection measures, namely avoidance of effect through re-
8 routing or route closure. The approach and steps outlined in Task V of the Management
9 Program shall be completed within four years of the execution of this Amendment.

10
11
12 VI. Develop and Implement Monitoring Program

13
14 The Interim Management Program also provides for annual programs of monitoring (Task
15 VI). The purposes of the monitoring program are to evaluate the effectiveness of the
16 standard protection measures and to provide long-term condition assessment of a selected
17 sample of cultural properties. The monitoring program will be designed in conjunction
18 with the development of standard protection measures and the program will be
19 implemented at the beginning of the fifth year following execution of this Amendment.

20
21
22 VII. Developing Capabilities

23
24 Underlying the resource management and research activity planned in the Interim
25 Management Program will be an ongoing, systematic, and thorough program of
26 development and sustaining agency capability to accomplish the activity. The approach
27 and steps outlined in Task VII shall be completed annually throughout the life span of this
28 Protocol Amendment and efforts under this task will be planned annually in consultation
29 with SHPO and reported annually as part of the reporting required under Stipulation X.

30
31
32 VIII. Tribal and Interested Party Consultation

33
34 The California Desert District will be responsible for ensuring that Tribes and interested
35 parties are contacted and consulted as outlined in 36 CFR 800 and the 8120 manual
36 guidelines. This will also meet BLM government-to-government responsibilities for
37 consultation.

38
39
40 IX. Managing Cultural Resources Prior to Termination of Amendment

41
42 Nothing in this Amendment shall be construed to mean that management of cultural
43 resources impacted by routes of travel is limited to the cultural resources selected for
44 actions under this Amendment. Undertakings within and along routes of travel will be
45 managed according to the terms of the Protocol during the period of time when the steps
46 outlined in this Amendment are being implemented.

1 X. Planning and Reporting

2
3 The California Desert District shall develop and provide to the SHPO an annual plan of
4 work for accomplishing the actions contemplated in the Interim Management Program,
5 including planning for inventory. This plan of work shall establish responsibilities,
6 deadlines, milestones, and provide evidence that funding has been appropriated to
7 accomplish the work. The plan of work for the first year increment of work shall be
8 submitted to the SHPO no later than three months following the execution of this
9 Amendment. Thereafter, annual plans of work shall be submitted to the SHPO
10 concurrently with the annual accomplishment report.

11
12 The California Desert District shall report annually on the accomplishments under this
13 Amendment. Reporting shall include, but shall not necessarily be limited to, status of
14 planned tasks, summaries of accomplishments and findings, tabular summaries of cultural
15 resources inventoried, evaluated, and treated, and any other reporting stipulated in this
16 Protocol Amendment or enumerated in the Interim Management Program. The reporting
17 shall be incorporated into the Protocol Annual Report. The annual reporting required in
18 this Amendment does not substitute for the formal documentation of results that is required
19 in the Interim Management Program.

20
21
22 XI. Transition to Permanent Program

23
24 In order to provide for protection of cultural resources within and along routes of travel
25 within the named planning units of the CDD, BLM shall develop and enter into a Protocol
26 Amendment or other agreement with the SHPO. This agreement will be developed prior to
27 the planned termination date of this Amendment. This agreement shall include, but shall
28 not be limited to, standard protection measures and annual programs of inventory,
29 monitoring, and reporting. The scope of such an agreement may be limited to the CDCA or
30 it may refer to all or specified Public Lands managed by BLM in California.

31
32
33 XII. Revision and Termination

34
35 The parties to this Amendment shall annually review its terms of and the accomplishments
36 achieved under its aegis in order to determine whether continuation, amendment, or
37 termination is appropriate. Either party may propose to revise or terminate this Amendment
38 by providing 60 days written notice. During the period following notice of the intent to
39 revise or terminate, both parties to this Amendment shall enter active negotiations to
40 develop revisions or to seek alternatives to termination. Should such consultation result in
41 agreement on revisions or on an alternative to termination, the parties shall proceed in
42 accordance with the written terms of that agreement. Should consultation on termination
43 fail, the party proposing termination may terminate this Amendment by providing the other
44 party with written notice of such termination. Termination hereunder shall render this
45 Amendment without further force or effect.

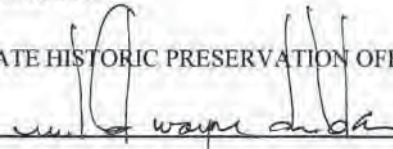
46

1 This Amendment shall expire and have no further force or effect at midnight of the fifth
 2 anniversary of Amendment's execution date.

3
 4
 5 STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, CALIFORNIA

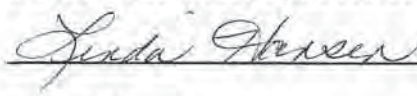
6 
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 8
 9 By Mike Pool Date: 10/25/04

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 11 STATE HISTORIC PRESERVATION OFFICER, CALIFORNIA

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 15 By Milford Wayne Donaldson Date: 25 OCT 2004

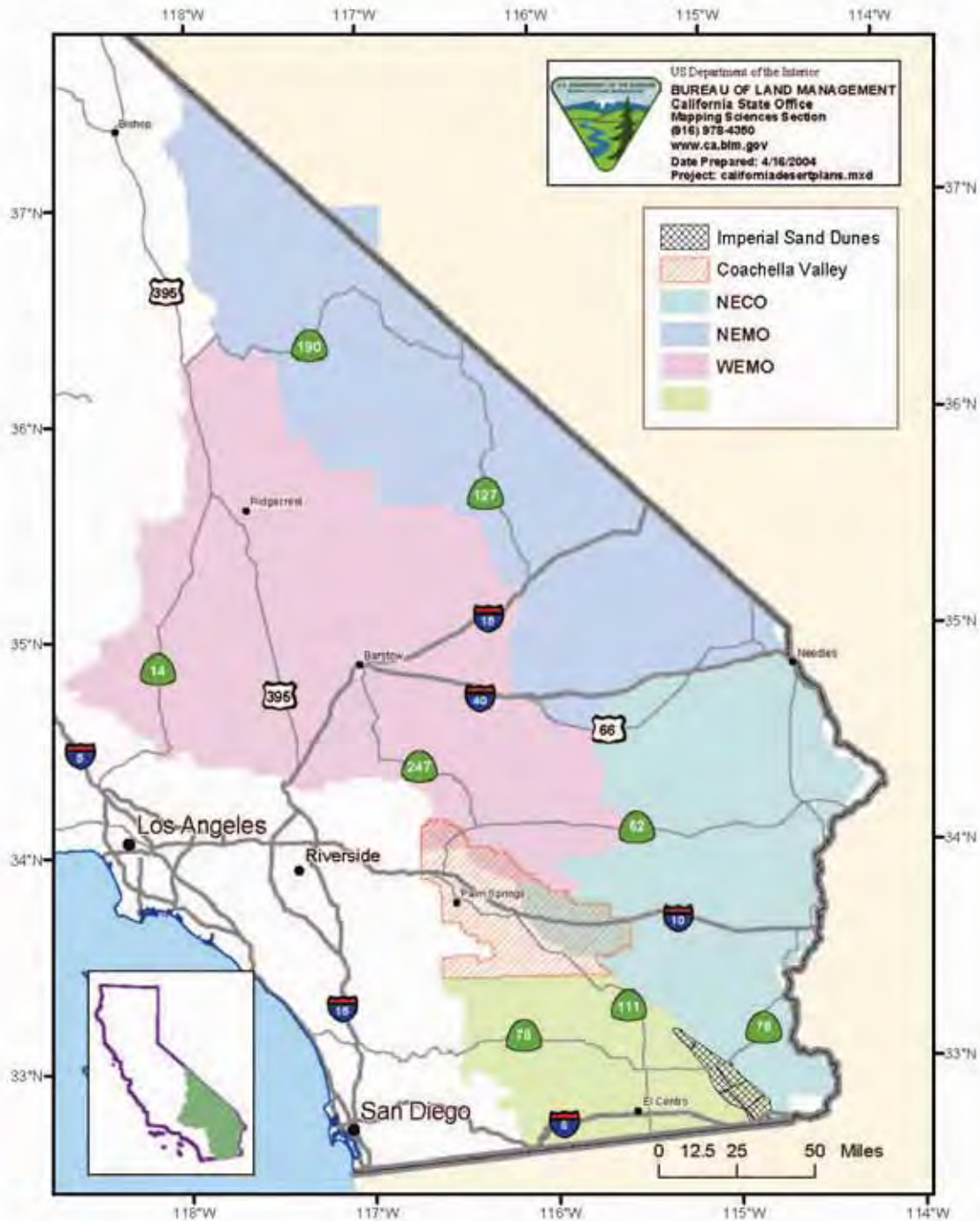
16
 17 I Concur:

18
 19 DISTRICT MANAGER, CALIFORNIA DESERT DISTRICT

20
 21 
 22
 23 By Linda Hansen Date: October 21, 2004

Attachment One: Interim Management Program

Figure 1: California Desert Conservation Area



ATTACHMENT ONE

INTERIM MANAGEMENT PROGRAM

FOR

IDENTIFYING, EVALUATING, AND PROTECTING CULTURAL RESOURCES

ALONG

DESIGNATED ROUTES OF TRAVEL IN THE
CALIFORNIA DESERT CONSERVATION AREA

1 **INTRODUCTION**

2

3 This document is attached to the California Protocol Amendment entitled *"Supplemental*
 4 *Procedures for Desert Routes of Travel: A Cultural Resources Amendment to the State*
 5 *Protocol Agreement between California Bureau of Land Management and the California State*
 6 *Historic Preservation Officer"*. The referenced Amendment provides information for
 7 administration of the Amendment and an overview of the Interim Management Program.

8

9 The Interim Management Program provides operational details and a design for research and
 10 other investigations that are intended to resolve the issue of foreclosure of the Council's
 11 opportunity to comment on decisions concerning route designation in the California Desert
 12 Conservation Area (hereafter "foreclosure").

13

14 This Interim Management Program presents an approach to understanding the effects of
 15 motorized vehicles on cultural resources along existing designated open routes within the
 16 California Desert Conservation Area (CDCA). The information that will be developed through
 17 implementation of the work envisioned in the Interim Management Program is focused on
 18 management of cultural resources. It is not intended to explore such areas of research as
 19 prehistoric chronology, mobility, or lifeways. This Interim Management Program will address
 20 prehistoric and historic sites with tangible properties, not traditional cultural properties lacking
 21 tangible properties and other non-tangible locations.

22

23 Although the management concerns that underlie this Interim Management Program have been
 24 recognized for some time, they have risen in importance through recent planning activities.
 25 The BLM has initiated consultation with the SHPO on the effects of route designation on
 26 cultural resources. This Interim Management Program in conjunction with its Protocol
 27 Amendment establishes the agreed-upon approach for resolution of the issue of foreclosure.
 28 This Interim Management Program is envisioned as the basis for continuing consultation and
 29 communication between the SHPO and BLM. Reporting and ongoing consultation on findings
 30 and planned work are essential to this Program and are a requirement of the Protocol
 31 Amendment to which this Interim Management Program is attached.

32

This document provides background information concerning administrative actions, and cultural and natural history. The planned activities are segregated into a research component and an administrative component. It is the ultimate goal of this Interim Management Program to develop the tools, information, and management requirements to enable BLM to undertake a mature program of cultural resource management along routes of travel within CDCA.

BACKGROUND OF THE DECISIONS LEADING TO FORECLOSURE

The California Desert Conservation Area, encompassing 25 million acres in Southern California, was designated by Congress in 1976 through the Federal Land Policy and Management Act (FLPMA). The Bureau of Land Management's California Desert District administers 10.5 million acres within the CDCA. The CDCA Plan, completed in 1980, is BLM's land use guide for managing public lands within the CDCA. Since 1980, there have been 150 or more amendments to the plan. The most recent amendments designating routes of travel in an extensive area of the CDCA are the undertakings at issue, specifically within the Northern and Eastern Colorado (NECO), the Northern and Eastern Mojave (NEMO), and the Western Mojave Desert (WEMO) planning areas (Figure 1).

Vehicle access designation and their locations in the CDCA are established by the CDCA Plan. Legislation and policy require BLM to designate public land in the California Desert as open, closed, or limited to vehicle use, and route designations are generally a consequence of area designations (Multiple Use Classes: Closed, Limited, Multiple, and Intensive). An open route allows access by motorized vehicles, while closed routes are prohibited to motorized vehicles with exceptions for emergency vehicles or for special authorized use. Access on other routes is limited with respect to number of vehicles, types of vehicles, time or season of use, permitted or licensed use, and establishment of speed limits. An existing route of travel is a route established before 1980 with a minimum width of two feet and showing significant surface evidence of prior vehicle use or, for washes, having a history of prior use. Stopping, parking, and camping are authorized within 300 feet of a route, except for sensitive areas such as Areas of Critical Environmental Concern where the width is 100 feet. In some locations, parking or camping areas may be signed closed or open to protect fragile or sensitive resources adjacent to the route or to provide a safe place to stop.

The Cultural Resource Element of the CDCA Plan states that "Vehicle route approval in Classes L and M and closures in Class M are other tools for cultural and paleontological resource protection. Cultural and paleontological resource data will be used during the route approval process to help minimize or eliminate adverse impacts on these resources from access and vehicle use (see Motorized-Vehicle Access Element)." The Motorized-Vehicle Access Element cites 43 CFR 8342.1 "Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability." During recent planning efforts, BLM failed to follow the CDCA Plan's guidance to use cultural resource data to help minimize or eliminate adverse impacts from motorized vehicle use during revision of route networks through plan amendments: the Northern and Eastern Colorado Desert Coordinated Management Plan, Northern and Eastern Mojave Desert Management Plan, and the Western Mojave Desert Off Road Vehicle Designation Project. Moreover, BLM failed to recognize early in the planning process that

1 route designation through approval of plan amendments was an undertaking subject to Section
2 106 review.

3
4 Both before and since adoption of the CDCA Plan, BLM has taken a number of steps to
5 designate a network of motorized vehicle routes on public lands. Between 1973 and 1980,
6 BLM managed motorized vehicle use under an Interim Critical Management Program which
7 allowed motorized vehicle use on existing routes until designation of routes was accomplished.
8 With implementation of the CDCA Plan, BLM followed the set of guidelines established under
9 that plan for designation. Significant route designations took place in the mid-1980s, and other
10 designations occurred as part of site specific planning efforts.

11
12 Since these designations were accomplished, several regulatory changes have taken place,
13 including the listing of species by the U.S. Fish and Wildlife Service (USFWS), as well as
14 management concern for special status species. When species are listed, the Endangered
15 Species Act requires federal agencies to consult with USFWS on the adequacy of current land
16 use plans to provide for their recovery. BLM's response to these newly listed species and other
17 species of concern was to amend the CDCA Plan, including updating the existing route
18 designations to reflect these changes in management responsibility and to adopt the revised
19 network as a component of the CDCA Plan.

20
21 For planning purposes, the CDCA was divided into planning regions, among which the
22 Northern and Eastern Colorado Desert, Western Mojave Desert, and Northern and Eastern
23 Mojave Desert, are the focus of this Interim Management Program. Recent plans for those
24 regions are actually comprised of multiple plan amendments, and designation of routes of travel
25 is a component. In May 2000, BLM asked SHPO for comments on the Northern and Eastern
26 Colorado Desert Coordinated Management Plan (NECO) and in June 2000, BLM sought
27 comments on the Northern and Eastern Mojave Desert Management Plan (NEMO).

28
29 In 2001, BLM initiated consultation with SHPO regarding NECO, and in July 2002, the scope
30 of consultation was broadened to include NEMO. In April 2003, the Western Mojave Desert
31 Off Road Vehicle Designation Project was included in formal consultation. BLM proposed
32 development of an agreement to provide for the phased identification and evaluation of cultural
33 resources that would be affected by the designation of routes of travel, and proposed that the
34 agreement would apply to all of the CDCA.

35
36 BLM, in its formal correspondence to SHPO, referenced the California State Protocol and the
37 1980 Programmatic Memorandum of Agreement (PMOA) for the CDCA Plan. When
38 consultation began, the California State Protocol was correctly referenced; however, the 1980
39 PMOA had been amended in 1985 and was superseded in 1986 by a Statewide PMOA.

40
41 In consulting on designation of routes of travel, BLM did not reach concurrence with SHPO
42 and complete the Section 106 process before Records of Decision were signed on the plan
43 amendments. Dates for completing the plan amendments were driven by a settlement
44 agreement, reached in response to a lawsuit regarding the Endangered Species Act, and BLM
45 lacked the option of delaying Records of Decision until the Section 106 review had been
46 completed.

1 2 **CULTURAL RESOURCE OVERVIEW**

3 4 **Native American History**

5
6 The California Desert has been inhabited for 8,000 to 10,000/12,000 years and perhaps longer,
7 although most of the extant remains date to much later periods. Evidence of the earliest
8 occupations is sparse and difficult to date or interpret. Between 8,000 to 12,000 years ago
9 settlement was centered on lakes, which are now the dry playas so characteristic of the Mojave
10 Desert and Great Basin. These lakes, and especially marsh environments along their edges,
11 were particularly rich in plant and animal species that provided food, fibers, medicines, tools,
12 clothing, and ritual objects necessary for daily existence. From 8,000 to 6,000 years ago,
13 climatic change caused the lakes to dry, necessitating cultural adaptation to the loss of a prime
14 habitat. One of the adaptations included increased use of upland areas. Around 6,000 years ago,
15 food gathering and land use patterns began to appear that continued into the historic period.
16 These involved use of a greater variety of habitats and plant and animal resources. Grinding
17 implements such as manos and metates made their appearance. Around 2,000 years ago a shift
18 in projectile point types from larger forms (e.g. Elko and Gypsum points) to smaller forms (e.g.
19 Rose Spring and Eastgate Points) may indicate the introduction of the bow and arrow to replace
20 spears and atlatls. The expansion of bow-and-arrow technology is indicated by the late
21 prehistoric introduction of Desert Side-Notched and Cottonwood Triangular points, which are
22 found throughout the area. These point styles are key indicators of the age of archaeological
23 sites in which they occur. By this time, because of the drier climate, primary habitation sites
24 were located near reliable water sources such as springs and flowing streams. Secondary
25 habitation sites were established as needed in areas in which particular resources were
26 seasonally collected. Sites relating to ritual or religious activity, such as rock art sites,
27 sometimes occurred near habitation sites but were also remote from such sites to protect the
28 sacred nature of the sites and the ritual activities. People generally followed a pattern of using
29 seasonally available resources by moving through a roughly defined homeland, usually
30 returning to a primary habitation during winters. This pattern of seasonal movement from place
31 to place resulted in use of large areas by relatively small populations and left the remains that
32 are now archaeological sites widely scattered over the landscape.
33

34 **Recent Exploration and Development of the Sonoran (Colorado) Desert**

35
36 The earliest recorded explorations of the Colorado River occurred in the mid-16th and early-17th
37 century by Spaniards: Hernando de Alarcon, Melchior Diaz, and Juan de Onate. A century
38 later, Father Eusebio Kino explored the area of Sonora and reached the Colorado River on two
39 trips. In 1771, Father Francisco Garces led an exploring expedition from Tucson to the river,
40 made friends with the Yumans (Quechan), and opened a trail between Sonora and the
41 California frontier at Calexico. A better trail was traveled by Juan Bautista de Anza in 1774
42 from Tubac, Arizona to San Gabriel, California, and in 1775-1776, Anza and Garces led an
43 emigrant party over the same route. The de Anza/Garces success led to the establishment of
44 the earliest, but short-lived, Spanish settlements at the Colorado River crossing. In 1824-1825,
45 Santiago Arguello discovered a short cut to the Yuma Road via Carrizo Corridor. The Yuma
46 Road, connecting New Mexico and northern Sonora with California, was used by numerous
47 and varied expeditions. A short-lived post called Laguna Chapala was established near
48 Brawley.

1
2 In 1846 and 1847, American military forces guided by Kit Carson and commanded by General
3 Stephen Kearney crossed the Colorado Desert enroute to Southern California. They were
4 shortly followed by the Mormon Battalion. The job of surveying and marking the boundary
5 between the United States and Mexico began in 1849 under direction of Lt. William H. Emory.
6 The great number of emigrants using the Yuma Road and the harsh environment forced the
7 government to provide military escorts and establish camps at the Colorado River crossing
8 (Camp Yuma) and near Calexico (Camp Salvation). Stages began to use the route, but
9 maintained their own relay stations. Wells were dug to provide water for travelers. In 1857,
10 Dr. Isaac Smith surveyed a route along the eastern shore of the Salton Sink, shortening the
11 travel between Los Angeles and Yuma. A second major route crossing the Colorado River was
12 developed; the Bradshaw Route paralleled the old Cocomaricopa Trail and served mining
13 camps near La Paz, Arizona.

14
15 In 1873, a military telegraph line was run from San Diego to Fort Yuma, going through the
16 mountains and closely following the boundary with Mexico. A military road was constructed
17 parallel with the telegraph line.

18
19 Surveys for railroads were conducted in the mid- and late-19th century. In 1877, a rail line was
20 built from San Geronio Pass to Yuma and in 1919, a rail line was completed between San
21 Diego and Yuma.

22
23 The first automobile roads used existing wagon roads. The Mountain Spring Grade and some
24 miles of primitive plank roads across the sand dunes were constructed early in the 20th century.
25 The plank road crossing the dunes was redesigned and reconstructed several times in an effort
26 to improve transportation. By 1926, Highway 80 was completed, using new construction
27 design and methods.

28
29 Exploration of mineral resources began in 1780 at the Cargo Muchacho and Potholes districts.
30 In the mid-19th century mining began throughout the Colorado Desert, resulting in boom years
31 between 1870 and 1890. Railroad branches and spurs were built to serve the mining industry.

32
33 Farming, sustained by well water, began in the early-20th century. The agricultural industry
34 was supported by a canal bringing water from the Colorado River, and small farming
35 communities developed. By 1940, the Imperial Dam and All American Canal had been built to
36 deliver river water for farming. The Los Angeles Aqueduct, delivering Colorado River water
37 to that city, was built between 1934 and 1941.

38
39 The eastern Colorado Desert was used as a military training ground called the California-
40 Arizona Maneuver Area during World War II. Other areas were used as artillery ranges, air
41 fields, armored division training, and weapons testing.

42 43 **Recent Exploration and Development of the Mojave Desert**

44
45 The first documented exploration of the Mojave Desert by non-indigenous people occurred in
46 the mid-1700s when Francisco Garces, a Spanish Franciscan priest, looked for a practical route
47 from Arizona to northern California. Between Garces' exploration in 1776 and 1880, only
48 agriculture or precious metals attracted Spanish-Mexican and American settlers. Much of the

1 history of the region turns on its use as a corridor. In the early 19th century, fur trappers and
 2 caravans crossed the desert. Jedediah Smith led the way in 1826, followed by other mountain
 3 men like Ewing Young in 1829; both followed the Mojave Indian Trail. Antonio Armijo is
 4 credited with leading the first caravan of pack animals across the Mojave in 1830. Traders
 5 William Wolfskill and George C. Yount used the Old Spanish Trail in 1830-1831. Other groups
 6 who used the trail during Mexican control of the western Mojave include Don Jose Aveita's
 7 commercial caravan in 1833-1834, Jacob P. Leese in 1834, William Slover and Isaac Pope in
 8 1837, and Jose Antonio Salazar's caravan in 1839-1840. John C. Fremont, a lieutenant in the
 9 U.S. Army Corps of Topographical Engineers, described his survey and travel in 1844 along a
 10 variant route. Other trails arising from commerce include the Mojave Trail and Salt Lake Trail,
 11 both of which run through present-day Barstow. Joseph Walker is credited with pioneering a
 12 trail across the Sierra Nevada Range, enabling access between the San Joaquin Valley and the
 13 desert. Settlement by Americans and the growth of coastal and inland trade culminated in the
 14 annexation of California by the United States in 1848. In that same year, gold was discovered
 15 in California and the gold rush was on, ushering in a massive influx of prospectors. The Death
 16 Valley forty-niners, led by William Lewis Manly, traveled along Indians Big Trail, also known
 17 as Owens River Road, the Midland Trail, and Bullion Road, which connected the northern
 18 Mojave and Owens Valley area with Los Angeles, via connections with the Tehachapi Pass
 19 road and Walker's Pass road. In the late-19th century, these roads were used to transport goods,
 20 people, livestock, food and ore between the Mojave Desert and Los Angeles. Temporary camps
 21 or stage stops were set up along the routes, including Indian Wells Station, Coyote Holes
 22 Station, and Panamint Station. The western Mojave Desert became a major contributor to
 23 California's mining industry. Small mining towns, such as Calico and Coolgardie, and ranching
 24 operations were established and proposed. The California Gold Rush contributed to pressure to
 25 establish railroad routes across the desert. Railroad surveys began in 1853 with Lieutenant
 26 Amiel Weeks Whipple and Lieutenant Robert Stockton Williamson conducting surveys in the
 27 western Mojave. The San Pedro, Los Angeles and Salt Lake Line, predecessor of the Union
 28 Pacific through the Mojave Desert, was completed in 1905, and the Tonopah and Tidewater
 29 finished its line from Ludlow on the Atlantic & Pacific via Death Valley Junction to Beatty,
 30 Nevada in 1907. Spur lines were constructed to serve mines and mining camps. The Harvey
 31 house originated from an early railroad roadhouse located at the junction of the Santa Fe
 32 Mojave-Needles line and the California Southern line coming north from Cajon Pass.
 33 Development of automobile routes began in the early-20th century and increased in importance
 34 in the second quarter of the 20th century. Following completion of the Atlantic & Pacific
 35 Railroad, a road was constructed in 1914 parallel to the tracks, which road became the
 36 precursor of U.S. 66. In 1925, construction began on U.S. 91, a new alignment of an older trail,
 37 which opened up the desert to the general public. Ranching and agricultural industries at the
 38 beginning of the 20th century and increasing populations in Los Angeles, created a need for
 39 more water than the immediate landscape could supply. In rural areas, the demand was met by
 40 small irrigation ditches and canals, but Los Angeles' need was met by construction of the Los
 41 Angeles Aqueducts in 1908-1913 and in the 1920s. Military bases were established in the
 42 desert prior to U.S. entry into World War II. Large tracts of land were set aside for military use
 43 near Ridgecrest, Barstow, Lancaster, and Twentynine Palms.
 44

1 **NATURAL RESOURCES OVERVIEW**

2

3 **The Sonoran Desert Environment**

4 The Sonoran Desert is an arid region covering 120,000 square miles in southwestern Arizona
5 and southeastern California, as well as most of Baja California and the western half of the state
6 of Sonora, Mexico. Subdivisions of this hot, dry region include the Colorado and Yuma deserts.
7 Irrigation has produced many fertile agricultural areas, including the Coachella and Imperial
8 valleys of California.

9 This is the hottest of our North American deserts, but a distinctly bimodal rainfall pattern
10 produces a high biological diversity. Winter storms from the Pacific nourish many West Coast
11 annuals such as poppies and lupines, while well-developed summer monsoons host both
12 annuals and woody plants originating from the south. Freezing conditions can be expected for a
13 few nights in winter.

14 Trees are usually well developed on the desert ranges and their bajadas. Often abundant on
15 these well-drained soils are Little-leaf Palo Verdes, Desert Ironwoods, Catclaw and Saguaro.

16 The understory consists of three, four or even five layers of smaller woody shrubs. Tall chollas
17 may occur in an almost bewildering array of species. The alluvial lowlands host communities
18 of Desert Saltbush, wolfberry and bursage. On coarser soils, Creosote Bush and bursage
19 communities may stretch for miles. Where the water table is high, Honey or Velvet Mesquite
20 may form dense bosques or woodlands.

21 Other species are restricted to alkaline areas. Stream sides may be lined with riparian
22 woodlands composed of Arizona Ash, Arizona Black Walnut, Fremont Cottonwood and
23 various willows, with a dense understory of Arrow-weed, Seepwillow and Carrizo. The Sonora
24 Desert is rich in animal life as well, with many species in all groups derived from tropical and
25 subtropical regions.

26 The western part of the Sonora Desert (sometimes called the "Colorado Desert") is closer to the
27 source of Pacific storms and is noted for spectacular spring flowering of ephemerals when there
28 is winter-spring rainfall. (This phenomenon is not limited to here.) However, the western
29 portion is relatively depauperate, lacking many of the species such as the Saguaro that depend
30 on good summer rainfall

31 **The Mojave Desert Environment**

32 The transition from the hot Sonoran Desert to the cooler and higher Great Basin is called the
33 Mojave Desert. This arid region of southeastern California and portions of Nevada, Arizona
34 and Utah, occupies more than 25,000 square miles.

35 On the northwestern boundary it extends from the Sierra Nevada range to the Colorado Plateau
36 in the east; it abuts the San Gabriel-San Bernardino mountains in the southwest. Near the Great
37 Basin-Mojave border lies Death Valley, the lowest point in North America and a national park.

1 The Mojave's desert climate is characterized by extreme variation in daily temperature and an
 2 average annual precipitation of less than 5 inches. Almost all the precipitation arrives in winter.
 3 Freezing temperatures occur in winter, while summers are hot, dry and windy.

4 The Mojave has a typical mountain-and-basin topography with sparse vegetation. Sand and
 5 gravel basins drain to central salt flats from which borax, potash and salt are extracted. Silver,
 6 tungsten, gold and iron deposits are worked.

7 While some do not consider the Mojave a desert in its own right, the Mojave Desert hosts about
 8 200 endemic plant species found in neither of the adjacent deserts. Cacti are usually restricted
 9 to the coarse soils of bajadas. Mojave Yucca and, at higher elevations Desert Spanish Bayonet,
 10 a narrow-leafed yucca, are prominent. Creosote Bush, Shadscale, Big Sagebrush, Bladder-sage,
 11 bursages and Blackbush are common shrubs of the Mojave Desert.

12 Occasional Catclaws grow along arroyos. But, unlike the Sonoran Desert, trees are few, both in
 13 numbers and diversity. The exception is the Joshua-tree. While this unusual tree-like yucca is
 14 usually considered the prime indicator of Mojave Desert vegetation, it occurs only at higher
 15 elevations in this desert and only in this desert.

16 **INTERIM MANAGEMENT PROGRAM**

17 The Interim Management Program consists of a Research Component and an Administrative
 18 Component. Throughout the implementation of the Interim Management Program are
 19 numerous opportunities for consultation and reporting between BLM and the SHPO to ensure
 20 the confidence of each party that satisfactory progress is being made.

21 **RESEARCH COMPONENT OF THE INTERIM MANAGEMENT PROGRAM**

22 **Research Questions and Objectives**

23 The California Desert District of BLM has found that the management of cultural resources has
 24 been hampered by a number of factors. Some of these factors are beyond the control of BLM,
 25 including the extremely large land area involved (10.5 million acres within CDCA) and the
 26 sheer scale of the over 16,000 miles of designated open routes within the three planning areas of
 27 interest to this Interim Management Program. However, some factors are within the power of
 28 BLM to change and these include the state of the cultural resource data base, the absence of a
 29 valid and useful predictive model for cultural resources, conducting inventory and evaluation,
 30 and providing protection for significant cultural values.

31
 32 The database of cultural resources is of varied quality and usefulness for management. BLM
 33 has a large number of archaeological site records which do not meet modern standards. These
 34 legacy records are often very brief, containing little in the way of useful cultural information
 35 and are accompanied by unreliable locational (provenience) information. As a consequence,
 36 the database is of limited utility as a planning tool for decision-making concerning
 37 undertakings and is of no more than mixed value in identifying preservation needs.

38
 39 While the BLM understands that operation of motorized vehicles on routes may have impacts
 40 to cultural resources, that understanding is not refined. There is a tendency to assume that all

1 impacts are adverse, with a consequent tendency to close or re-route routes without
 2 consideration of alternative treatments that may be less disruptive to established patterns of
 3 recreation use. There is a clear need on the part of decision makers for a detailed and
 4 thoughtful understanding of the range of impacts and how those impacts may affect specific
 5 classes of cultural resource under specific conditions.

6
 7 The BLM often has a need for a reliable predictive model for planning. Currently, the
 8 predictive models that are applied for planning and for inventories are largely personal,
 9 intuitive and subjective. While such models are useful, they do not provide an objective basis
 10 for planning decisions and for conducting inventories with less than complete coverage.
 11 Moreover, the development of an objective and reliable predictive model will help the agency
 12 direct its scarce resources to the best historic preservation effect.

13
 14 It is the purpose of this Interim Management Program to achieve substantial progress in
 15 resolving these issues insofar as the work can be done with a focus on data specific to routes of
 16 travel. When the work is complete, BLM will be in a position to further refine the predictive
 17 model, plan for re-recording legacy cultural resources, and design appropriate treatments for
 18 cultural resource protection in the context of OHV use and other types of uses.

19
 20 The research component of Interim Management Program proposes the investigation of three
 21 questions divided into three categories: Assessment of the Database, Assessment of Impacts,
 22 and Development / Testing of a Predictive Model.

23 24 **Task 1: Assessment of the Database**

25
 26 *Which legacy site records within and adjacent to routes of travel are useable for management?*

27
 28 BLM proposes to conduct a physical review of the approximately 900 site records that pertain
 29 to the designated open routes and that are situated within 300 feet on either side of centerline.
 30 This review will be conducted under the supervision of a qualified cultural resource
 31 professional. The following determinations will be made:

32
 33 Does the site record and sketch map contain detailed information on cultural
 34 constituents sufficient to understand the nature of the site?

35
 36 Is the locational information in the site record and accompanying USGS map credible?

37
 38 The results of the review will be documented in a spreadsheet and report. The spreadsheet will
 39 contain the site identifier, documentation of the determinations, and will contain space for
 40 additional observations made by the reviewer. This review of a sample of the entire cultural
 41 resource data base will provide a reasonable basis for characterizing the condition of the entire
 42 data base.

43
 44 The immediate application of the information developed during this review will be in the
 45 selection of a sample of sites for a study of the impacts of OHV and recreation on cultural
 46 resources within and along routes of travel.

In addition, the information will be used in the future to select legacy sites for re-recording and monitoring, especially within the context of Section 110 activities. In addition, the spreadsheet may be incorporated into the metadata behind the GIS cultural resource layers.

Task II: Assessment of Impacts

What are the OHV and associated impacts to historic sites and to prehistoric habitation, lithic and rock art sites?

BLM proposes to conduct field inspections of a sample of sites along routes of travel and for which site records have been determined to be useful through the prior inspection process. The sample will be stratified by route use level (high, medium, and low) and by site type (historic and prehistoric lithic, habitation, and rock art).

The sample size will not exceed 50 sites. BLM has determined that a sample this size is sufficiently large enough to produce the needed results.

BLM proposes as part of its assessment of impacts to cultural resource sites to collect empirical data associated with site attributes impacted by OHV and associated activities. The assessment will describe, record, and analyze the types of activities that have impacted each cultural resource site. A description and recordation of each site's environmental features and impacts to environmental features shall also be undertaken. The environmental features associated with a site could be the key factor in what attracts people to a site or contributes physically to the degree of impacts to a site. A methodology for collecting and documenting this information shall be developed and reviewed by peers prior to implementation. Training for personnel collecting data shall be undertaken to insure uniform and consistent data collection.

The data collected in the assessment will allow for an analysis of what types of OHV and associated activities impact cultural resource sites and the degree the different activities impact the sites. This information will also be useful in developing appropriate protective or mitigation measures for site protection.

Task III: Development and Testing of Predictive Model

What environmental variables predict location of cultural resources?

BLM proposes to develop a GIS-based tool for the identification of areas that are likely to contain archaeological sites. BLM intends to develop the most fine-grained assessment of archaeological sensitivity as is possible with existing databases of environmental variables believed to be site predictors. The basic approach is to compare known site locations with each set of predictor environmental variables within a GIS. As currently envisioned, the environmental predictors are believed to be topography (slope, aspect, landform type, and elevation), distance to surface water including ancient bodies of water, vegetation, soil, and geology.

Data are available within the GIS to enable comparison with site locations. Topographic data will be extracted from a Digital Elevation Model using routines in ArcView. Surface water will be modeled using the National Hydrography Dataset. Vegetation will be modeled using

the most fine-grained regional digital dataset available. Soils will be modeled with NRCS digital soils datasets and geology will be modeled using the most fine-grained regional digital dataset available. Paleoenvironmental data available to the model are expected to be coarse-grained and will be based on existing reconstructions. Cultural resource information will be derived from the existing GIS cultural resource data and from the literature including data on hunger-gatherer behavior and land-use patterns and from ethnographic information on resource use, population movement and settlement. Even though the quality of individual site records and survey coverage may vary widely, these variations are assumed to be random with respect to the environmental variables.

Evaluation of the predictive model will occur within the context of additional inventory. The inventory effort will be directed toward areas of high, medium, and low probability as predicted by the model. The inventory work will be guided by a subsequent work plan or research design that will determine sample size and strategy; the development of the plan for inventory will be accomplished in consultation with SHPO.

The predictive model is envisioned as a dynamic tool which can be refined through use and testing. The model will only be as accurate as the environmental and cultural data provided to it. Future enhancements of the model could include adding variation in the distribution of sites through time, but such an enhancement would require substantial investment in dating large portions of the archaeological record. Further, the model will be readily extensible through the addition of new environmental data as they become available. The approach taken in the predictive model is expected to inform similar approaches as BLM undertakes consideration of routes of travel and other large-area studies elsewhere within California. The results of the effort to develop and evaluate the predictive model will be disseminated to the professional cultural resource community and interested parties through the presentation of professional papers and publication of results.

MANAGEMENT COMPONENT OF THE INTERIM MANAGEMENT PROGRAM

Task IV: Inventory Program

In addition to the inventory envisioned for testing of the predictive model, a program of inventory of high sensitivity/high use routes and route segments shall be designed and implemented. By the scheduled termination date of the Protocol Amendment, all the high sensitivity/high use routes and route segments shall have been surveyed for cultural resources. Annually, the CDD will consult with SHPO in developing a plan to inventory a portion of the high sensitivity/high use routes and route segments. Among the elements of the annual inventory plan shall be methods, personnel and funding, planned variation from the 600 ft. wide route impact corridor, and identification of the routes selected for the annual increment of survey. The plan of work will be incorporated into the planning documentation submitted annually to SHPO, as described in Stipulation X of the Protocol Amendment. The inventory program will document cultural resources on Archaeological Site Record forms (DPR form 523 or equivalent) and site location information will be recorded using GPS. Site records will be maintained in physical copy and as .pdf files or other electronic equivalent. Site records and shape files will be submitted annually to the appropriate Information Center and shall be incorporated into GIS data for CDD. The inventory program will document impacts to sites

from trail use and other sources of impact. The total area surveyed each year may be credited as Section 110 inventory accomplishment. Previously recorded cultural properties situated within survey units shall be re-recorded where legacy site record documents have been determined not to meet current standards or which are otherwise determined to be inadequate.

Task V: Develop Standard Protection Measures

The findings and determinations that will result from the research activities of this Interim Management Program are not intended to stand in isolation from the management of cultural resources. Standard Protection Measures will be developed and applied to a selected sample of sites in a program of efficacy testing. Protection measures currently in place, closure and re-routing, are derived from the 1980 CDCA Plan and are based on the assumption that OHV impacts are typically both adverse and additive. It is the intent of this Interim Management Program to develop a deeper understanding of OHV impacts and, based in that understanding, create a host of prospective standard protection measures that are crafted for specific classes of impacts, in specific environments, and for specific classes of cultural resources. These measures may be few or many, depending on the findings and determinations of the research component.

Task VI: Develop and Implement Monitoring Program

Monitoring is the bridge between the results of research activities and the development, implementation, and evaluation of efforts to preserve significant cultural values. The program of recurring monitoring envisioned in this Interim Management Program has two interrelated purposes.

First, the monitoring program will, through empirical observations, evaluate the efficacy of the prospective standard protection measures. This monitoring program will continue until each standard protection measure is completely evaluated. Those standard protection measures that are deemed appropriate both for effectiveness and efficiency will become incorporated into an ongoing management program for cultural resources along routes of travel.

Second, the monitoring program will, through empirical observations, monitor the condition of a selected sample of bellwether cultural properties. Monitoring observations at the sample of sites are expected to mirror conditions in the larger corpus of sites situated along and within routes of travel and, therefore, can help BLM plan adjustments in site management strategies.

Task VII: Develop Capabilities

In order to successfully fulfill the work stipulated in the Protocol Amendment, CDD will need to develop and sustain capability through funding, training, and incorporation of volunteers into the work program.

Annually, the BLM, through its California Desert District, will plan for and seek private and public grants and donations and obtain appropriated funds in order to meet the costs of the work to be accomplished under the Interim Management Program. Further, these sources of funds will be important as a means to meet the costs of cultural resources management on routes of travel after the Protocol Amendment has been successfully fulfilled. BLM will train its

permanent and temporary cultural resources staff in the methods and techniques that are necessary to accomplish the tasks outlined in the Protocol Amendment. BLM will utilize volunteers to the greatest extent possible. The California Archaeological Site Steward Program (CASSP) is prepared to train volunteer surveyors; other volunteer programs may provide personnel for survey or other in-kind contributions.

Task VIII: Transition to Permanent Program

The effort that BLM will put into this Interim Management Program will ultimately be valueless without a corresponding effort to develop a mature, ongoing cultural resource management program for routes of travel. It is the ultimate goal of this Interim Management Program, and the Protocol Amendment to which it is attached, that the BLM develop such a mature program for the desert and for other Public Lands in California. A programmatic agreement document or new Protocol Amendment directed toward routes of travel will be developed prior to expiration of the current Protocol Amendment. To the maximum extent possible, that future agreement will incorporate, as a template, the lessons from implementation of the work in the Interim Management Program.

Table 1: Scheduled Completion Dates for Major Tasks by Component

Research Component

Task	Completion Date
• Task I: Assessment of CDCA database	End of Year One
• Task II: Route Usage Impacts	End of Year Three
• Task III: Develop/Evaluate Predictive Model	End of Year Four

Administrative Component

Task	Completion Date
• Task IV: Inventory High Sensitivity/High Use	End of Year Five
• Task V: Standard Protection Measures	End of Year Four
• Task VI: Monitoring Program	End of Year Five
• Task VII: Developing Capabilities	Annually
• Planning and Reporting	Annually (first year plan due three months following execution date of Amendment)

SUPPLEMENTAL PROCEDURES FOR LIVESTOCK GRAZING PERMIT/LEASE RENEWALS

A CULTURAL RESOURCES AMENDMENT
TO
THE STATE PROTOCOL AGREEMENT

BETWEEN

CALIFORNIA BUREAU OF LAND MANAGEMENT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

The purpose of this amendment is to address the National Historic Preservation Act (NHPA) Section 106 compliance procedures for processing approximately 400 grazing permit/lease (hereafter "permit") renewals scheduled for 2004 through 2008. This amendment shall cover grazing permit renewals for livestock as defined in 43 CFR 4100.0-5 as "...domestic livestock – cattle, sheep, horses, burros, and goats." The following procedures will allow for renewal of the permits while maintaining compliance with the NHPA. Alternative approaches to this amendment may be developed by individual Field Offices, but such approaches shall fall under the Section 106 regulations of the NHPA (36 CFR Part 800) and shall require individual Field Office consultation with the SHPO.

These supplemental procedures are an amendment to the State Protocol dated April 6, 1998, which is scheduled for termination on October 25, 2004. These supplemental procedures will remain in effect when that Protocol is terminated and will become an amendment to a successor Protocol document.

This amendment deviates from the Protocol in *Section VI. Thresholds for SHPO Review*, which states, "*BLM shall complete the inventory, evaluation and assessment of effects and document all findings, including negative inventories and no effect determinations, in BLM files before proceeding with project implementation.*" This amendment would allow for renewal of an existing grazing permit prior to completing all NHPA compliance needs as long as Protocol direction, the BLM 8100 Series Manual guidelines (Protocol Amendment F), and the following specific stipulations are followed:

I. Planning

Grazing permit renewals of any acreage size shall be scheduled for cultural resource compliance coverage over the next ten years. Such long term management includes scheduling for inventory, evaluation, treatment, and monitoring, as appropriate. Schedules for inventories of all renewals to be covered by this amendment shall be delineated by each participating Field

Office and submitted to the SHPO and the State Office at the first annual reporting cycle for FY 2004.

This amendment shall only apply to the reissuance of grazing permit authorizations and existing range improvements. All new proposed undertakings for range improvements shall follow the established procedures within the Protocol or 36 CFR 800, the implementing regulations for Section 106 of NHPA.

II. Inventory Methodology

To address the impacts of grazing on cultural resources, a Class II sampling or reconnaissance survey strategy shall be devised by the cultural resource specialist in consultation with range staff which focuses inventory efforts on areas where livestock are likely to concentrate within areas of high sensitivity for cultural resource site locations. Congregation areas where it has been shown that the greatest levels of impact are likely to occur are generally around springs, water courses, meadows, and range improvement areas such as troughs and salting areas.

All existing range improvements within areas of high sensitivity for the location of cultural resource sites shall be inventoried. However, due to the fact that cattle trailing occurs along fence lines and the area of impact is limited to a one meter wide swath and impacts to cultural resources are generally restricted to this corridor, existing linear improvements will not be inventoried except in areas of high sensitivity for the location of cultural resource sites.

Salting areas may change from season to season making locating these areas problematic. Salting locations will be assessed by the cultural resource specialist in consultation with range staff and the permittee. The permittee will be asked to provide a map designating salting areas and these locations will be inventoried if they occur in areas where the probability for the occurrence of cultural resources is high. All livestock loading and unloading areas and corral areas will also be inventoried within areas of high sensitivity for the location of cultural resources.

A Class I records search will also be conducted for each allotment to ascertain previously recorded site locations and areas of prior survey coverage which can be accepted as meeting current standards. Sites located within livestock congregation areas will be visited to evaluate grazing impacts.

All areas identified for inventory in the survey strategy shall be covered intensely. All unrecorded site locations will be recorded and a report of findings for each allotment will be completed. These investigations shall only address public lands administered by BLM. Private, state and county in-holdings will not be evaluated.

III. Tribal and Interested Party Consultation

Field Offices will be responsible for contacting and consulting with Tribes and interested parties as outlined in 36 CFR 800 and the 8120 manual guidelines. This will also meet BLM government-to-government responsibilities for consultation.

IV. Evaluation

Determinations of eligibility to the National Register of Historic Places shall only be undertaken on sites or properties where it can be reasonably ascertained or it is ambiguous that range activities will continue to impact sites and further consultation with SHPO could be required.

V. Effect

A. Range undertakings where historic properties are not affected may be implemented under the Protocol without prior consultation with SHPO. These undertakings shall be documented in the Protocol Annual Report.

B. Range undertakings where historic properties are identified within APEs, and where historic values are likely to be affected or diminished by project activities, require consultation with SHPO, and ACHP if necessary, on a case-by-case basis, pursuant to 36 CFR 800.5-6.

VI. Treatment

Standard Protective Measures can include but are not limited to:

A. Fencing or enclosure of livestock from the cultural resource sufficient to ensure long-term protection, according to the following specifications:

1. the area within the enclosure must be inventoried to locate and record all cultural resources; and
2. the enclosure (i.e.) fence must not divide a cultural resource so that a portion is outside of the fence; and
3. the cultural resource specialist will determine the appropriate buffer to be provided between the cultural resource and its enclosing fence.

B. Relocation of livestock management facilities / improvements at a distance from cultural resources sufficient to ensure their protection from concentrated grazing use.

C. Removal of natural attractants of livestock to a cultural resource when such removal, in the judgment of the cultural resource specialist, will create no disturbance to the cultural resource (e.g. removing vegetation that is providing shade).

- D. Removal of the area(s) containing cultural resources from the allotment.
- E. Livestock herding away from cultural resource sites.
- F. Use salting and/or dust bags or dippers placement as a tool to move concentrations of cattle away from cultural sites.
- G. Locating sheep bedding grounds away from known cultural resource sites.
- H. Other protective measures established in consultation with and accepted by SHPO.

The Standard Protective Measures defined above may be used to halt or minimize on-going damage to cultural resources. If the standard protection measures can be effectively applied, then no evaluation or further consultation with SHPO on effects will be necessary. The adopted Standard Protective Measures shall be added to grazing permit "Terms and Conditions" as appropriate for each grazing permit issued or reissued as fully processed permits (completed NEPA analysis, consultation, and decision). The "Terms and Conditions" for each permit may be modified by the addition, deletion, or revision of Standard Protective Measures as described in Section VII of these Supplemental Procedures.

VII. Monitoring

A. Field Offices shall adopt the following monitoring guidelines:

1. monitoring shall be conducted yearly and documented to ensure that prescribed treatment measures are effective; and
2. when damaging effects to cultural resources from grazing activities are ambiguous or indeterminate, Field Offices shall conduct monitoring, as necessary, to determine if degrading effects are resulting from grazing activities and if they are continuing to affect the characteristics that may make properties eligible to the NRHP or if they are otherwise adversely affecting the values of cultural resources.

B. When monitoring has yielded sufficient data to make effect determinations, the following apply:

1. When no additional degrading damage will likely occur because standard treatment measures are adequate to prevent further damage from rangeland management activities, SHPO consultation on a case-by-case basis is unnecessary.
2. When no additional degrading damage will likely occur, even without implementation of standard treatment measures, then no further treatment

consideration of those resources is necessary, even if past grazing impacts to the ground surface are evident.

3. When additional degrading damage will likely occur, mitigation of adverse effects shall be addressed on a case-by-case basis, pursuant to 36 CFR 800.5-6.

When monitoring results or case-by-case consultation result in a determination concerning addition or deletion of Special Treatment Measure(s) for a specific allotment, then that Measure(s) will be added to, or deleted from, the Terms and Conditions of the fully processed permit for that allotment.

VIII. Disagreements

When a Field Office Cultural Heritage staff and Field Office Manager fail to agree on inventory, evaluation, monitoring, and application of Special Treatment Measures, then the Field Office Manager shall initiate consultation with the SHPO.

IX. Reporting and Amending

A. Each participating Field Office shall report annually to the SHPO and the State Office, a summary of activities carried out under this amendment to the Protocol during the previous fiscal year. The reporting shall be included in the Protocol Annual Report.

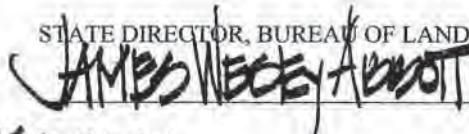
B. Annual reports shall summarize activities carried out under this amendment. These reports are not meant to be compilations of the individual project reports prepared for the range projects; they are meant to be programmatic summaries of data and significant findings.

C. Annual reporting shall include at least three major sections:

1. schedules and status of accomplishments in meeting schedules for cultural resource activities in relation to the range management program as identified in Stipulation I; and
2. results, as annual summaries of accomplishment and significant findings resulting from rangeland management cultural resource activities; and
3. appendices to the report that would include project, coverage and cultural resource location maps and tabular summaries of total number of cultural resources located, new cultural resources located, cultural resources evaluated, types of treatment measures employed at each location, and cultural resources monitored.

- D. Annual reports may contain recommendations for new or revised treatment measures.
- E. Either party to this amendment may initiate a process to negotiate new or revised treatment measures or to revise the schedule of inventories. When such a process is initiated, the parties to this amendment shall negotiate new or revised treatment measures or schedule of inventories and such revisions or additions shall be issued as Attachments to these Supplemental Procedures.

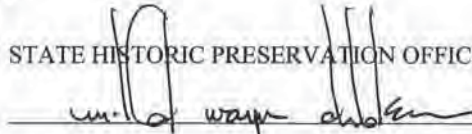
STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, CALIFORNIA



 By Mike Pool

Date: 8/17/04

STATE HISTORIC PRESERVATION OFFICER, CALIFORNIA



By Milford Wayne Donaldson

Date: 8/18/2004

SUPPLEMENTAL PROCEDURES FOR PROTECTION OF CULTURAL RESOURCES FROM PRESCRIBED FIRE EFFECTS

A CULTURAL RESOURCES AMENDMENT
TO
THE STATE PROTOCOL AGREEMENT

BETWEEN

CALIFORNIA BUREAU OF LAND MANAGEMENT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER

1 These supplemental procedures amend the State Protocol Agreement (Protocol) dated
2 October 25, 2004.

3
4 The purpose of this Protocol Amendment is to provide procedures for considering the effects
5 of prescribed fire on cultural resources within the lands administered by California Bureau of
6 Land Management (BLM) and on lands outside BLM's jurisdiction, but which may be affected
7 by BLM-managed prescribed fire. This Amendment extends to BLM considerable latitude to
8 exercise its own discretion in managing effects of prescribed fire without further consultation
9 with the California State Historic Preservation Officer (SHPO). Individual Field Offices of BLM
10 may elect not to follow these supplemental procedures; in such cases Protocol stipulation VI.K.
11 requiring consultation with the SHPO, shall apply.

12
13 With the concurrence of both parties, these supplemental procedures may remain in effect in the
14 event of termination of the Protocol. With the concurrence of all parties, these supplemental
15 procedures may amend a successor State Protocol Agreement or Programmatic Agreement.

16
17 This Amendment is adopted under Section IX.C. of the Protocol. This Amendment deviates
18 from the Protocol in Section VI, Thresholds for SHPO Review, which states, "*BLM shall*
19 *complete the inventory, evaluation and assessment of effects and document all findings,*
20 *including negative inventories and no effect determinations, in BLM files before proceeding with*
21 *project implementation.*" This Amendment would allow for phased inventory, avoidance of
22 effects, and implementation of prescribed fire projects prior to completion of all phases of
23 inventory.

24
25 These supplemental procedures include the text of the Amendment and attached Standard
26 Protection Measures (Attachment One) and flow chart of processes and decisions (Attachment
27 Two). Except where specified in these supplemental procedures, the Protocol shall apply.

Key Concepts

Reintroduction of fire into the wildland landscape managed by BLM is an essential technique for reducing fuel loads that may otherwise translate into catastrophic wildfires. General benefits of the reintroduction of fire into the landscape include ecosystem health, perpetuation of fire-adapted vegetation, and protection of life and property. Benefits for cultural resources and their management include subjecting cultural resources to controlled and comparatively cool fire rather than uncontrolled, hotter wildfires and the removal of dense fuel loads that may preclude or inhibit the identification of cultural resources during field surveys. Most California ecosystems are adapted to cycles of natural and human-caused fires resulting in vegetation communities that are fire-adapted or fire-dependent. Virtually every archeological site on BLM-administered lands has been subjected to the effects of wildfire.

Benefits of Prescribed Fire. Low- to moderate-intensity prescribed fires generally have few direct impacts to non-combustible cultural resources that have previously been exposed to wildland fire. However, the physical alterations that are known to occur, including spalling and alteration of hydration bands of obsidian artifacts, and the increased exposure of artifacts itself, are surpassed by the benefits of prescribed fires to management of cultural, and other, resources.

Special Management Activities and Expertise. The principal goal of these alternative procedures is streamlining within the context of the Protocol. Prescribed fire has a number of unique conditions which warrant development of specific alternative procedures. These conditions include the wildfire exposure of nearly all archeological sites across time, dense vegetation and ground cover which limit the accuracy of surveys conducted for prescribed fire projects, benefits of prescribed fire to cultural resources management, and the capability of BLM to design and implement protection and avoidance measures. BLM possesses, in its Cultural Resource and Fire/Fuels Management Staff, the requisite expertise to manage effects of prescribed fire while providing for meeting fuels reduction objectives.

Phased Inventory. Phased inventory is an alternative procedure for identification of cultural resources within the Area of Potential Effect (APE) of a prescribed fire. Phased inventory is a procedure whereby the identification effort is divided into pre-burn and post-burn survey efforts. Post-burn surveys are warranted where pre-burn vegetation density and limited ground visibility limit the accuracy and increase the cost of survey efforts; where at-risk cultural resources may be suspected but which were not identified during pre-burn inventory; and where effectiveness monitoring is necessary. Post-burn surveys may also be conducted within the perimeter of escaped fires that occur coincident to implementation of a prescribed fire. Pre-burn surveys shall be conducted for all ground-disturbing activities planned for a prescribed fire, for areas where inflammable (combustible) cultural resources may be expected, and for areas where other at-risk cultural resources may be expected.

At-Risk Cultural Resources. These supplemental procedures recognize that many classes of cultural resources are unlikely to be at-risk from the effects of a prescribed fire. Other classes of cultural resources, however, may be at substantial risk and it is to these "at-risk" resources that

these supplemental procedures are directed. At-risk cultural resources types are listed, eligible, or potentially eligible National Register properties which are susceptible to direct or indirect damage through the use of prescribed fire. Such resources may include those constructed of combustible materials, rock art, artifacts with sensitive resident data, and those properties which may become more exposed to theft and vandalism following removal of protective, obscuring vegetative cover.

Standard Protection Measures. Protection and avoidance measures (Attachment One) have been developed that, when implemented, are expected to mitigate or avoid effects to significant or potentially significant cultural resources which may be at-risk from prescribed fire.

Definitions

At-Risk Cultural Resources. At-risk cultural resources types are listed, eligible, or potentially eligible National Register properties and susceptible to direct or indirect damage through the use of prescribed fire. Such resources may include those constructed of combustible materials, rock art, artifacts with sensitive resident data, and those properties which may become more exposed to theft and vandalism following removal of protective, obscuring vegetative cover.

Phased Inventory. Inventory is divided into pre-burn and post-burn components. Pre-burn inventory is directed toward literature review and survey of areas where, in the judgment of the Field Office Cultural Resource Specialist, there is a high probability of discovering at-risk cultural resources. Survey of areas of dense vegetative cover may be deferred until completion of the burn project where such cover precludes or makes difficult the discovery of cultural resources. Post-burn survey is undertaken in areas where both fuels have been removed and where there is a high to moderate likelihood of discovering cultural resources.

Prescribed Fire. An intentionally ignited fire that burns under specified conditions (prescription) that allow the fire to be confined to a predetermined area and produce both the fire behavior and fire characteristics required to achieve planned fire treatment and resource management objectives. Instances of Wild Fire Use are not considered prescribed fires and are not included within the scope of this Protocol Amendment.

Fire/Fuels Management Staff. In this Amendment, Fire/Fuels Management Staff is intended to refer to individuals responsible for planning and implementing prescribed fire projects.

Specific Stipulations

This Amendment would allow for considering the effects of prescribed fire on cultural resources when compliance with the Protocol, the BLM 8100 Series Manual guidelines (Protocol Amendment F), and the following specific stipulations are followed:

1 I. Scoping the Undertaking

2
3 Identification activities should use a discovery procedure consistent with the needs for
4 information and the character of the area in which the planned prescribed fire shall occur.
5 Careful selection of methods, techniques and level of detail is necessary so that the information
6 developed or gathered may provide a sound basis for making decisions.

7
8 Individuals responsible for planning and implementing prescribed fires shall, as soon as a
9 prescribed fire is proposed and with as much lead time as possible, notify the Field Office
10 Cultural Resource Staff of the proposed undertaking. Information provided to the Field Office
11 Cultural Resource Staff shall include: boundary of the burn project, map of projected burn
12 intensities, proposed ground disturbance, and other information deemed pertinent to planning by
13 the Field Office Cultural Resource Staff in consultation with Fire Management staff.

14
15 II. Identification

16
17 A. Assessing Information Needs. The Field Office Cultural Resource Staff shall conduct
18 background research to identify cultural resources known or thought to exist within the APE of
19 the proposed prescribed fire. Based on this background research, "at-risk cultural resources"
20 shall be identified. Sources of information that shall be consulted include Cultural Resource
21 inventory files at Field Offices or Information Centers, land use and ownership records, fire
22 history atlases, geological maps, and documented areas of natural resources valued or used by
23 Native Americans.

24
25 B. Identifying At-Risk Cultural Resources. At-risk cultural resources are documented individual
26 properties or classes of cultural resources that: (1) are eligible, or potentially eligible for the
27 National Register of Historic Places and (2) for which the significant attributes of the known
28 individual property or class of cultural resource may be substantially damaged or destroyed by
29 the prescribed fire.

30
31 At-risk cultural resources within prescribed fire areas will usually include potentially significant
32 artifact classes and potentially significant combustible standing structures and features. At-risk
33 cultural resources may also include individual properties or classes of properties which, through
34 the vegetation clearing effect of the fire, become accessible to artifact theft or damage.
35 Professional judgment plays an important role in identifying at-risk cultural resources,
36 particularly when the effects of fire on certain types of archaeological materials or resident data
37 are poorly understood.

38
39 C. Developing a Cultural Resources Inventory and Management Strategy. Cultural resources
40 identification and management strategies for each of the prescribed fires shall be guided by a
41 Cultural Resources Inventory and Management Strategy (Strategy). The Strategy shall be
42 developed in collaboration between Cultural Resources and Fire/Fuels Management Staffs. The
43 Strategy document need not be lengthy or complex, but shall, at a minimum, include:

44
45 Project description (e.g. planned burn techniques and preparation, projected burn intensities,
46 and timeline);

- 1 Bibliography or list of references consulted during assessment of information needs;
- 2
- 3 A table of at-risk cultural resources expected to occur within the project area including a
- 4 brief rationale for designation, either individually or by resource class;
- 5
- 6 Identification methods proposed for at-risk cultural resources;
- 7
- 8 Identification of areas with a high probability for presence of at-risk cultural resources, but
- 9 which also possess ground cover conditions that preclude or significantly hamper site
- 10 identification;
- 11
- 12 Procedures to be implemented if the prescribed fire escapes;
- 13
- 14 Plan for monitoring effectiveness of protection measures; and,
- 15
- 16 Planned post-burn survey, if any, with rationale and specific information on location, survey
- 17 area, and projected costs including costs to be incurred in subsequent fiscal periods.
- 18

19 D. Locating At-Risk Cultural Resources.

- 20
- 21 1. Methods and Techniques. Methods for locating at-risk cultural resources should be
- 22 appropriate to the nature and visibility of the resource classes. Reconnaissance-level (non-
- 23 intensive) techniques may be appropriate for the identification of certain aboveground
- 24 resources and selective examination of specific features (e.g. rock outcrops) may be
- 25 appropriate to other classes of at-risk cultural resources. The methods selected for
- 26 identification efforts, and the rationale for these methods, shall be documented in the
- 27 Strategy.
- 28
- 29 Areas of proposed ground disturbance shall be intensively surveyed (e.g. pre-treatment,
- 30 control lines, new or reconstructed access roads, helipads, staging areas and camps). Prior
- 31 survey coverage, if deemed acceptable in the professional judgment of Field Office Cultural
- 32 Staff, may be accepted in lieu of new survey for all or part of an APE.
- 33
- 34 2. Post-burn Identification. At the discretion of the Field Office Cultural Staff, field survey
- 35 may be deferred for areas where preexisting vegetation conditions prevent reliable and
- 36 efficient survey. These areas may be selectively examined after the prescribed fire, when
- 37 ground visibility has improved. All such post-implementation surveys shall be completed
- 38 within one year of implementation.
- 39
- 40 3. Documentation. All cultural resources including at-risk cultural resources shall be
- 41 documented on DPR primary record forms. At-risk-cultural resources shall be further
- 42 documented on appropriate subforms. All documented properties shall be submitted to the
- 43 appropriate Information Center for assignment of a primary number and trinomial
- 44 designation. Inventory reports shall be submitted to the appropriate Information Center.
- 45 Submission of such documentation may occur up to one year following project
- 46 implementation.
- 47

III. Evaluation

Unevaluated, at-risk cultural resources situated within prescribed burn areas shall be evaluated pursuant to 36 CFR 800.4(c) prior to project implementation unless specific protective or avoidance measures (Attachment One, Standard Protection Measures) are implemented. The Field Office Cultural Resource Staff shall consult with Fire Management or other project planning staff to determine the feasibility and likely effectiveness of avoidance and protection measures proposed for implementation. Standard protection measures are described in Attachment One of this document. BLM shall evaluate all at-risk cultural resources where adverse effect cannot be avoided. In such cases, the procedures at Protocol VI. shall be followed.

Cultural Resources determined not to be at risk need not be evaluated but may be evaluated if such evaluation furthers the Heritage Preservation Plan or other objective.

IV. Protection and Treatment

A. When No At-Risk Cultural Resources Are Found. If no at-risk cultural resources are situated within the APE of the prescribed fire, BLM may proceed with the prescribed fire without further consideration to cultural resources. The information gathering and inventory process shall be documented.

B. When At-Risk Cultural Resources Are Present. When at-risk cultural resources are present within the APE of the prescribed fire, BLM shall choose one of two alternatives, according to specific circumstances.

1. When Protection Is Possible and Desirable. Cultural resources at risk may be protected from damage through the application of standard protection measures (Attachment One). A report shall be completed which documents the inventory process, resource evaluations and protective measures selected for the at-risk cultural resources; such report may be completed after project implementation when phased, post-fire survey is planned.

2. When Cultural Resources Will Not Be Protected. BLM may determine that the protection of at-risk cultural resources is neither feasible nor desirable. Should BLM elect not to protect at-risk cultural resources, BLM shall evaluate those resources by applying the National Register of Historic Places criteria for eligibility described at 36 CFR 60.4. When such evaluation determines that at-risk cultural resources are NRHP eligible or retain moderate to high cultural values, and the BLM determines that it cannot protect those resources by applying the Standard Protection Measures described in Attachment One, then the BLM shall initiate Section 106 consultation under Protocol stipulations VLA, VLM, and/or VLN, prior to completion of environmental analysis. A report shall be completed which documents the inventory process and resource evaluations.

V. Post-Burn Inventory

Post-burn inventory is an important feature of these supplemental procedures. Post-burn

inventory is intended to inventory a sample of land previously inaccessible, including areas where at-risk resources may be expected, monitor effectiveness of pre-burn survey and effectiveness of standard protection measures applied to at-risk cultural resources, and identify need or opportunity for further management of cultural resources. Re-entry for inventory in the post-burn area may be either complete survey or sample survey, but in either case the level of survey shall be intensive. When sample survey is planned the percentage of surveyed area shall reflect the general cultural resource sensitivity of the area and selected survey areas shall reflect the professional judgment of the Field Office Cultural Resource Staff. The rationale for selecting post-burn survey areas and methods of inventory shall be included in the Strategy document prepared prior to burn implementation. Post-burn survey may be directed to previously unsurveyed lands, previously surveyed lands, areas thought to contain cultural resources or samples within different environmental strata.

Post-burn survey shall be conducted within one year of the fire and shall be scheduled to take advantage of optimum post-burn ground visibility. The results of post-burn survey shall be documented and that documentation shall detail the survey areas selected and the survey methods employed.

VI. Inadvertent Effects

Should a prescribed fire become uncontrolled or damage at-risk cultural resources in unanticipated ways, the BLM Field Office Cultural Resource Staff shall take the following steps.

A. Discovery. The SHPO shall be notified by BLM immediately upon discovery that a prescribed fire damaged a property that was planned for avoidance or protection, or a previously unidentified at-risk cultural resource. If the undertaking has not been completed at the time the effect is discovered, all activities local and threatening to the property shall cease and efforts shall be taken to avoid further harm to the property until the following consultations are completed.

1. Should the discovery involve failure of standard protection measures listed in Attachment One or a BLM failure to ensure that such measures were adequately implemented, then the cultural resource report shall describe the failure, the reason for that failure, and measures that shall be taken to prevent similar future occurrences. The discovery situation shall be documented in the Annual Report of activities undertaken under the Protocol.

2. Consultation shall be initiated between BLM and the SHPO within seven days following discovery to develop an interim course of action to avoid further effects to cultural resources. If agreement on an interim course of action cannot be reached between the BLM and the SHPO, then the BLM shall initiate the procedures for resolving objections set out at Protocol IX.A.

B. Escaped Prescribed Fire. When a prescribed fire escapes, it shall be treated according to the unit's Fire Management Plan. The Field Office shall initiate consultation with SHPO within 24 hours of the escape with the focus of consultation directed toward planned actions to protect cultural resources from suppression damage and fire effects.

VII. Reporting

Projects completed under this Amendment to the State Protocol Agreement shall be listed in the BLM/SHPO Annual Report. Project information to be incorporated in the Annual Report shall include the name and planned acreage of each prescribed fire; a summary of the results of each study, including area surveyed before; analysis of the effectiveness of the Standard Protection Measures and after the prescribed fire and the numbers of at-risk cultural resources identified, evaluated, or protected; and, a summary of inadvertent effects.

VIII. Revision and Termination

The parties to this Amendment shall review the terms of this Amendment, including its Attachments, during scheduled reviews of the Statewide Protocol Agreement in order to determine whether continuation, revision, or termination is appropriate. Either party may propose revisions or terminate this Amendment by providing 90 days notice. During the period following notice of the intent to terminate, both parties to this Amendment shall enter active negotiations to avoid termination.

This Amendment shall expire and have no further force or effect at midnight of the second anniversary of the Amendment's date of execution unless continuation for a specific period is mutually agreed between the parties. Expiration of this Amendment notwithstanding, any prescribed burn projects for which pre-burn inventory has been completed under the terms of this Amendment may continue to follow these procedures to the completion of the project.

STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, CALIFORNIA



By Mike Pool

Date: 8/11/05

STATE HISTORIC PRESERVATION OFFICER, CALIFORNIA



By Milford Wayne Donaldson

Date: 8/12/05

Attachment One: Standard Protection Measures

Appendix E--Prescribed Fire Effects 9

ATTACHMENT ONE

STANDARD PROTECTION MEASURES

FOR

CULTURAL RESOURCES IN PRESCRIBED FIRE AREAS

If California BLM chooses to defer National Register evaluation of previously unevaluated at-risk cultural resources by protecting or avoiding effects to those resources, or chooses to protect or avoid effects to cultural resources included in, or previously determined eligible for, inclusion in the National Register of Historic Places, the following standard protection measures may be applied by the BLM, singly or in any effective combination, and prescribed fire may be applied to the area surrounding the resource(s) without further SHPO consultation.

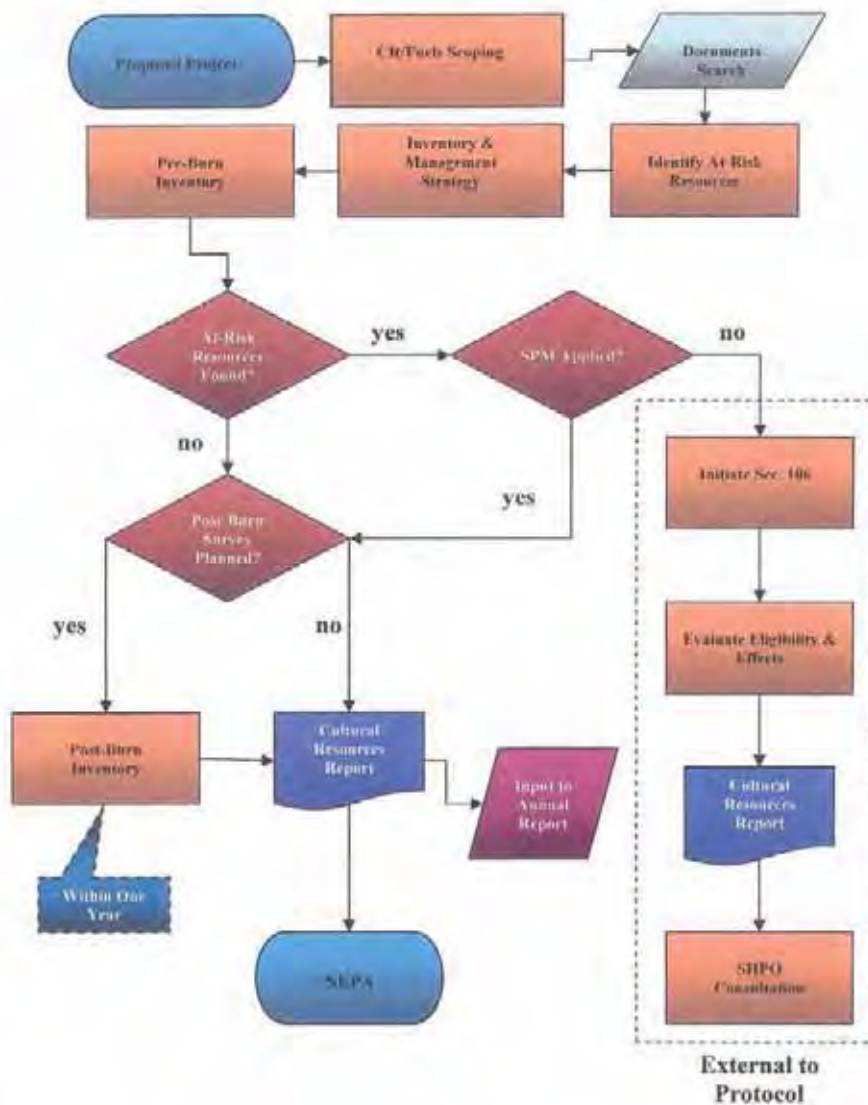
1. **Communication.** The locations, boundary information, and prescriptions (avoidance or protective measures) for at-risk cultural resources shall be conveyed in writing and depicted on maps from the Field Office Cultural Resource Staff to the Project Planner.
2. **Flagging.** Resources of interest within the proposed fire area shall be clearly delineated by flagging or tagging site boundaries prior to the fire. Flagging must clearly identify areas to be avoided or protected and may include a buffer zone to extend the protection area around properties, as described below.
3. **Buffer Zones.** The establishment of a buffer zone surrounding an at-risk cultural resource may be employed to reduce the likelihood that inadvertent effects from project implementation might occur.
 - a. The use of buffer zones in conjunction with other avoidance measures are particularly applicable where setting may contribute to the property's eligibility under 36 CFR 60.4, or where it may be an important attribute of some types of historic properties (e.g., historic buildings or structures; properties important to Native Americans).
 - b. A Field Office Cultural Resource Staff on a case-specific basis must determine the size of buffer zones and may consult with specialists or those with particular interest, including Native Americans.
 - c. The distinction between cultural resource boundaries and buffer zones must always be clear in site documentation and reports.

- 1 4. Prescribed fires may be redesigned to exclude the area containing and surrounding the
2 cultural resource(s), such that no additional special protective measures are necessary to
3 ensure that the fire or fire control activities shall not affect the resource(s) and their setting(s).
4
- 5 5. Cultural resources may be protected by creating fire breaks that provide a sufficient buffer to
6 ensure that the resources are not impacted by fire, as long as the environment (setting) of the
7 resource within which the fire break is created could not contribute significantly to its
8 importance. Fire breaks may be created without previous cultural resources inventory only
9 when hand-clearing brush and vegetation, or when previous fire breaks are re-established by
10 removing vegetation and existing graded or cleared surfaces (e.g., roads).
11
- 12 Mechanical equipment may be used to create fire breaks or grade existing roads or previous
13 fire breaks only if the areas to be graded have been examined by a cultural resource specialist
14 and found not to contain archaeological or historical resources.
15
- 16 At the discretion of the Field Office Cultural Resource Staff in consultation with the
17 Fire/Fuels Management Staff or other project planning staff, back burning may be used to
18 remove brush and vegetation from the buffered perimeter of cultural resources in order to
19 protect cultural resources from prescribed fires. However, the Field Office Cultural Resource
20 Staff or designee must be present during these procedures to ensure that the at-risk cultural
21 resources are not impacted.
22
- 23 6. Fire shelter fabric or other reflective materials may be placed over cultural resources to
24 protect them from burning when fuel removal is done to prevent high levels of radiant heat.
25
- 26 7. Fire retardant foam wetting agents without dyes or colorants may be applied to cultural
27 resources and/or areas surrounding cultural resources to protect them from fire damage.
28 Where feasible, wetting agents should be applied to the perimeter of cultural resources rather
29 than directly on resources, although circumstances may warrant aerial or direct application.
30
- 31 8. Prescribed fires should be scheduled or designed to avoid burning cultural resources
32 important to Native Americans. In other instances, fires should be scheduled or designed to
33 maximize desirable natural resource productivity for areas important to Native Americans.

Attachment Two: Flow Chart of Activities
Required for Implementation

Appendix E—Prescribed Fire Effects 12

Flow Chart of Activities Required for Implementation of the Protocol Amendment for Prescribed Fire Effects



SUPPLEMENTAL PROCEDURES FOR FLUID MINERALS LEASING

A CULTURAL RESOURCES AMENDMENT
TO
THE STATE PROTOCOL AGREEMENT

BETWEEN

CALIFORNIA BUREAU OF LAND MANAGEMENT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
AND
THE NEVADA STATE HISTORIC PRESERVATION OFFICER

1 Section 106 of the National Historic Preservation Act (NHPA) requires agencies to make a
2 reasonable and good faith effort to identify historic properties that may be affected by an
3 agency's undertakings and take those effects into account in making decisions. Leasing actions
4 are undertakings for the purpose of NHPA. For the purposes of this document, Fluid Minerals
5 leasing activities include both oil and gas and geothermal development. These undertakings
6 include environmental analysis and decision making for landscape level proposals for the
7 leasing of lands. These supplemental procedures specifically address the appropriate
8 identification efforts for Section 106 compliance under NHPA at the leasing stage. Site-
9 specific land disturbing activities, which may be associated with these undertakings, would be
10 identified and addressed in environmental documentation and decision making at a later date.

11
12 These supplemental procedures are an amendment to the State Protocol dated October 15,
13 2007.

14
15 This amendment deviates from the Protocol in *Section VI. Thresholds for SHPO Review*,
16 which states, "*Where BLM proposes to complete less than a BLM Class III survey of the*
17 *affected (selected) lands and when informal consultation with SHPO staff yields consensus*
18 *agreement to proceed with formal consultation*" by allowing for a Class I record search and
19 Tribal consultation to be considered adequate inventory and identification methodology for the
20 purposes of Fluid Minerals decisions at the leasing stage. BLM shall require a Class III survey
21 of all leased lands when surface occupancy is requested. In addition, BLM will make every
22 reasonable effort to avoid effects to historic properties identified as a result of these surveys.
23 The Class I record search and tribal consultation at the time of leasing are proposed to identify
24 any potential adverse effects to historic properties which should be considered during the
25 earliest phases of planning. This amendment would allow for this deviation from the protocol
26 as long as Protocol direction, the BLM 8100 Series Manual guidelines (Protocol Appendix B),
27 and the following specific stipulations are followed:

28
29
30

1 I. Inventory Methodology

2
3 At the leasing stage the appropriate level of inventory is a Class I record search and
4 consultation with Tribes, on a government-to-government basis, and with tribal communities
5 and traditional practitioners. Completion of the Class I record search and consultation with
6 Tribes and tribal communities allows for the identification of historic properties that, due to
7 their size, spacing, and/or sensitivity, cannot be adequately considered or protected following
8 issuance of a lease.

9
10 A Class I record search for the purposes of this amendment will include reviewing all
11 pertinent existing documentation to assess the presence of significant historic properties.

12
13
14 II. Tribal and Interested Party Consultation

15
16 Field Offices will be responsible for contacting and consulting with Tribes, tribal
17 communities and traditional practitioners, and other interested parties as outlined in 36 CFR
18 800 and the BLM 8120 Series Manual guidelines. This will also meet BLM government-
19 to-government responsibilities for consultation. As this consultation will be conducted on a
20 landscape level scale, it is imperative to provide information and maps that are easily
21 understood by tribal members in the consultation process.

22
23
24 III. Findings and Effects

25
26 A. Where no significant historic properties or properties of significance to the
27 Tribes, tribal communities, or other interested parties are identified, then "No
28 Adverse Effect" shall be the appropriate determination for the undertaking. It should
29 be noted that as the development of the lease progresses and specific ground
30 disturbing actions are identified, there may be a potential for effect; however,
31 historic properties can typically be avoided as ground disturbing activities are
32 identified and considered under the National Environmental Policy Act (NEPA) and
33 NHPA.

34
35 B. Where the Class I records search or tribal consultation identifies significant
36 historic properties or properties of cultural significance to Tribes and traditional
37 practitioners (such as Traditional Cultural Properties), and may be affected by this
38 landscape level proposal, consultation with the SHPO under 36 CFR 800 will be
39 required.

40
41 C. All documentation and determinations associated with these undertakings shall
42 be completed and considered within the timeframe of the NEPA process for the
43 undertaking and prior to any decision point for lease issuance.

44
45
46
47
48

1 IV. Reporting
2

3 A. Each participating Field Office shall report annually to the SHPO and the State
4 Office, a summary of activities carried out under this amendment to the Protocol
5 during the previous fiscal year. The reporting shall be included in the Protocol
6 Annual Report.
7

8 B. Annual reports shall summarize activities carried out under this amendment.
9 These reports are not meant to be compilations of the individual project reports
10 prepared for leasing projects; they are meant to be programmatic summaries of data
11 and significant findings.
12

13
14 V. Revision and Termination
15

16 The parties to this Amendment shall review the terms of this Amendment during scheduled
17 reviews of the Statewide Protocol Agreement in order to determine whether continuation,
18 revision, or termination is appropriate. Any party may propose revisions or terminate this
19 Amendment by providing 90 days notice of the intent to terminate; all parties to this
20 Amendment shall enter active negotiations to avoid termination.
21

22 This Amendment shall expire and have no further force or effect at midnight of the fifth
23 anniversary of the Amendment's date of execution unless continuation for a specific period
24 is mutually agreed between all parties.

STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, CALIFORNIA

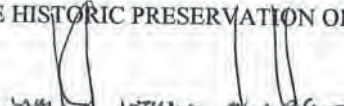


By Mike Pool

Date:

Jan. 17, 08

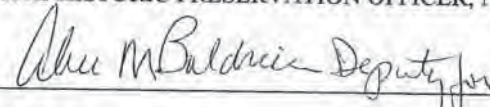
STATE HISTORIC PRESERVATION OFFICER, CALIFORNIA



By Milford Wayne Donaldson

Date: 22 JAN 2008

STATE HISTORIC PRESERVATION OFFICER, NEVADA

 Deputy for

By Ronald M. James

Date:

2/7/08



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
California State Office
2800 Cottage Way, Suite W1834
Sacramento, CA 95825
www.ca.blm.gov



October 20, 2008

In Reply Refer To:
8100 (CA930)P

EMS TRANSMISSION: 10/20/08
Instruction Bulletin No. CA-2009-002

To: All CA Field Managers
All CA Field Office Archaeologists

From: Deputy State Director, Natural Resources

Subject: Protocol Supplemental Procedures/Amendments for Renewable Energy and Prescribed Fire

Enclosed are finalized supplemental procedures that will meet compliance with Section 106 of the National Historic Preservation Act under our Protocol Agreement with the State Historic Preservation Officers (SHPO) from California and Nevada. The two amendments are associated with wind and solar energy applications and prescribed fire undertakings.

Development of the amendment to our Protocol for renewable energy began over a year ago and has included the involvement of the SHPOs from California and Nevada, California Energy Commission, and the Native American Heritage Commission. An integrated team from Minerals, Lands, and Cultural Resources at the State Office and four field units developed this draft amendment. The team included: Duane Marti, James Haerter, Rolla Queen, Erik Zaborsky, Carrie Simmons, Sharynn-Marie Blood, and Gina Jorgenson. The amendment for prescribed fire is a replacement for a previous amendment that expired last year.

If you have any questions regarding the supplemental procedures, please contact any member of the team or Ken Wilson, State Archaeologist and Tribal Liaison, at (916) 978-4648.

Signed by:
Tom Pogacnik
DSD, Natural Resources

Authenticated by:
Richard A. Erickson
Records Management

Attachments – 2

- 1 – Supplemental Procedures for Protection of Cultural Resources from Prescribed Fire Effects (13 pp)
- 2 – Supplemental Procedures for Solar and Wind Power Generation Applications (12 pp)

SUPPLEMENTAL PROCEDURES FOR SOLAR AND WIND POWER GENERATION APPLICATIONS

A CULTURAL RESOURCES AMENDMENT
TO
THE STATE PROTOCOL AGREEMENT

BETWEEN

CALIFORNIA BUREAU OF LAND MANAGEMENT
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
AND
THE NEVADA STATE HISTORIC PRESERVATION OFFICER

1 The purpose of this Supplemental Procedure is to provide guidance and a consistent strategy for
2 completing cultural resources review of both Solar and Wind Applications. The strategy is
3 focused to the extent practicable on completing cultural resources reviews of energy
4 applications in accordance with the *Statewide Protocol Agreement* (Protocol) with the
5 California and Nevada State Historic Preservation Officers (SHPO) in order to satisfy our
6 responsibilities pursuant to Section 106 of the National Historic Preservation Act (NHPA). This
7 guidance is intended to be consistent with the both the *Wind Energy Development Policy* of
8 August 24, 2006 (IM No. 2006-216) and the *Solar Energy Development Policy* of April 4, 2007
9 (IM No. 2007-97).

10

11

12 I. Background

13

14 A. Section 106

15

16 Section 106 of the NHPA requires that Federal agencies take into account the effect of
17 undertakings on historic properties eligible to or listed on the National Register of Historic
18 Places. Undertakings are defined to include activities that require a Federal permit, license or
19 approval (Federal action). Because of unique differences in the way that realty actions for Solar
20 and Wind applications are processed by the Bureau of Land Management (BLM), it is
21 necessary to employ different procedures/strategies at specific stages in each process to comply
22 with the requirements of the Protocol. In any case, agency review under Section 106 must be
23 concluded prior to the issuance of the Federal permit, license or approval.

24

25 B. Cultural Resources Literature Review and Records Search

26

27 For the purposes of analyzing these undertakings at the landscape level, a records search and
28 literature review is required with the objective of developing sufficient information and
29 contexts for the purpose of identifying significant resources and issues that may be relevant to
30 the assessment of effects for the undertaking. However, the records search and literature review
31 may not necessarily require a full BLM Class I cultural overview and documentation as defined

in the BLM 8100 Manual. Documentation sufficient for a records search and literature review may include records provided by information centers or other repositories, such as historical societies, museums, and BLM land records, and may include copies of site records, maps, historic maps, lists of reports, surveys, previous cultural resources overviews, and regional research designs. The purpose of the records search and literature review is to identify any potentially significant properties or issues that may pose difficulties for the proposed undertaking and future management decision-making.

C. Tribal Consultation

One of the defining characteristics of most proposed energy projects is their size and scale. Because of the large land areas involved, it is essential to effect the early identification and analysis of landscape level resources and issues that might normally not be identified in conventional cultural resources survey. As part of this analysis, it is extremely important to identify and contact Native American tribes and other interested parties that may have information on historic properties, sacred sites, traditional cultural properties, or other cultural resources that may be located within the Area of Potential Effect (APE) or may be affected by the proposed undertaking. It is essential that rigorous and meaningful tribal consultation be carried out early in the application process to identify issues and concerns that may rise above and beyond specific archaeological or historic properties, which may involve sacred sites, traditional cultural landscapes or other issues that would not normally be identified.

Tribal consultation/contact should be focused on working with tribes at the earliest stages of the proposed undertaking to gather ethnographic information, property information, and other resource information to help identify significant properties or issues, especially information about traditional cultural properties, sacred sites, and cultural landscapes. This will assist in identifying significant issues and resources that are not identified through the course of normal cultural resources survey. The objective of consultation is to identify any potentially significant properties or issues that may pose difficulties for the proposed undertaking and future management decision-making. As this consultation will be conducted on a landscape level scale, it is imperative to provide information and maps that are easily understood by tribal members in the consultation process. Because of the number, size and scale of proposed energy projects in any given area, BLM offices should consider additional strategies for tribal consultation beyond consultation on project specific basis. Offices should consider combining consultations on multiple projects or inviting tribes to meetings where multiple projects may be discussed and coordinated in order to facilitate coordination and information exchange, minimize confusion about the large number of projects, and provide for a more effective and productive process of tribal consultation.

Field units will be responsible for contacting and consulting with Tribes, tribal communities and traditional practitioners, and other interested parties as outlined in 36 CFR 800 and the BLM 8120 Series Manual guidelines (Protocol Appendix B). This will also meet BLM government-to-government responsibilities for Tribal consultation.

D. Differences between Wind Energy and Solar Energy Applications as "Federal Actions" requiring Section 106 review.

The essential difference between Wind and Solar applications as it relates to defining the Federal action and "undertaking" for purposes of Section 106 review is a product of the specific realty actions associated with the initial application and associated reservations of land for future development privileges. The Wind energy application usually results in the issuance of a 3 year Right-of Way (ROW) for the project area which provides a first-in-line preference to submit a Plan of Development (POD). For the purposes of Section 106, the issuance of a ROW for the project area is the Federal action triggering Section 106 review. For Solar energy projects, the equivalent preference interest to submit a POD for an area is guaranteed by the submission of the application on a first in time basis. There is no equivalent associated realty action for Solar applications; therefore the Federal action and undertaking for Solar energy projects is identified at the submission of the application and the POD.

E. Wind Energy Applications, Undertakings, and the Section 106 Process

Because of the unique realty process associated with Wind energy applications, it is useful to understand how different proponent's application strategies generally interact with review and compliance activities under the Protocol and Section 106. Wind energy projects are classified into 3 categories.

(1) Class 1 Wind Projects

For Class 1 Wind projects, the Applicant applies only for a ROW for Meteorological (MET) tower and testing. There is no associated ROW application for a project area. This type of application is not common and is typically limited to research by universities and state or local governments. Testing is not generally oriented towards future development scenarios. Section 106 compliance for Class 1 Wind projects can generally be handled by completing a records search and literature review, BLM Class III cultural resources survey and tribal consultation. The application can normally be reviewed and processed under the Protocol. The compliance strategy is to locate MET towers where there are no cultural resource issues.

(2) Class 2 Wind Projects

For Class 2 Wind projects, the Applicant usually applies for both a MET Tower testing ROW (undertaking) as well as a ROW for a larger project area (undertaking). This is the typical application process for most Wind projects. The ROW for the project area only reserves a first-in-line interest to submit a POD for the area, but conveys no authority to construct or the implication that, at the end of the ROW testing period, approval of a POD is automatic. A separate environmental review process will be carried out at the time of submission of a POD. BLM requires that a records search and tribal consultation be conducted for the ROW for the larger project area for the purpose of identifying significant resources and issues that might not normally be identified during normal archaeological survey. In addition, as with Class 1 Wind projects, a BLM Class III cultural resources survey for the proposed MET Tower locations and tribal consultation must be completed prior to the issuance of the MET tower ROW grant (3).

Class 3 Wind Projects

For Class 3 Wind projects, the Applicant submits a POD for a specific area without necessarily testing or having applied for a ROW for a project area. The Class 3 Wind project encompasses a specific proposal for the development of a Wind farm and will be treated like any other major project for purposes of Section 106. BLM would require full Class III cultural resources survey and tribal consultation for the POD.

F. Solar Energy Applications, Undertakings, and the Section 106 Process

Cultural resources review of Solar projects begins at the time an application is accepted. The application itself reserves a first-in-line interest but conveys no rights. Unlike Wind energy, there is no associated realty action that reserves first-in-line interest (ROW, permit, license, or other decision). Usually the Applicant submits a POD with the application. With the submission of the POD, BLM would require that a Class III cultural resources survey and tribal consultation be completed for the entire POD. However, the Applicant may follow one of several strategies in identifying and delineating the specific area to be developed from a larger land area. As such, this may require a "phased" identification approach for cultural resources. Nevertheless, phased identification will result in the identification of a "core" area (APE) that will be surveyed at the Class III level.

II. Procedures for Evaluating Wind Energy Projects

A. BLM will complete its responsibilities to identify and take into account effects to historic properties that may be affected by proposed Wind energy projects pursuant to Section 106 of the National Historic Preservation Act (NHPA). Depending on the scale, complexity, and issues of a specific Wind energy proposal, BLM may comply with Section 106 by either utilizing the provisions of the BLM Protocol or by following the procedures provided in 36 CFR § 800 (Protection of Historic Properties). BLM will utilize the Protocol to process applications until a threshold condition is met per Section VI of the Protocol. If BLM determines that the undertaking is outside the scope of the Protocol, BLM shall notify SHPO, consulting parties, and other interested parties and the public that BLM intends to use 36 CFR §800 to complete Section 106 responsibilities. For projects involving other State or local agency review and approval, the integration of data adequacy requirements will be achieved by involving appropriate agency cultural staff in meetings with the Applicants to insure that both BLM and other agency data adequacy requirements are clearly presented to the Applicant.

B. BLM strategy for managing the Section 106 review of Wind energy projects, which involves testing and specific ROW actions for large land areas, will generally incorporate the following guidelines and requirements:

(1) Class 1 Wind Energy Projects

For Class 1 Wind projects, the Applicant applies only for a ROW for MET tower and testing. There is no associated ROW application for a project area. This type of application is not common and is typically limited to research by universities and state

or local governments. Testing is not generally oriented towards future development scenarios.

A BLM Class III cultural resources survey will be completed. Tribal consultation will be conducted. BLM will be responsible for identifying tribes that may have an interest in the project area, notifying the tribes of the project, and formally consulting with the tribes pursuant to agency responsibilities under 36 CFR § 800.2(c)(B)(ii) and the *Executive Memorandum of April 29 1994* (FR Doc. 94-10877). It is anticipated that MET tower locations will be selected to avoid affects to historic properties. Section 106 will be completed in accordance with the Protocol.

(2) Class 2 Wind Energy Projects

For Class 2 Wind projects, the Applicant usually applies for both a MET Tower testing ROW (undertaking) as well as a ROW for a larger project area (undertaking). This is the typical application process for most Wind projects. The ROW for the project area only reserves a first-in-line interest to submit a POD for the area, but conveys no authority to construct or an implied approval that at the end of the ROW period that approval of a POD is automatic. A separate environmental review process will be carried out at the time of submission of a POD.

Records Search and Tribal Consultation: For Class 2 Wind projects, a records search and literature review will be submitted for the entire lands initially proposed in the application, regardless of the eventual size of the proposed undertaking. It is assumed that the records search and literature review will be utilized as part of the screening strategy to eliminate lands and reduce the size of the actual acreage needed to arrive at a "core" area that will likely become the area for the proposed POD and on which the ROW would be granted. This will define the APE for review under Section 106. Applicants and their consultants should work with BLM to make sure that the records search and literature review takes into account the available information in not only the California Historic Resources Information System (CHRIS) and Nevada Cultural Resources Information System (NVCRIS), but also information that BLM may have for these areas.

As part of the records search and literature review, Applicants will be expected to work with BLM to identify and contact Native American tribes that may have information on historic properties, sacred sites, traditional cultural properties, or other cultural resources that may be located within the APE or may be affected by the proposed undertaking. BLM will be responsible for identifying tribes that may have an interest in the project area, notifying the tribes of the project, and formally consulting with the tribes pursuant to agency responsibilities under 36 CFR § 800.2(c)(B)(ii) and the *Executive Memorandum of April 29 1994* (FR Doc. 94-10877). The Applicant and its consultants may assist BLM in completing these responsibilities. It is essential that rigorous and meaningful tribal consultation be carried out early in the application process to identify issues and concerns that may rise above and beyond specific archaeological or historic properties, which may involve sacred sites, traditional cultural landscapes or other issues. This consultation would help identify resources that would not normally be identified during archaeological survey.

A Class III survey and inventory will be required for proposed MET tower locations.

BLM Class II Survey and Inventory: For proposed projects for which a large initial project area has been identified, within which a smaller POD will eventually be submitted, the Applicant may propose to conduct a BLM Class II (sampling) survey for the purpose of identifying sensitive archaeological or cultural areas as part of a strategy to eliminate areas of archaeological or cultural concern and to develop a site plan that will eliminate or minimize effects to historic properties. Provision for completing a Class II survey is consistent with 36 CFR § 800.4(b)(2) which allows for the phased identification and evaluation of historic properties where large land areas are involved. The decision to conduct a Class II survey is at the discretion of the Applicant and is not required, although BLM would encourage Applicants to consider the value of utilizing a Class II survey, in addition to the records search and literature review, to assist in the identification, screening and/or elimination of sensitive archaeological and cultural areas from the eventual APE. BLM will generally be supportive of any Class II strategy that the Applicant wishes to employ to assist in the identification of sensitive areas and the screening and elimination of lands that may contain sensitive resources or potentially sensitive cultural issues.

(3) Class 3 Wind Energy Projects

For Class 3 Wind projects, the Applicant submits a POD for a specific area whether or not prior testing has occurred or the Applicant has received a ROW for a project area. This application type is not common, but would be processed in similar fashion as any POD for all energy projects. BLM would require full Class III cultural resources survey and tribal consultation.

BLM Class III Survey and Inventory: For all projects for which a specific or "core" project area has been identified (APE) and a POD submitted, the entire project area incorporated within the APE and any buffer areas will be surveyed at the BLM Class III cultural resources survey level. The Applicant will be expected to work with BLM to identify and contact Native American tribes that may have information on historic properties, sacred sites, traditional cultural properties, or other cultural resources that may be located within the APE or may be affected by the proposed undertaking. BLM will be responsible for identifying tribes that may have an interest in the project area, notifying the tribes of the project, and formally consulting with the tribes pursuant to agency responsibilities under 36 CFR § 800.2©(B)(ii) and the *Executive Memorandum of April 29 1994* (FR Doc. 94-10877). The Applicant and its consultants may assist BLM in completing these responsibilities. It is essential that rigorous and meaningful tribal consultation be carried out early in the application process to identify issues and concerns that may rise above and beyond specific archaeological or historic properties, which may involve sacred sites, traditional cultural landscapes or other issues. This consultation would help identify resources that would not normally be identified during archaeological survey.

C. Procedures Common to All Classes of Wind Energy Projects

(1) Coordination and Reporting

BLM should establish general processes, following the BLM Memorandum of Understanding (MOU) with the California Energy Commission (CEC) that provides for coordination on requirements to meet the needs of other federal, state, and local agencies that may be involved in a proposed energy project. The purpose of coordination on this process is to provide Applicants clear and consistent guidelines regarding data needs and data adequacy and to help the Applicant move through the process in an efficient and cost effective manner. At the onset of the proposed project, BLM and other agencies should provide the Applicant guidance regarding conditions and stipulations for fieldwork, reporting requirements, and other expectations, as well as answer any questions the Applicant may have regarding process. BLM should follow to the extent possible these same general procedures for consistency and work closely with the appropriate State or County agency, or investor owned utility to ensure that the requirements of National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and the NHPA are being met. In all cases, BLM authorizes field survey activities on public lands and is responsible for compliance with Section 106. All reports must be submitted and approved by BLM prior to submittal to outside agencies unless otherwise agreed to by BLM. BLM letters initiating consultation with the SHPO should be posted on the California alternative energy web site soon after the letter is sent to SHPO.

(2) Native American Consultation

Consultation with appropriate Tribes will be required for each project. At the time of acceptance of a complete application, BLM will be responsible for identifying tribes that may have an interest in the project area, notifying the tribes of the project, and formally consulting with the tribes pursuant to agency responsibilities under 36 CFR § 800.2(c)(B)(ii) and the *Executive Memorandum of April 29 1994* (FR Doc. 94-10877). The Applicant and its consultants may assist BLM in completing these responsibilities. It is essential that rigorous and meaningful tribal consultation be carried out early in the application process to identify issues and concerns that may rise above and beyond specific archaeological or historic properties, which may involve sacred sites, traditional cultural properties, landscapes or other issues that would not normally be identified during archaeological survey and where potential effects may not be easily resolved. Early initiation of Native American consultation may begin when an applicant applies for authorization to conduct early evaluation procedures, e.g., Wind energy testing, geotechnical testing, well or other borings, etc. Native American consultation letters on individual proposed projects should be posted on the California Desert District alternative energy web page soon after the letters are signed for those Field Offices within the California Desert District.

(3) Consultation with SHPO

The BLM will endeavor to process these applications under the Protocol to the extent possible until a thresholds condition is reached requiring consultation with SHPO as

defined in Section VI of the Protocol. If BLM determines that the undertaking is outside the scope of the Protocol, BLM shall notify SHPO, consulting parties, and other interested parties and the public that BLM intends to use 36 CFR §800 to complete Section 106 responsibilities.

III. Procedures for Evaluating Solar Energy Projects

A. BLM will complete its responsibilities to identify and take into account effects to historic properties that may be affected by proposed Solar energy projects pursuant to Section 106 of the NHPA. Depending on the scale, complexity, and issues of a specific Solar energy proposal, BLM may comply with Section 106 by either utilizing the provisions of the BLM Protocol or by following the procedures provided in 36 CFR § 800 (Protection of Historic Properties). BLM will utilize the Protocol to process applications until a threshold condition is met per Section VI of the Protocol. If BLM determines that the undertaking is outside the scope of the Protocol, BLM shall notify SHPO, consulting parties, and other interested parties and the public that BLM intends to use 36 CFR §800 to complete Section 106 responsibilities.

For projects involving the CEC review and approval (solar thermal proposals greater than 50 mega-watts in capacity; does not include passive solar, photo-voltaic proposals), the integration of CEC data adequacy requirements will be achieved according to the terms of the MOU between the CEC and BLM. BLM will involve CEC cultural staff in meetings with the Applicants to insure that both BLM and CEC data adequacy requirements are clearly presented to the Applicant. Where the CEC is not involved, BLM will follow these same general procedures for consistency and work closely with the appropriate State or County agency, or investor owned utility to ensure that the requirements of NEPA, CEQA, and the NHPA are being met.

B. BLM strategy for managing the Section 106 review of Solar energy projects, which require large land areas, may follow differing strategies depending on the nature of the proposal, but will generally incorporate the following guidelines and requirements:

(1) Records Search and Tribal Consultation

a. For all projects, a records search and literature review will be submitted for the entire lands initially proposed in the application, regardless of the eventual size of the proposed undertaking. It is assumed that the records search and literature review will be utilized as part of the screening strategy to eliminate lands and reduce the size of the actual acreage needed to arrive at a "core" area that will likely become the area for the proposed POD and on which the right-of-way would be granted. This will define the APE for review under Section 106. Applicants and their consultants should work with BLM to make sure that the records search and literature review takes into account the available information in not only the California Historic Resources Information System and Nevada Cultural Resources Information System, but also information that BLM may have for these areas.

b. As part of the records search and literature review, Applicants will be expected to work with BLM to identify and contact Native American tribes that may have

information on historic properties, sacred sites, traditional cultural properties, or other cultural resources that may be located within the APE or may be affected by the proposed undertaking. At the time of acceptance of a complete application, BLM will be responsible for identifying tribes that may have an interest in the project area, notifying the tribes of the project, and formally consulting with the tribes pursuant to agency responsibilities under 36 CFR § 800.2(c)(B)(ii) and the *Executive Memorandum of April 29 1994* (FR Doc. 94-10877). The Applicant and its consultants may assist BLM in completing these responsibilities. It is essential that rigorous and meaningful tribal consultation be carried out early in the application process to identify issues and concerns that may rise above and beyond specific archaeological or historic properties, which may involve sacred sites, traditional cultural landscapes or other issues. This consultation would help identify resources that would not normally be identified during archaeological survey.

(2) BLM Class II Survey and Inventory

a. For proposed projects for which a large initial project area has been identified, within which a smaller POD will eventually be submitted, the Applicant may propose to conduct a BLM Class II (sampling) survey for the purpose of identifying sensitive archaeological or cultural areas as part of a strategy to eliminate areas of archaeological or cultural concern and to develop a site plan that will eliminate or minimize effects to historic properties. Provision for completing a Class II survey is consistent with 36 CFR § 800.4(b)(2) which allows for the phased identification and evaluation of historic properties where large land areas are involved. The decision to conduct a Class II survey is at the discretion of the Applicant and is not required, although BLM would encourage Applicants to consider the value of utilizing a Class II survey, in addition to the records search and literature review, to assist in the identification, screening and/or elimination of sensitive archaeological and cultural areas from the eventual APE. BLM will generally be supportive of any Class II strategy that the Applicant wishes to employ to assist in the identification of sensitive areas and the screening and elimination of lands that may contain sensitive resources or potentially sensitive cultural issues. When the Applicant has identified a "core" area that will become the area for which the POD is likely to encompass, those lands will be surveyed in accordance with BLM Class III guidelines and, for projects involving the CEC, must also meet data adequacy requirements of the CEC.

(3) BLM Class III Survey and Inventory

a. For all projects for which a specific or "core" project area has been identified and a POD submitted, the entire project area incorporated within the ROW and any buffer areas will be surveyed at the BLM Class III inventory level.

(4) Coordination and Reporting

a. BLM has established a general process, with the CEC, for coordination and requirements to meet the needs of both agencies. The purpose of this process is provide Applicants clear and consistent guidelines regarding data needs and data adequacy and to help the Applicant move through the process in an efficient and

cost effective manner. At the onset of the proposed project, BLM and CEC will provide the Applicant guidance regarding conditions and stipulations for fieldwork, reporting requirements, and other expectations, as well as answer any questions the Applicant may have regarding process. Where the CEC is not involved, BLM will follow these same general procedures for consistency and work closely with the appropriate State or County agency, or investor owned utility to ensure that the requirements of NEPA, CEQA, and the National Historic Preservation Act are being met.

b. In all cases, BLM is responsible for authorizing field survey activities on public lands and is also responsible for compliance with Section 106. All reports must be submitted and approved by BLM prior to submittal to outside agencies unless otherwise agreed to by BLM. BLM letters initiating consultation with the SHPO should be posted on the California alternative energy web site soon after the letter is sent to SHPO

(5) Native American Consultation

Consultation with appropriate Tribes will be required for each project. At the time of acceptance of a complete application, BLM will be responsible for identifying tribes that may have an interest in the project area, notifying the tribes of the project, and formally consulting with the tribes pursuant to agency responsibilities under 36 CFR § 800.2(c)(B)(ii) and the *Executive Memorandum of April 29 1994* (FR Doc. 94-10877). The Applicant and its consultants may assist BLM in completing these responsibilities. It is essential that rigorous and meaningful tribal consultation be carried out early in the application process to identify issues and concerns that may rise above and beyond specific archaeological or historic properties, which may involve sacred sites, traditional cultural landscapes or other issues that would not normally be identified during archaeological survey and where potential effects may not be easily resolved. Early initiation of Native American consultation may begin when an applicant applies for authorization to conduct early evaluation procedures, e.g., solar energy testing, geotechnical testing, well or other borings, etc.

(6) Consultation with SHPO

The BLM will endeavor to process these applications under the Protocol to the extent possible until a thresholds condition is reached requiring consultation with SHPO as defined in Section VI of the Protocol. If BLM determines that the undertaking is outside the scope of the Protocol, BLM shall notify SHPO, consulting parties, and other interested parties and the public that BLM intends to use 36 CFR §800 to complete Section 106 responsibilities.

IV. Reporting

A. Each participating Field Office shall report annually to the SHPO and the State Office, a summary of activities carried out under this amendment to the Protocol during the previous fiscal year. The reporting shall be included in the Protocol Annual Report.

1 V. Revision and Termination
2

3 The parties to this Amendment shall review the terms of this Amendment during scheduled
4 reviews of the Statewide Protocol Agreement in order to determine whether continuation,
5 revision, or termination is appropriate. Any party may propose revisions or terminate this
6 Amendment by providing 90 days notice of the intent to terminate; all parties to this
7 Amendment shall enter active negotiations to avoid termination.
8

9 This Amendment shall expire and have no further force or effect at midnight of the fifth
10 anniversary of the Amendment's date of execution unless continuation for a specific period
11 is mutually agreed between all parties.
12

1 STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, CALIFORNIA
 2
 3 JAMES WESLEY ADAMOTT
 4
 5 ~~FOR~~ By Mike Pool Date: 9/5/08
 6
 7
 8
 9 STATE HISTORIC PRESERVATION OFFICER, CALIFORNIA
 10
 11 MILFORD WAYNE DONALDSON
 12
 13 By Milford Wayne Donaldson, FAIA Date: 10 SEP 2008
 14
 15
 16
 17
 18 STATE HISTORIC PRESERVATION OFFICER, NEVADA
 19
 20 ALVIN M. BALDWIN, Deputy, for
 21
 22 By Ronald M. James Date: 9/17/08
 23
 24

K.2.4.5 Colorado Protocol

**STATE PROTOCOL AGREEMENT BETWEEN
THE COLORADO STATE DIRECTOR OF THE BUREAU OF LAND MANAGEMENT
[BLM] AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER [SHPO]
REGARDING THE MANNER IN WHICH THE BUREAU OF LAND MANAGEMENT
WILL MEET ITS RESPONSIBILITIES UNDER THE NATIONAL HISTORIC
PRESERVATION ACT [NHPA] AND THE NATIONAL PROGRAMMATIC
AGREEMENT [NPA] AMONG THE BLM, THE ADVISORY COUNCIL ON HISTORIC
PRESERVATION [COUNCIL], AND THE NATIONAL CONFERENCE OF STATE
HISTORIC PRESERVATION OFFICERS [NCSHPO]**

I. INTRODUCTION

A. This Protocol Agreement [Protocol] supplements the NPA, and describes how the Colorado SHPO and the BLM will interact. The goal of this Protocol is to improve the management of cultural resources on BLM lands in Colorado and those that might be affected by BLM's actions.

B. "Undertakings" are actions assisted, licensed, permitted, approved, funded, or authorized by BLM, as defined in the Code of Federal Regulations [36 CFR 800.2(o)]. Undertakings for which BLM is considered the lead agent, whether or not they involve federal lands, are federal actions and subject to this Protocol.

II. RELATIONSHIP OF THIS PROTOCOL WITH OTHER AGREEMENTS, LAWS AND REGULATIONS

A. This Protocol substitutes for Sections 106, 110, 111(a) and 112 (a) of the NHPA. It also replaces the 1987 Colorado "Programmatic Agreement Among U.S. Department of the Interior, Bureau of Land Management, Colorado, and Advisory Council on Historic Preservation" [CPA], which is terminated.

B. SHPO and BLM agree that:

(1) BLM conducts programs and carries out specific undertakings that involve land disturbance and modification of the built and natural environments, and;

(2) BLM is legally responsible for carrying out undertakings consistent with the NHPA and the National Environmental Policy Act [NEPA], and that;

(3) If any BLM office in Colorado fails to follow the process set forth in this Protocol, it will follow the procedures detailed in 36 CFR 800 regarding individual undertakings. Those procedures will remain in effect until a resolution is reached. Dispute resolution procedures are detailed in Section XII (A) below.

(4) The following procedures will be implemented by the BLM to fulfill its responsibilities mandated by the above-mentioned laws and regulations.

III. ADMINISTRATIVE INTERACTION AND REPORT PROCEDURES

A. **Reports** - All reports will be distributed to the BLM and SHPO.

(1) BLM will send cultural resource project logs (Attachment A) and NEPA logs to the SHPO at the time BLM prepares its annual report to Congress, usually in November or December.

(2) By June 30th of each year, BLM will prepare an annual summary report (Attachment B) that describes the implemented actions taken in the previous fiscal year and actions that are anticipated in the coming fiscal year. This report will include information detailed in Attachment B.

(3) By July 30th of each year, the SHPO will prepare a report that assesses the effectiveness of BLM's implementation of this Protocol and makes recommendations for actions to be taken by BLM. The BLM will consider SHPO's assessments and recommendations for future actions and will apply them to the plan for the following fiscal year, as appropriate. If SHPO is not satisfied with BLM's response, dispute resolution procedures [Section XII (A), below] may be followed.

B. Meetings

(1) The SHPO, a BLM line manager (or the BLM Colorado State Director, if possible), BLM's Deputy Preservation Officer [DPO] for Colorado, and representatives of the BLM Colorado Cultural Resources Matrix Team will meet annually, no later than September 30, or more often as needed, to discuss pertinent issues. The Council will be invited to participate. At the August meeting, the SHPO and BLM will exchange information relevant to the goals and objectives set forth in this Protocol.

(2) Other meetings to address emerging issues and their effects on cultural resources may be arranged as necessary.

(3) Within six months after signing, BLM and SHPO will meet to review the implementation of this Protocol.

IV. SHPO INVOLVEMENT IN BLM PLANNING PROCESSES

BLM shall provide the SHPO the opportunity to participate at the development stage and all subsequent phases of land use planning in accordance with 43 CFR 1610.3 (Coordination with Other Federal Agencies, State and Local Governments, and Indian Tribes). BLM will provide the SHPO with all land management plans (e.g., Resource Management Plans, Cultural Resource Management Plans), special use plans (e.g., Fire Management Plans) and appropriate NEPA documents. Such plans will document methods to gain public input.

V. COOPERATIVE PROGRAM DEVELOPMENT AND ACTIVITIES

A. Shared Database and Information Management .

- (1) SHPO and BLM will improve the exchange of information regarding the location and evaluation of cultural resources. Each agency will assure that such locational information is protected from unauthorized use.
- (2) Cultural resources information exchange between BLM and SHPO will be through an automated database, managed by the SHPO. BLM will assist the SHPO in developing the system by providing financial, personnel, hardware and software resources, as funding becomes available.
- (3) The SHPO will incorporate the results of BLM cultural resources inventories into the database as the results are produced, and will make the data available in order to update the statewide historic contexts.
- (4) A review and analysis of the database status will be performed by BLM and SHPO annually, in time for the August meeting.
- (5) The SHPO will provide the BLM with automated cultural resources information and with reasonable amounts of hard copy information not yet available in the database. Charges may be assessed by the SHPO and are subject to negotiation at the annual August meeting.

B. State-Level Historic Preservation Training .

The SHPO will be offered the opportunity to assist the BLM in on-going training of field managers and supervisors, as well as of cultural heritage specialists, for certification purposes. Training resources might include, but are not limited to: the BLM Colorado "Handbook For Cultural Resource Inventory, Evaluation and Mitigation" [Handbook], planning documents, and Colorado historic context documents. Review of training needs will occur on a yearly basis and will be conducted by the SHPO and BLM, in time for discussion at the annual meeting.

C. Public Outreach and Participation .

- (1) BLM will develop and implement plans in support of public education and community outreach, along with cooperative stewardship and site protection, in consultation with SHPO. BLM will strive to develop at least one of these plans each year.
- (2) BLM will seek and consider the views of the public when carrying out the actions under the terms of this Protocol. BLM may coordinate this public participation requirement with those of the NEPA and the Federal Land Policy and Management Act of 1976 [FLPMA], along with other pertinent statutes. Interested parties shall be invited to consult in the review process [Section VIII (C) below] if they have interests in the effect of a BLM undertaking on cultural resources.

(3) Interested parties may include local governments, especially those with historic preservation ordinances or resolutions (Attachment C); grantees, permittees, or owners of affected lands or land surfaces; Indian Tribes; and other interested parties, as determined by the BLM and SHPO.

VI. NATIVE AMERICAN PARTICIPATION

BLM will comply with relevant sections of the NHPA, American Indian Religious Freedom Act [AIRFA], and the Native American Graves Protection Act [NAGPRA] if a property or project is subject to those laws. BLM will seek and consider the views of an Indian tribe that is able to demonstrate a cultural affiliation with Colorado cultural resources within project's area of potential effects (APE).

VII. IDENTIFICATION AND EVALUATION OF CULTURAL RESOURCES

A. Identification .

BLM will identify all historic properties and sacred sites on all lands within Colorado that are within the APE of a BLM undertaking. BLM will ensure that the identification of cultural resources is conducted in accordance with professional standards detailed in the Secretary of the Interior's Standards and Guidelines [Secretary's Standards] and the Handbook.

B. Determinations of Eligibility and of Effect (Evaluation) .

(1) For routine undertakings, BLM will make determinations of eligibility according to criteria listed in 36 CFR Part 60.4 and determinations of effect according to 36 CFR 800.9 without consulting SHPO, except in certain instances [Section VIII (C)(2)(a), below]. When necessary, BLM will confer with SHPO if questions about eligibility and/or effect arise.

(2) During all inventories, BLM will ensure that cultural resources are evaluated in a manner consistent with the criteria cited above in Section VII (B)(1), as well as the Secretary's Standards, the Colorado historic context documents, BLM's 8100 manuals, appropriate National Register bulletins, and the Handbook.

(3) As appropriate, BLM will invite interested parties to consult.

VIII. REPORTING AND SHPO REVIEW PARAMETERS

A. Timing of Undertaking Implementation .

(1) BLM shall complete the inventory, evaluation and assessment of effects of cultural resources, along with the placement of written documentation of these findings in BLM's files, before proceeding with undertaking implementation.

(2) Most of BLM's undertakings [except those listed below in Section VIII (C)(2)(a)] are routine in nature, and will normally be permitted to proceed without SHPO review of **formal** documentation. Formal documentation is defined as final versions of reports and Colorado Office of Archaeology and Historic Preservation [OAHp] site and isolated find forms [site forms]. BLM will confer with SHPO in cases where there is any uncertainty.

B. Reporting .

(1) Quality Assurance .

(a) BLM will provide documentation in the form of complete and accurate site forms, Limited Results Survey Reports, or full-length inventory reports, as appropriate, to the SHPO, for all undertakings. BLM will ensure that Colorado State Report Guidelines [State Guidelines] and the Secretary's Standards are met in all documentation produced in-house.

(b) BLM will review the work of permitted contractors and will ensure that State Guidelines and the Secretary's Standards are met in all documentation prepared by contractors.

(c) Only qualified cultural heritage specialists will make determinations of eligibility and effect, and those individuals making determinations shall be identified in reports sent to SHPO.

(2) Timing of Documentation Submission .

(a) Formal documentation [as defined above in Section VII A (2)] should be submitted to the SHPO's office at the time BLM gives an undertaking notice to proceed, but not later than **three months** following completion of the fieldwork. Prompt transmission of this documentation will assure an updated database and will prevent future development of backlogs. If a final report will not arrive at the SHPO's office within the three month deadline, the BLM will notify the SHPO in writing, and will include in the correspondence a plan for completion and the expected date of submission.

(b) Backlog documentation [backlog] is defined as outstanding site forms, inventory reports and treatment reports in BLM's files that predates the implementation of this Protocol. All backlog will be submitted to the SHPO within twelve months of the Protocol signature date. If the documentation will not arrive at the SHPO's office before the deadline, BLM will notify SHPO in writing, and

will include in the correspondence a plan for completion and the expected date of submission. Mutually acceptable progress toward elimination of the backlog is a condition of continuing field office certification.

C. Review Processes .

(1) Routine Undertakings .

Except in the case of consultation thresholds listed below in Section VIII (C)(2)(a), an informational letter (Attachment D, informational) will accompany all final, formal BLM documentation that is sent to SHPO. If necessary, SHPO may comment, in writing, on BLM's findings. The BLM will respond, in writing, to any SHPO comments. Both parties will include such comments and responses in the annual report that assesses effectiveness of the Protocol.

(2) Exceptions .

(a) Consultation Thresholds . BLM will consult with SHPO on determinations of eligibility, [except when determinations have already been made, as under (1) (b) and (2) (b) below], of effect, and of treatment; and will consult with Council on determinations of effect and of treatment.

(1) SHPO and Council Review . BLM will conduct consultation with both SHPO and Council in the following situations:

- (a) non-routine interstate and/or interagency projects or programs
- (b) undertakings affecting National Historic Landmarks or National Register eligible or listed properties of national significance
- (c) undertakings that are determined by BLM, the SHPO or the Council to be highly controversial (e.g., undertakings which have the potential to affect significant cultural resources and that receive unusual public attention and/or involve conflict)

(2) SHPO Review . BLM will conduct consultation with SHPO only, in the following situations:

- (a) land exchanges, land sales, Recreation and Public Purpose leases, and transfers
- (b) undertakings affecting National Register eligible or listed properties
- (c) when BLM professional staff lack the appropriate regional experience or professional expertise, and until performance is mutually acceptable to the BLM DPO and SHPO
- (d) when BLM's cultural heritage specialists wish to bring a particular project to the attention of SHPO

(b) Consultation Processes.

(1) SHPO Consultation Only .

(a) BLM will submit formal documentation, as defined in Section VIII (A)(2) above, to SHPO, along with a letter requesting concurrence with its determinations of eligibility and of effect (Attachment D, concurrence).

(b) SHPO will have ten (10) working days to respond to BLM. If SHPO agrees with BLM, BLM will allow the undertaking to proceed.

(c) If SHPO disagrees with BLM, procedures for resolving disagreements of eligibility and effect, detailed below in Section VIII (C)(4), will be followed.

(2) SHPO and Council Consultation.

(a) BLM will submit formal documentation, as defined in Section VIII (A)(2) above, to SHPO, along with a letter requesting concurrence with its determinations of eligibility and of effect (Attachment D, concurrence).

(b) SHPO will have ten (10) working days to respond to BLM.

(c) Once BLM receives SHPO's decision, it will forward all formal documentation, along with a copy of the concurrence letter signed by both BLM and SHPO and a cover letter asking for Council review to Council.

(d) Council will have 30 working days to respond to BLM and SHPO.

(3) Treatment .

(a) If a property, group of properties, or class of properties that have been determined eligible for inclusion in the National Register of Historic Places [NRHP] will be affected by an undertaking, BLM will determine, in consultation with SHPO, whether a Memorandum of Agreement [MOA] or a Treatment Plan is appropriate, and will document this determination in the concurrence letter (Attachment D, concurrence).

(b) Treatment Plans or MOAs will take into account national policies set forth in Section 2 of NHPA, the Secretary's Standards, the Council's "Treatment of Archaeological Properties: A Handbook", and "Preparing Agreement Documents".

(c) BLM and SHPO will jointly prepare MOAs. Following submission of a first draft by BLM to SHPO, SHPO will have ten (10) working days to comment. After BLM receives SHPO's comments, it will have ten (10) working days to respond. The ten-working-day comment periods will continue in this fashion until final agreement is reached.

(d) Following the preparation of a treatment plan, BLM will submit it to SHPO. SHPO will have ten (10) working days in which to comment.

(4) Resolving Disagreements about Project Eligibility, Effect and Treatment .

(a) If, after its first ten-working-day review, SHPO disagrees with BLM on determinations of eligibility, effect or treatment, the two parties will attempt to resolve the issue(s) over the following ten (10) working days (see flow chart in Attachment E).

(b) If the Field Office manager and SHPO are unable to resolve their disagreement after the second ten-day period, they will negotiate a course of action and a timeframe for resolution.

(c) If BLM and SHPO cannot agree on a course of action and a timeframe, BLM will request the Colorado DPO, acting on behalf of the Preservation Board [Board], to attempt to resolve the issue with SHPO during a ten-working day period.

(d) If the Colorado DPO and SHPO still cannot agree, the parties will suspend operation of the national PA and protocol and will consult under provisions of 36 CFR 800.

IX. BLM REVIEWS AND SHPO MONITORING

A. BLM Review .

BLM's Deputy Preservation Officer will conduct reviews of each field office (Attachment F), at least annually, in sufficient detail, to determine:

- (1) whether qualified cultural heritage specialists are available;
- (2) whether undertakings are receiving cultural resource consideration;
- (3) whether project documentation is completed and is being sent to SHPO in a timely manner (three months unless there is an agreement with SHPO in place);
- (4) whether cultural heritage specialists are making accurate professional judgements;
- (5) whether cultural resource identification, evaluation and treatment has occurred before undertakings proceed;
- (6) whether final reports of treatment are being completed and sent to the SHPO;
- (7) whether follow-up monitoring, where required by avoidance stipulations, MOA or treatment plan specifications, is being completed.

B. SHPO Monitoring.

The SHPO may monitor BLM's activities pursuant to this Protocol through field visits and inspection of records. The BLM will cooperate with the SHPO's monitoring activities.

X. DISCOVERIES

(A) In the event that potentially eligible cultural resources are discovered during the course of ground disturbance and cannot be avoided, work in the immediate vicinity of the discovery will cease.

(B) BLM will ensure that the cultural resources are protected from further disturbance until decisions about treatment are made and treatment is completed.

(C) Within 48 hours of the discovery, BLM will evaluate the site and, in consultation with the SHPO, select the appropriate mitigation option. The BLM will implement the mitigation in a timely manner.

(D) The process will be fully documented (in reports, site forms and photographs), and the documentation will be forwarded to the SHPO. Large-scale projects will include a discovery process in the treatment plan.

XI. STAFFING

A. Professional Qualifications

(1) BLM will strive to meet the Secretary's Standards for Historic Preservation Professionals consistent with Office of Personnel Management guidance and section 112 of the National Historic Preservation Act, while giving full value to on-the-job experience.

(2) If a BLM office does not have a full-time, permanent cultural heritage specialist on staff, it must have access to a cultural heritage specialist who has been certified to operate under this protocol and an approved plan that outlines how the work will be accomplished. The plan will be approved and closely monitored by the Colorado DPO. If there is no full-time, permanent cultural heritage specialist on staff and no plan, the office will be at risk of being de-certified and therefore will operate under 36 CFR 800 procedures and timeframes.

B. Certification .

(1) BLM-Colorado will ensure that expertise in prehistoric archaeology, historic archaeology, industrial archaeology, history, architectural history, historic architecture, Native American coordination, public outreach/heritage education and Traditional Cultural Properties (identification, evaluation and treatment) is available to all BLM-Colorado cultural heritage specialists.

(2) If BLM determines that it does not employ a cultural heritage specialist with a particular skill, it will obtain that expertise for the purpose of determining National Register eligibility, effects, and treatment for the cultural resources in question. The BLM may request the assistance of SHPO staff in such cases or may obtain the necessary expertise through contracts, BLM cultural heritage specialists from other offices, or cooperative arrangements with other agencies. If a particular BLM office seeks help from another BLM office, from the SHPO, from the Anasazi Heritage Center, or from other experts, this does not imply that certification is at risk.

(3) When personnel changes occur, e.g., cultural heritage specialists or managers leave, and until positions are filled and training [as discussed below in (4)] is completed, the BLM field manager will ensure and document that qualified cultural heritage specialists are available to conduct the tasks outlined in this Protocol. If decertification is a possibility, the procedures in Section 8 of the NPA will be followed.

(4) Certification training for new field managers and cultural heritage specialists will include, at a minimum, the NPA, the Protocol, and a review of the Handbook.

(5) The qualifications of cultural heritage specialists will be reviewed by the DPO and SHPO to determine whether any on-the-job training, mentoring, or additional experience is necessary before the cultural heritage specialist is qualified to make determinations of eligibility and effect. The recommendations will be presented to the Colorado BLM State Management Team for review and approval.

(6) The BLM Board, in consultation with SHPO, will certify that each field office has a full-time, permanent cultural heritage specialist on staff:

(a) capable of carrying out the historic preservation responsibilities described in this Protocol; and

(b) trained as specified under Stipulation V B.

If the Board determines that a field office lacks such a staff person, it will document to SHPO that office's access to a qualified cultural heritage specialist who has been certified by the Board, pursuant to Stipulation XI A (2). The Board will also certify, in consultation with SHPO, that BLM has available to all of its Colorado cultural heritage staff the various kinds of expertise specified in Stipulation XI B (1). BLM shall make use of partnership opportunities with other

agencies to provide expertise in such fields. In addition, BLM shall make available to its Colorado cultural heritage staff opportunities for continued professional development through classes, mentoring, and participation in state and national organizations such as the Colorado Council of Professional Archaeologists, the Society for American Archaeology, and the Register of Professional Archaeologists.

(7) SHPO will evaluate the field offices' determinations of eligibility and effect under this Protocol as described in Attachment G.

C. Para-Archaeologists .

(1) Para-archaeologists will work only under the supervision of a qualified cultural heritage specialist. The use of para-archaeologists will be at the discretion of the cultural heritage specialist.

(2) Para-archaeologists will not substitute for cultural heritage specialists when the specialists are absent, nor will para-archaeologists be considered adequate replacements for seasonal or term employees.

(3) Para-archaeologists will not conduct cultural resources inventories for undertakings with which they have direct involvement (e.g., which they have sponsored, for which they are a team leader). Exceptions are at the discretion of the cultural heritage specialist.

(4) Inventories conducted by para-archaeologists will

(a) Not exceed ten acres in a block inventory or two linear miles in a corridor survey.

(b) Not include recording of sites. Whether individual para-archaeologists will record isolated finds is at the discretion of the cultural heritage specialist.

(5) Individuals wishing to serve as para-archaeologists will apply for and be accepted as para-archaeologists at the discretion of the cultural heritage specialist.

(6) All prospective para-archaeologists are required to undergo 40 hours of classroom and field training along with 40 hours of supervised field experience.

(7) Para-archaeologists will be reviewed annually by the cultural heritage specialist to determine whether a refresher course is needed.

(8) A statement of ethics will be reviewed and signed annually by the para-archaeologist. BLM will not tolerate abuse of the para-archaeology program. Para-archaeologists that violate these guidelines or exhibit unethical behavior will be immediately de-certified and will not be reinstated.

XII. PROTOCOL DISPUTE RESOLUTION PROCEDURES, AMENDMENTS, AND TERMINATION

A. Protocol Dispute Resolution Procedures .

- (1) Should the BLM or the SHPO object, in writing, within thirty (30) working days, to an action taken by the other party to this Protocol, they will consult to resolve the objection.
- (2) If the dispute cannot be resolved, BLM and SHPO will mutually determine a course of action. Options might include consultation with the National Board, the Council or alternative dispute resolution procedures.
- (3) If alternative arrangements are not mutually agreeable, the dispute will be referred to Council. BLM and SHPO will abide by the decision of Council.
- (4) If a member of the public wishes to object to a BLM action, they will follow standard Interior Board of Land Appeals [IBLA] procedures.

B. Protocol Amendments .

The BLM or the SHPO may request amendment of this Protocol at any time, whereupon the parties will consult to consider such amendment. Amendments will become effective upon signature of both parties and will be attached to this protocol.

C. Protocol Termination .

- (1) BLM or SHPO may terminate this Protocol by providing ninety (90) days written notice to the other party, as long as the parties consult during this period to seek agreement on amendments or other actions that would avoid termination. Either may request the assistance of the State Director, the Board, and/or Council.
- (2) In the event of termination, the BLM will operate under the provisions of 36 CFR Part 800.

XIII. OTHER STATE-SPECIFIC PROCEDURES

BLM will follow procedures and adhere to policies detailed in the Handbook and other supplemental manual guidance, along with SHPO Cultural Resource Report Guidelines. BLM and SHPO will jointly develop and revise handbooks and other guidance as necessary

XIV. ATTACHMENTS

Attachments may be added to this Protocol with the mutual approval of the SHPO and the BLM. Referenced attachments are:

- A. Example Cultural Resource Project Log Page

- B. Outline of Topics Covered in Colorado BLM/SHPO Annual Report
- C. Entities with Historic Preservation Ordinances and Certified Local Governments, Etc.
- D. Letters
- E. Flow Chart Illustrating Process for Resolving Disagreements about Eligibility, Effect and Treatment
- F. BLM Review Form
- G. SHPO Evaluation of BLM Determinations

BUREAU OF LAND MANAGEMENT

By Ann Morgan, Colorado State Director

Date

/s/ 4/29/98

COLORADO STATE HISTORIC PRESERVATION OFFICER

By James Hartmann, Colorado State Historic Preservation Officer

Date

/s/ 4/28/98

**Addendum 1 to the Colorado Protocol:
Section 106 Requirements For
Comprehensive Travel and Transportation Management Planning**

Background

As part of its comprehensive travel and transportation management planning program (CTTM), the Bureau of Land Management (BLM) is required to designate travel management routes and areas on public lands as open, limited, or closed to off-highway vehicle (OHV) use (as required by Executive Order 11644 ((as amended by Executive Order 11989) and regulation (43 CFR Part 8340)) and other travel use in every land use plan (LUP). CTTM planning considers both motorized and non-motorized travel, such as, OHV's, horseback riding, biking, and hiking.

Absent designation, routes and areas are subject to uncontrolled travel. Designation of routes and travel network areas generally has the beneficial effect of controlling impacts of travel on public lands, including on cultural resources. Designation provides a purposefully designed and clearly delineated travel network, reduces the potential for user caused route proliferation, and facilitates travel management and law enforcement. 43 CFR Part 8340 authorizes the closure of routes and areas to the types of OHV travel that have caused or may cause adverse effects to cultural resources. In addition, route designations prohibit indiscriminate cross-country travel that may cause adverse impacts to cultural resources.

Purpose

The closure and reduction of unmanaged cross-country travel is intended to protect cultural resources across a broad landscape. It is in the interest of cultural resource protection to complete the designation process as soon as possible. Most existing routes are user-created and have not been inventoried for cultural resources and the effects to them are not well documented. Because of the large number of existing and new routes and areas that will be designated by each planning effort, a phased identification effort is needed to complete BLM Section 106 responsibilities pursuant to 36 CFR 800.4 (b)(2). This phased identification effort is integrated into three steps of CMMT: planning, route development, and route maintenance.

This Addendum replaces two Programmatic Agreements (PA's) regarding travel management in the Royal Gorge Field Office (RGFO) and the Kremmling Field Office (KFO). The signatories of the PA for the RGFO includes the BLM, Colorado State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation (ACHP) with the Comanche as a concurring party initiated on June 3, 2003. The PA for the KFO includes the BLM and the SHPO with the Southern Ute as a concurring party initiated on January 11, 2005. Both PA's will be terminated on the effective date of this Addendum following the procedures in these agreements. BLM will notify all signatories of the PA's of the termination and the implementation of this Addendum.

Development of Planning Alternatives:

Selection of specific route networks and imposition of other use limitations, will avoid impacts on cultural resources where possible. In accordance with 43 CFR 8342, existing cultural resource information must be considered when choosing among the range of alternatives for the design of a planning area travel system, including the potential impacts on cultural resources when determining whether each of the routes or areas in a planning area should be designated as open, limited, or closed. Eligible and potentially eligible (need data) cultural resource sites may be protected through rerouting, excavation of archaeological resources, limitations on vehicle type and time or season of travel, closure, and other less common mitigation strategies. Evaluation of routes or areas to be designated as closed to protect cultural resources should be based on existing inventory information and should not be postponed until additional information is acquired.

Plan Development, Maintenance and Modification

A BLM cultural resource specialist will be involved *throughout* the planning process and on any team working on periodic plan maintenance or on a plan amendment. Cultural resource inventory and monitoring information, gathered after a plan is approved, maintained, or amended, should be used to review and update the route network as necessary in any plan maintenance or plan amendment process.

Compliance with Section 106

Designation of routes and areas are considered undertakings for the purposes of Section 106 of the National Historic Preservation Act (NHPA). The signing of existing routes – does not include the construction of kiosks or other structures being used to hold information – is not considered an undertaking under NHPA. Route and area designation is considered a non-routine undertaking under the Colorado Protocol because of the magnitude and scope of this action and requires an addendum to the Protocol to address these requirements. Given the nature and potential adverse effects to historic properties from the designation of routes and areas in planning documents, Section 106 compliance for these undertakings will be accomplished as described below.

Area of Potential Effect (APE)

The APE includes a corridor that extends at least 50 feet on both sides of the centerline of the road or trail. A 300-foot use corridor will be used when parking, camping and staging areas are allowed adjacent to roads. Additional areas may be inventoried when the cultural resource specialist believes alterations in trails or roads, or changes in their use, may result in indirect impacts, such as vandalism, to cultural resources. Nickens, Tucker and Larralde (1981), *A Survey of Vandalism To Archaeological Resources in Southwestern Colorado*, provides useful information about the potential for vandalism and other indirect impacts to cultural resources from road access. This publication is accessible at http://www.blm.gov/heritage/adventures/research/StatePages/CO_pubs.html

Inventory Requirements

Three principal guidelines will be followed:

- Proposed designations that allow continued use of existing routes and keep an open area open may have adverse effects to cultural resources. When the BLM cultural resource specialist determines that existing information reveals areas where adverse effects to cultural resources have occurred, are occurring, or have a reasonable expectation of occurring from travel, some degree of Class III inventory in the APE will be required.
- Proposed designations that impose new limitations on an existing route, close an open area or travel route and keep a closed area closed are unlikely to adversely affect cultural resources. No further field inventory of these routes and areas is required.
- Proposed designations of new routes or areas as open to travel are subject to Section 106 compliance in the same manner as any undertaking. Class III inventory in the APE is required **prior to designation** of new routes or areas as open to travel, and for new locations proposed as camping areas, staging areas or similar areas of concentrated travel.

Phases of Identification:

- Phase 1: Planning: This phase primarily involves using existing information to identify the field inventory needs for designated routes or areas and for route closures in the APE. The plan implementation schedule will identify field inventory needs, needed funding and the schedule of completion. The plan will reference this addendum.
- Phase 2: Route development: This phase involves the Class III inventory of most designated routes scheduled for inventory in the APE.
- Phase 3: Route maintenance: This phase involves the Class III inventory of the lowest priority designated routes scheduled for inventory in the APE.

Existing cultural resource information: Every new, revised and amended LUP must incorporate sufficient information to identify the nature and importance of all cultural resources known or expected in the LUP area. Where this information is lacking or out of date, the LUP Preparation Plan should include provision for developing or revising this information as part of the overall plan development, revision, or amendment process. Cultural resource information from the planning area's Class I overview, or existing cultural resources records search and literature review, will be considered when choosing among the range of possibilities in designing a planning area travel system for proposed designation.

The records search and literature review will include the field office and the SHPO database and records, information from the most recent regional overview for the field

office, the statewide context documents, and knowledge of the cultural resource specialist.

Field Inventory: Field inventory requirements, priorities and strategies will vary depending on the nature and potential effect of the proposed travel activity and associated use levels (See Definition section) and the expected density and nature of cultural resources based on existing cultural resource information.

Federal interstate highways and State highways (primary and secondary) are not included here because Section 106 actions are the responsibility of the Federal Highway Administration, as implemented by the Colorado State Department of Transportation.

Existing routes that have been regularly maintained (Types 3A-C) do not require field inventory. [See Definitions section]

Existing routes that have not been regularly maintained (Types 4-6F) require further field inventory. [See Definitions section]

Class II inventory will be conducted on designated routes and areas in the APE that allow continued use of an existing route and keep an open area open. Class II inventory will require field visitation of known "need data" and eligible cultural resources located within or immediately adjacent to existing routes. Also, Class III inventory will be conducted on an existing route or routes in the APE that best represents the topographical/vegetation variation in the travel management area. Inventory will include the documentation of impacts from travel and the need for further Class III inventory.

Class III field inventory will be conducted in the APE for the following undertakings: (1) some designated routes and areas that allow continued use of an existing route and keep an open area open based on the results of Class II inventory, (2) all new construction of routes and the maintenance of route types 4-6F located either in the footprint or outside the footprint, such as, drainage pitch-out, culvert replacement, cattle-guard placement, facility maintenance, and restoration, and (3) route closure actions that disturb the ground both in and outside the existing route footprint. Closure actions that only impact the disturbed surface, such as hand-brushing actions, are considered to have no effect on cultural resources. Class III inventory will follow the standards identified in the Colorado Handbook of Guidelines and Procedures for Identification, Evaluation, and Mitigation of Cultural Resources – Chapter 3 (1998) attached to the Colorado Protocol.

Adverse Effects

For all adverse effects to historic properties, the cultural resource specialist will follow the evaluation, treatment, mitigation, and reporting procedures outlined in the Colorado Protocol.

Monitoring

Areas and routes that are designated open to travel in the APE will be monitored for impacts to resources, and a BLM cultural resource specialist will be included on the team

responsible for developing and implementing the monitoring standards and process. The monitoring standards and process will consider the intensity and type of travel, the density and sensitivity of cultural resources, and the potential for adverse indirect and cumulative impacts, including route proliferation. When monitoring identifies adverse effects to cultural resources from route or area designation, the decision record should make it clear which mitigation actions will be taken, and when they should be taken, in order to minimize additional environmental analysis required prior to implementation.

Monitoring will be based on the schedule identified in each plan. The BLM cultural resource specialist, as part of the monitoring team, will identify an appropriate monitoring schedule for cultural resources. The monitoring results will be reported to the SHPO in the annual report required under the Protocol. Any changes in monitoring will be identified and agreed to at the annual meeting with the SHPO on the Protocol and implemented upon an agreed time frame.

Emergencies

All travel management is subject to prohibitions against operation of vehicles on public lands in a reckless, careless, or negligent manner; and in excess of established speeds or in a manner causing or likely to cause undue damage to cultural and other resources. Where an authorized officer determines that OHVs are causing or likely to cause adverse effects to cultural resources, 43 CFR 8342 requires immediate closure to the type or types of vehicles causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. Field inventory is not required prior to the emergency closure.

The Authorized Officer will notify the SHPO and other consulting parties by telephone within 48 hours and identify the steps being taken to address the emergency, describe the discovered cultural resource and its significance, and describe the emergency work and potential adverse effects on the discovery. Consultation will begin as soon as possible after notification to determine what mitigation measures are needed. Within 30 days following this notification, the Authorized Officer will document to the SHPO and consulting parties the actions taken to minimize effects and the work's present status. The results of mitigation will be fully documented in reports, site forms and photographs meeting the requirements in the Protocol. The documentation will be forwarded to the SHPO in accordance with the timetables established in Section X of the Protocol.

Discoveries

Discoveries may be identified during implementation and monitoring and will follow the procedures identified in Section X of the Colorado Protocol. Work in the immediate area of the discovery will cease until the discovery has been evaluated pursuant to Section VII of the Colorado Protocol. This may require the closure of the route until mitigation is completed. Within 48 hours of the discovery the SHPO and consulting parties will be notified of the discovery, and consultation will begin to determine an appropriate mitigation measure. BLM will ensure that the discovery is protected from further disturbance until mitigation is completed.

Pursuant to 43CFR10.4(g), the BLM authorized officer must be notified, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43CFR10.4 (c) and (d), activities must stop in the vicinity of the discovery and the discovery must be protected for 30 days or until notified to proceed by the authorized officer. All reasonable measures will be taken to resolve any issues regarding affiliation and disposition of discovered remains within a 30 calendar day period beginning with the agency certification of initial notification.

For Native American human remains and associated cultural items discovered on Federal land, the BLM will meet the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA) for all inadvertent discoveries and discovery situations on a case-by-case basis in accordance with 43 CFR 10. For all other human remains and associated artifacts, the procedures identified in the 1989 Guidelines, Colorado Inadvertent Burial Discovery Procedures will be followed.

Consultation

Consultation with the SHPO and affected Tribes is required for all planning efforts and, as necessary, with other consulting parties. The SHPO will be consulted during planning and invited to participate in the development and implementation of identification, monitoring, and treatment options. The planning team will consult with potentially affected Tribes to solicit concerns relative to planning options and to ensure that appropriate identification and treatment options are developed and implemented during or after the planning effort. Consistent with BLM Manual 8120 and Handbook H-8120-1, additional consultation may be required for specific planning decisions and project implementation.

Funding

Route and area designation is an undertaking initiated by the planning program. The cultural resource program provides administrative support from the BLM cultural resource specialist during the planning effort. This work includes conducting the needed records and literature search and providing the input for all National Environmental Policy Act documentation. The planning program can assist with costs associated with consultation and Class I overviews.

Benefiting programs are expected to fund most cultural resource needs during development and maintenance phases to accomplish the field inventory and other needed work to satisfy BLMs requirements under Section 106 of NHPA and the Colorado Protocol. The cultural resource program can fund cultural resource work in areas and on sites that are identified in the State Strategic Plan as high priority for proactive inventory and for protection of "at-risk" cultural resources. These accomplishments are reportable under the cultural resource program elements identified in the Management Information System database.

Definitions

Route types (based on typology used by the engineering program):

[1]-[2]: Federal interstate highways, and State highways (primary and secondary).

[3A-3B]: BLM regularly maintained road (light-duty/constructed/gravel and paved).

[3C]: BLM regularly maintained road (light-duty/constructed/dirt).

[4]: BLM not-regularly-maintained road (primitive/constructed).

[5]: BLM not-regularly-maintained road (primitive/user-created).

[6A-B]: BLM motorized trail (single and double track/ATV, motorcycles).

[6C-F]: BLM non-motorized road and trail (single track/foot, horse, mountain bike).

[7]: BLM closed road

Use Levels (based on terms commonly used in travel management planning):

Decreased Use: This reduces the current use level by lowering the number and density of existing routes.

Maintain Current Use: This maintains the existing number and density of existing routes.

Increased Use: This may include a low increase (a small increase in the number of routes and density) or a high increase (a high number of routes and density).

BUREAU OF LAND MANAGEMENT



Linda M. Anañia, Deputy State Director

10/26/06

Date

COLORADO STATE HISTORIC PRESERVATION OFFICER



Georgianna Contiguglia, State Historic Preservation Officer

October 19, 2006

Date

K.2.4.6 Nevada Protocol

STATE PROTOCOL AGREEMENT

between

The Bureau of Land Management, Nevada

and

The Nevada State Historic Preservation Office

for

Implementing the National Historic Preservation Act

Finalized October 26, 2009

Please note: Only the Main Protocol through Appendix G are included in this EIS; the other portions of the document may be accessed online at: http://www.blm.gov/pgdata/etc/medialib/blm/nv/cultural/permits.Par.99806.File.dat/State_protocol%20agreement%20amended%20thru%2005.pdf.

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PREAMBLE

The Bureau of Land Management (BLM) has developed a nationwide Programmatic Agreement (National Programmatic Agreement, or NPA, Appendix J of this Protocol) governing the manner in which the Bureau shall meet its responsibilities under the National Historic Preservation Act (NHPA). This State Protocol Agreement (or Protocol) has been developed pursuant to provisions of the NPA.

In carrying out its responsibilities, the BLM has developed policies and procedures through its Cultural Resources Manual (Sections 8100-8170) to guide planning, decision-making, and activities. The Nevada State Office of the Bureau of Land Management (BLM) has professional Cultural Resource staff to advise the BLM's managers and to implement cultural resource policies. It is the intent of this Protocol to provide a process for consistent compliance with Sections 106, 110 and 112 of the NHPA by the BLM. Where referenced, the provisions of 36 Code of Federal Regulations (CFR) 800 (Protection of Historic Properties), effective August 5, 2004, apply; those regulations are included as Appendix L in this Agreement.

This Protocol prescribes the manner in which the BLM and the Nevada State Historic Preservation Office (SHPO) shall cooperatively implement the NPA in Nevada. It is intended to ensure that the BLM organizes its programs to operate efficiently and effectively in accordance with the intent and requirements of the NHPA and NPA, and that the BLM integrates its cultural resource planning and management decisions with other policy and program requirements. The Protocol streamlines the Section 106 process by eliminating case-by-case consultation with the SHPO on undertakings that culminate in no effect or no adverse effect determinations.

This State Protocol Agreement supersedes in all ways the provisions of State Protocol Agreement between the Nevada State Director of the Bureau of Land Management and the Nevada State Historic Preservation Officer, executed on June 4, 1999, which will terminate and have no further force and effect with the last signature on this Protocol. However, undertaking-specific agreements in force at the time of the execution of this Protocol shall continue to function according to their terms.

PURPOSE

This Protocol defines how the SHPO and the BLM will interact under the NPA for implementing the NHPA. The goal of the NPA and this Protocol is a more meaningful and productive partnership between the SHPO and the BLM (the Parties) to enhance cultural resource management on public lands managed by the BLM in Nevada.

The NPA and this Protocol addresses all work done by BLM under provisions of the NHPA, including Section 106, Section 110 and Section 112 in particular.

PART 1. SECTION 106 ACTIVITIES

I. DEFINING AN UNDERTAKING

BLM activities that are undertakings, as defined below, are subject to compliance with Section 106 of the NHPA and this Protocol.

A. Establishing an Undertaking

A qualified BLM Cultural Resource Specialist (CRS) will determine if a planned action is an undertaking subject to compliance with the NHPA. Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of the BLM. Undertakings also include those carried out by or on behalf of BLM; those carried out with BLM's financial assistance; and those requiring a BLM permit, license or approval, after 36 CFR 800.16(y).

1. If a proposed action is not an undertaking, no notice to SHPO is necessary.
2. If a proposed action is determined to be an undertaking and if it has the potential to cause effects on historic properties, assuming that historic properties are present, then it is subject to the provisions of this protocol.
3. If the undertaking does not have the potential to cause effects on historic properties, assuming such historic properties were present, the BLM has no further obligations under Section 106 of the NHPA.

If a disagreement concerning the definition of an undertaking occurs between the CRS and a District- or Field-level manager (Manager), the determination as to whether a planned action is an undertaking will be referred to the Deputy Preservation Officer (DPO), defined in part 2.b of the NPA signed in 1997. The DPO will first discuss the matter with the Manager to determine whether an undertaking exists and will make a recommendation to the Manager. The DPO may discuss the situation informally with the SHPO. If the DPO and Manager cannot agree, the DPO will convey a recommendation to the Deputy State Director for Resources, Lands and Planning (DSD) for a decision. If the DPO and DSD cannot agree, the BLM will consult with SHPO per terms of this Protocol per terms of XIV.A of this Agreement. The State Director will make the final BLM decision following consultation.

B. SHPO Notification of Proposed Undertakings

In the earliest feasible planning stage for any undertaking, BLM will determine the information needed to identify and evaluate historic properties within the Area of Potential Effect (APE). Such determinations will be based on a file search of the SHPO/BLM cultural resource records, aerial photographs, GLO records, BLM land records, resource management plans, project-specific NEPA documents of the proposed project area, available cultural resource planning models, and on information sought and obtained from the SHPO and from interested persons. As needed BLM will gather the necessary information through appropriate levels of inventory or interviews with appropriate members of the public, professionals, and tribal experts. Sites of religious and cultural significance to Native American tribes must be included in determining inventory needs, based on appropriate notification and consultation, as required per BLM Manual 8120 and BLM Handbook H-8120-1, as well as any additional relevant instruction or guidance.

1. Inventory Needs Assessment Form—Electronic Format. A qualified CRS will prepare an Inventory Needs Assessment form (Attachment 1) establishing the inventory and any other appropriate recommendations for the undertaking. The completed form will be forwarded to the responsible Manager or other responsible agency official for approval.

a. One copy of the form will be included in the case file to document the information gathering decision; and

b. One copy of the form will be sent to the SHPO and one copy to the State Office prior to authorizing the undertaking.

c. The SHPO will have two working days from when the completed written form is electronically transmitted by BLM (e.g., via e-mail, via facsimile transmission) to notify BLM via electronic transmittal or by telephone that either:

(1). the SHPO wants to consult on the undertaking, or

(2). the SHPO may provide recommendations within the same electronic transmittal regarding additional parties that might be consulted or inventory recommendations. These recommendations will not require formal consultation unless the CRS and SHPO cannot agree upon an acceptable inventory strategy or the CRS declines to follow the SHPO's recommendations.

d. If the SHPO has not responded by the Close of Business on the second working day, the BLM will assume that the SHPO does not want to consult and will proceed with the undertaking.

e. As other tracking systems come on line and are agreed to by BLM and SHPO, these will be used for the Inventory Needs assessment and SHPO notification process.

f. The format of the Inventory Needs Assessment form is established by the Nevada State Office. District or Field offices may implement modified formats after approval by the Deputy State Director, Resources, Lands and Planning.

2. When BLM delivers a paper version of the Inventory Needs Assessment Form via standard U.S. surface mail when no electronic notification process is available,

a. The distribution will be the same as for the electronic version, including the case file, SHPO and State Office.

b. The SHPO will be allowed five working days from when the form is received to notify BLM that the SHPO wants to consult on the undertaking. The SHPO's response will be made using electronic transmission or telephone whenever BLM's corresponding systems are operative.

c. If SHPO has not responded by the Close of Business on the fifth working day, the BLM will assume that the SHPO does not want to consult and will proceed with the undertaking.

3. Information in the general project case file is available for public inspection and should provide a clear rationale for determinations of the need for inventory or other action. The case file should also be managed to ensure appropriate confidentiality, including withholding of information from disclosure to the public, as necessary to protect the resource (BLM Manual 8110.55).

4. BLM will provide a new notification to SHPO if BLM determines the previous assessment must be updated to reflect significant changes in project location, the kinds of resources expected (including those that exceed BLM's in-house expertise), or important new information.

5. BLM and SHPO will coordinate in developing standards for the electronic format of submissions.

II. UNDERTAKINGS REQUIRING SHPO CONSULTATION

Under the regulations at 36 CFR 800, undertakings are subject to SHPO consultation on identification, eligibility, effect and treatment prior to authorization. This Protocol modifies the process by developing a set of understandings and standard operating procedures (SOPs) that eliminate the need for SHPO consultation prior to authorization in most, but not all, cases. Specifically, the Protocol streamlines the Section 106 process by eliminating case-by-case consultation with the SHPO on undertakings that culminate in no effect or no adverse effect determinations. A determination of adverse effects requires that BLM consult with SHPO per the regulations at 36 CFR 800, as do certain other conditions or situations stipulated below.

A. Required Consultation with SHPO.

BLM will initiate consultation with SHPO on the categories of undertakings shown in II.A.1 to II.A.9, below. BLM will consult with SHPO on the following categories of undertakings to determine whether SHPO wants to be consulted under 36 CFR 800 or SHPO agrees that BLM can utilize this State Protocol Agreement:

1. that involve interstate or interagency projects or programs for which BLM Nevada is the lead Federal Agency;
2. that adversely affect National Register listed or eligible properties;
3. that require an Environmental Impact Statement (EIS);
4. that are phased, segmented or would otherwise require a project-specific Programmatic Agreement (PA) (as specified in Section II B) prior to implementation;
5. when the BLM lacks access to appropriate expertise;
6. that are determined by either party to be beyond the scope of this Protocol;
7. that involve land transfers out of Federal management;
8. when SHPO agrees to consult on an undertaking because SHPO review has been requested by a tribal government, a local government, an applicant for a BLM authorization, a member of the public, or other interested person;

9. where BLM's treatment options for historic properties may be limited due to land status or statutory authority.

B. Undertakings Requiring SHPO Consultation on a Project-Specific Agreement Prior to Authorization

Other agreements will be developed to define project-specific procedures or manage specific undertakings. These include:

1. Multiple Agency and Interstate Undertakings

Undertakings involving other federal agencies or states other than Nevada (except for undertakings on lands in other states managed by BLM Nevada) require a multiple party PA per 36 CFR 800.14 among the involved agencies and the SHPOs from other states to define how the undertaking will be managed to comply with the NHPA.

a. With the agreement of all federal agencies and SHPOs involved, this Protocol will apply when more than one Federal agency is involved in an undertaking and Nevada BLM is the lead agency for NHPA compliance.

(1). Each agency agreeing to follow this Protocol will provide BLM and SHPO with a letter of agreement.

(2). When agencies and/or SHPO cannot agree that a Federal agency will follow the protocol, the affected agency and SHPO will negotiate a separate consultation process within the project-specific PA.

b. When more than one Federal agency is involved in an undertaking, and the BLM is not the lead agency for NHPA compliance, the BLM may agree that the lead agency's procedures will be followed.

(1) The BLM will provide the lead agency and SHPO with a letter of agreement.

c. When agencies intend to deviate from either this protocol, or the lead agency's procedures, or if the agencies cannot agree on whose procedures to follow, the agencies and SHPO will negotiate a PA prior to initiating work on the undertaking.

d. Undertakings on lands in other states managed by BLM Nevada may be processed without a project-specific PA when the BLM state office and SHPO from the other state have certified the relevant BLM Nevada personnel (i.e., CRS, managers) to work in that state.

2. Phased or Segmented Undertakings

The BLM or SHPO may determine that large or complex undertakings should be segmented or phased using an incremental approach to identification, evaluation or treatment.

a.. Undertakings that are phased over time or otherwise segmented require a PA among the BLM office(s), SHPO, and other participants prior to initiating work on the undertaking. This applies to undertakings initiated after this Protocol is approved.

b. The BLM and SHPO agree that BLM will conduct appropriate identification and evaluation activities to determine the presence of historic properties in an APE prior to authorizing an undertaking.

c. BLM will also take effects into account prior to authorizing an undertaking and will prepare an appropriate treatment plan prior to initiation of the undertaking. The BLM will ensure that the treatment represented in the plan occurs before historic properties are affected by activities associated with an undertaking.

3. Multiple BLM Office Undertakings

a. Undertakings involving more than one Nevada BLM District or Field office will be reported to the DPO by the lead field office, or by all involved field offices if there is no lead. The DPO will recommend to the Deputy State Director, Resources, Lands and Planning, Nevada State Office (DSD) as to the need for a PA among the involved BLM offices, the State Office, and the SHPO to define how the undertaking will be managed to comply with the NHPA. This determination will be based on factors such as project magnitude, complexity, and the opportunities to achieve improved project management by means of a PA. The DSD will determine the need for a PA and will also determine the timing to initiate field work in relation to development of the PA.

b. As necessary, the DSD will consult with involved Managers to determine the lead office. When a PA has been determined necessary by the Nevada State Office, the lead office will have responsibility for preparation of the agreement.

c. Undertakings involving minor crossings of BLM office boundaries (including, but not limited to seismic surveys, local power lines, small phone lines, and fence lines) and for which one field office is processing the undertaking for all involved field offices and is coordinating cultural resource management decisions among field offices, do not require a project-specific PA. However, these projects must also be identified to the DPO.

4. BLM Office Responsibilities during Preparation of Memorandum of Agreement

a. In efforts to avoid, minimize or mitigate adverse effects to historic properties, BLM will negotiate a memorandum of agreement (MOA) with the SHPO and with other parties as appropriate.

C. Undertakings Not Requiring SHPO Consultation prior to Authorization

1. The BLM and SHPO agree that the BLM's professional cultural resources staff may conduct inventory, develop determinations of eligibility and effect and apply exemptions, without involvement of SHPO, except those specified in Section II.A.

a. When professional staff determinations and recommendations, or recommendations of appropriately qualified permittees or BLM contractors are approved by the appropriate

BLM Manager, no SHPO consultation is required.

b. If the BLM Manager does not accept the professional determinations or recommendations of the cultural resource specialist, including but not limited to the scope of inventory, determinations of eligibility, findings of effect, and application of exemptions, the BLM Manager may either opt to employ the dispute resolution process in XIV.A of this Agreement, or may initiate consultation with the SHPO under 36 CFR 800.

D. Undertakings Requiring Council Consultation prior to Authorization

The BLM will consult with the Advisory Council on Historic Preservation (Council) and seek concurrence with BLM decisions for undertakings when:

1. BLM and SHPO consultation is not productive;
2. National Historic Landmarks or National Register-eligible properties of national significance are directly and adversely affected; or
3. Council review has been requested by the BLM, the SHPO, a Native American tribe, local government, an applicant for a BLM authorization, member of the public or other interested person.

III. NOTIFICATION/REPORTING TIME FRAMES

A. Notification

1. Requirements for providing SHPO with a notification of an undertaking are found in I.B, above.
2. Undertakings Requiring SHPO Consultation Prior to Authorization: Unless otherwise agreed, the SHPO shall have 35 calendar days from receipt of appropriate documentation to respond to any BLM consultation request regarding identification, evaluation, treatment, or effect for undertakings specified in Section II.B.
3. Time frames for Discovery Situations are found in Section VI.
4. If the SHPO does not respond within the designated time limit, the BLM may assume SHPO concurrence and can proceed with the BLM's proposed course of action.
5. If BLM or its consultant discovers buildings or structures over 50 years of age are present, the BLM shall consult with SHPO under provisions of II.A.5.

B. Reporting

For undertakings, BLM will select an appropriate format (i.e., inventory report, testing plan, treatment plan, data recovery plan, treatment report, etc.) to document its actions and decisions made in accordance with Section V of this Agreement. This will also include determination of the APE, the nature and intensity of information gathering efforts, level of public involvement, tribal and other Native American consultation, resource identification activities, National Register status, intensity of effect, and treatment needs for resources potentially affected by an undertaking. If an undertaking is

phased, additional appropriate format(s) may provide for the resolution of adverse effects.

Except when working under a project-specific PA, or by other arrangement with SHPO, the reports, site records, and related documentation compiled in accomplishing provisions of Section V of this Agreement will be forwarded to SHPO within 35 days of authorizing the undertaking. Reports not forwarded to SHPO within this time frame or a time frame made by other arrangement with SHPO will be documented as described in Appendix A, including a date for completion and submission.

When working under a project-specific PA, the results of all other NHPA compliance activities shall be documented and reported as specified in the agreement.

C. Reporting Standards

The BLM and the SHPO will collaborate on the development of standards for preparing inventory and treatment reports, and jointly developing isolated artifact, isolated feature, and site forms. Until this is done, the standards (but not the process) in the Statewide Programmatic Agreement, dated July 29, 1990, and the 4th edition of the *BLM Nevada Cultural Resources Inventory General Guidelines* will remain in force.

1. The BLM and SHPO agree that the current edition of the Intermountain Antiquities Computer System (IMACS) site record forms, encoding and accompanying definitions and dictionaries comprise the standard for archaeological site documentation and recording, except where the two agencies have made mutually agreed upon modifications or exceptions.
2. Standing buildings and structures will be documented by qualified persons using the SHPO's Historic Resources Inventory Forms, which are referenced in Appendix I. Reporting requirements for standing buildings and structures, also in Appendix I, will be followed.
3. Treatment of standing buildings and structures will be documented according to Appendix G, Documentation Standards for Historical Resources of Local and State Significance.
4. Archaeological resources and standing building or structure resources will be documented in separate reports.
5. During inventory and recording phases, digital photography may be used. Requirements for digital photography during inventory and recording are found in Appendix M.

D. Backlog Reports

This Protocol is predicated in part on the assumption that the parties have need for and access to an automated site and project database that is as up-to-date as possible given circumstances of funding and staffing to aid in management planning, undertaking processing, and resource modeling. The available data from Nevada repositories has been or is being entered in the Nevada Cultural Resource Information System (NVCRIS) maintained by the SHPO, with the goal of creating one consolidated record-keeping system. One way in which NVCRIS can be impaired is by allowing a backlog of basic resource information and reports of identification, evaluation, and treatment to develop in field offices. Therefore, the Parties agree that:

1. Each Field Office will notify SHPO when documentation will take longer than 35 days, or

will be completed outside of the time frames in a project-specific PA or cultural resources management plan (testing, treatment, data recovery, interpretation, etc.).

2. Projects initiated prior to the implementation of the Protocol dated June 4, 1999, can be cleared from a BLM office backlog by sending SHPO site records (including completed encoding forms) and maps, with project maps showing project boundary, APE, area inventoried, resource locations and a one page description of the project and how its associated cultural resource data were acquired. Unless a BLM office makes other arrangements directly with SHPO, the backlog in this category will be cleared within one calendar year after this agreement is signed by BLM and SHPO.

3. Projects that are or were cancelled prior to report preparation can be cleared from a field office backlog by sending SHPO site records (including completed encoding forms) and maps. If available, project maps showing project boundary, APE, area inventoried, resource locations and a one page description of the project and how its associated cultural resource data were acquired should also be forwarded to SHPO. Unless a BLM office makes other arrangements directly with SHPO, the backlog in this category will be cleared on or before September 30 of the year in which the project occurred, or within six months of project cancellation.

4. There may be projects which can no longer be reconstructed or retrieved sufficiently to create the minimum necessary records. Examples include projects where the specialist who did the work is no longer available, or there is insufficient information to allow the production of site or project records. These projects need to be identified and cleared from the BLM office backlog by informing the SHPO that they will never be completed and should be eliminated from BLM office files, data repository paper records, and NVCRIS. Unless a BLM office makes other arrangements directly with SHPO, the backlog in this category will be completed within six months after the last signature is applied to this Agreement.

IV. DEFINING THE AREA OF POTENTIAL EFFECTS (APE)

As early as possible in developing or processing an undertaking, the BLM CRS will define an appropriate APE that is sufficient to allow analysis and treatment of potential effects associated with the undertaking. In defining the APE:

A. The APE boundary is not limited by the physical footprint of the undertaking. It should be large enough to encompass all potential direct and indirect effects, including visual effects.

B. Levels of intensity in identification, evaluation, and treatment should be scaled by the scope of the undertaking and the nature of potential effects as follows:

1. Direct Physical Effects: The physical footprint of the undertaking and any other associated areas likely to experience primary physical effects will be inventoried to standards determined appropriate in the Inventory Needs Assessment process, or as defined in appendices to this Agreement; resources also will be evaluated, and effects will be treated as specified in Section V.

2. Indirect Physical Effects: If the undertaking creates or has the potential to create secondary physical effects, such as increased vandalism, erosion, or traffic, the physical footprint of those effects will be inventoried to standards determined appropriate in the Inventory Needs Assessment process, resources will be evaluated, and all effects will be treated as specified in Section V.

3. Effects to Setting: If the undertaking creates direct or indirect effects (i.e., changes that diminish the integrity of location, design, setting, materials, workmanship, feeling, and association that contribute to the property's significance) to an historic property's setting, then the APE will be defined to include appropriate consideration of those effects, using the Inventory Needs Assessment process. This determination may or may not lead to additional Class III inventory; however it will lead to some additional work such as visual simulation of changes, and development and evaluation of possible alternatives intended to reduce the effect on setting, including development of project design and location alternatives.

C. Although an APE is defined early in the identification process, the APE may be modified by BLM during the process when resources are avoided with the Standard Measures in Appendix H. If, in this case, the final APE does not contain historic properties, the BLM can document the lack of historic properties within the redefined APE and proceed with the undertaking using terms of section V.C.

1. Documentation for the undertaking will contain maps of both the original APE and the redefined APE, along with the basis for the redefinition.

2. Documentation will also include site records and maps for all resources located in the initial inventory and subsequently excluded from the APE through redesign (including deletion) as well as all resources within the redefined APE.

V. IDENTIFICATION, EVALUATION, AND TREATMENT OF HISTORIC PROPERTIES

The BLM will ensure that historic properties that may be affected by any undertaking are identified and evaluated in accordance with the procedures established below. The BLM will ensure that undertaking-specific surveys and other efforts to identify and evaluate historic properties are conducted in accordance with appropriate professional standards. These standards are defined in BLM Manual 8110, *Identifying and Evaluating Cultural Resources*, BLM Manual 8140, *Protecting Cultural Resources*, Nevada BLM supplements to this agreement, the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716), and relevant written SHPO guidance.

A. Determining Information Needed

1. Level of Field Inventory: The BLM and SHPO agree that Class III inventory will be the standard level of field inventory required to identify archaeological resources. Therefore, when the APE will be investigated with a Class III inventory, the BLM need not seek SHPO consultation on identification efforts prior to initiating the inventory unless consultation occurs per Section II.A or unless a PA or similar agreement is required or anticipated, per IIB.

a. If the undertaking is subject to SHPO review, and the BLM decides to investigate an APE at less than Class III intensity, BLM will consult with the SHPO on the adequacy of the inventory design prior to initiating the inventory or authorizing the proposed undertaking.

b. If the undertaking is not subject to SHPO review, the BLM will inform the SHPO per Section I.B, using an Inventory Needs Assessment Form, of its intent to deviate from Class III inventory standards prior to initiating the undertaking and allow SHPO to consider initiation of consultation within the time frames found in Section I.B.

c. The basis for the decision to deviate and the nature and coverage of the inventory, as well as the date and means of notifying the SHPO, must be documented in the report on the undertaking.

2. Exemptions from Inventory Requirement: Undertakings exempted from inventory requirements and from Section 106 review are identified in Appendix C. Other classes of exempted undertakings may be added to Appendix C if the BLM and the SHPO agree that such undertakings qualify.

3. The BLM CRS will, after determining information needed to identify and evaluate cultural properties, determine if specific undertakings should appropriately be exempted from further Section 106 review when the undertaking is not located within a historic property unless the specific provisions in Appendix C apply, as follows:

a. Disturbed Areas: If the CRS determines that previous ground disturbance has modified the surface of an APE so that the probability of finding intact cultural properties within the APE is negligible, then the disturbed portion of the APE should be excluded from further inventory and treatment.

b. Previous Adequate Inventory: If the BLM CRS determines that the APE, or any portion of the APE, is included in the area inventoried by an adequate Class III inventory completed within the last 10 years, and was previously reviewed by the SHPO, the BLM may proceed with determining eligibility and effect without additional inventory.

(1) Inventories more than 10 years old will be evaluated by the CRS to determine their adequacy for contemporary identification purposes in locating and evaluating historic properties in relation to land use applications subject to terms of this Protocol. This will include an assessment of need for further consultation with Indian tribes.

(a) BLM will notify SHPO prior to authorizing an undertaking when an inventory more than 10 years old is determined adequate for identification purposes.

c. Areas with Low Potential for Containing Historic Properties: Areas that have not been inventoried, or appropriately modeled, will be treated as if they contain high sensitivity historic properties, unless the BLM and the SHPO jointly determine that specific areas do not need to be inventoried because current information suggests that the area has little or no potential to contain historic properties. Such determinations may be developed in two ways:

(1). Project-Specific: If the proposed undertaking is not listed in the exemptions found in Appendix C, the BLM will seek the concurrence from the SHPO on project-specific exemptions due to low site probability;

(2). Supplemental Protocol Agreements: Low site probability areas, identified through appropriate models and appropriately validated, may be exempted through a Supplemental Protocol Agreement between the BLM and the SHPO.

4. When properties of religious and cultural importance to Indian tribes are identified, consultation with tribes to comply with the NHPA will be guided by BLM Manual 8120, *Tribal Consultation Under Cultural Resources Authorities*, and BLM Handbook H-8120-1, *Guidelines for Conducting Tribal Consultation*.

5. Reporting: A record listing all undertakings authorized under this section will be documented in the Annual Report in accordance with the information requirements stipulated in Appendix A.

6. Resources Extending Outside the APE: The extent of inventory area outside of an APE, and the extent to which cultural resources outside of the APE are recorded shall be at the discretion of the BLM CRS.

a. BLM's objective is to have site boundaries and characteristics determined completely whenever reasonably possible. Where a site is large in area and extends beyond a project's APE, the extent of recording and collection of information should be sufficient to support evaluation of significance of the resource as a whole, per V.B.2.b, as determined by the BLM CRS.

B. Evaluation for National Register Eligibility

1. Categorical Determinations:

a. Classes of Properties Not Eligible for the National Register: The BLM and the SHPO may jointly determine a class or classes of properties to be not eligible for listing on the National Register (Appendix E).

b. Classes of Properties Eligible for the National Register: The BLM and the SHPO may jointly determine a class or classes of properties to be eligible for listing on the National Register.

2. Evaluation Standards: All resources discovered or rerecorded within the APE during an inventory shall be evaluated for inclusion in the National Register.

BLM evaluations shall be consistent with the *Secretary of the Interior's Standards and Guidelines for Evaluation* (48 FR 44729), BLM Manual 8110, *Identifying and Evaluating Cultural Resources*, Nevada BLM supplements to this agreement, and relevant written SHPO guidance.

a. Resources within the APE: The BLM will ensure that all resources identified within an APE are evaluated in accordance with the provisions of this Protocol.

b. Resources extending outside the APE: Sites located within an APE but extending outside of the APE must be evaluated as a whole. Except for contributing elements that straddle the APE boundary, elements of National Register Districts that are entirely outside of the APE do not have to be recorded or evaluated.

c. Linear features will be evaluated according to Appendix D.

d. Resources outside the APE: Resources completely outside of an APE and that will not be affected by the undertaking do not have to be evaluated.

3. Properties Eligible under Criterion D only: Using the guidelines referenced at Section VII, a professionally qualified BLM CRS can determine eligibility under National Register Criterion D for resources for which they are qualified (i.e., prehistoric and/or historic period archaeological sites) without initiating specific SHPO consultation.

a. Professionally qualified means that the cultural resource specialists have been determined to meet requirements expressed in Section VII.A.

b. A qualified consultant who is making recommendations to BLM will hold a BLM-issued Cultural Resources Use Permit which documents qualifications appropriate to the resources being evaluated.

4. Properties with Associative or Design Value under Criteria A, B, or C: This provision applies to properties significant for their association to events (Criterion A), their association with important persons (Criterion B), or because they are representative of a distinctive design or construction (Criterion C). Excluding property types discussed under V.B.3., the BLM's evaluation of National Register eligibility depends on BLM access to appropriate expertise. BLM's access to such expertise may be provided by a qualified BLM employee, a qualified person working directly for BLM under contract or other arrangement, or by a qualified person working for a BLM permittee or other consulting group.

a. Since BLM does not permit historians, historic architects, or architectural historians, consultants in these areas must meet personnel qualifications listed in Appendix I.

b. If the undertaking is being reviewed by the SHPO pursuant to Section II.A, the BLM will determine eligibility in consultation with the SHPO. If the BLM and the SHPO agree there are no eligible properties identified within an undertaking's APE, BLM may document this conclusion in the case file and proceed with the undertaking without further consultation.

c. If the undertaking is not being reviewed pursuant to Section II.B, and

(1) the BLM has access to professionally qualified consultants, and the BLM CRS agrees with the consultant's eligibility recommendations, the BLM can proceed with the undertaking without specific SHPO consultation on eligibility. Or,

(2) If the BLM cultural resource specialist disagrees with the consultant's recommendations, the BLM must consult with SHPO regarding eligibility before proceeding with the undertaking. Or,

(3) If BLM has professionally qualified staff, the BLM can make eligibility determinations and proceed with the undertaking without specific SHPO consultation.

d. Historic period linear features will be evaluated as specified in Appendix D.

5. Provisions for evaluation extend to properties of religious and cultural significance to Indian tribes. Eligibility determinations are made by the BLM Manager based on consultation with affected Indian tribes and on recommendations made by professionally qualified cultural resources staff. The BLM also acknowledges that Indian tribes possess special expertise in assessing the eligibility of historic properties that may possess religious and cultural significance. The BLM's consultation process should follow Manual 8120 (*Tribal Consultation Under Cultural Resources Authorities*) and Handbook 8120-1 (*Guidelines for Conducting Tribal Consultation*).

6. Disagreement on Eligibility:

a. The BLM decision regarding eligibility may differ from a consultant's recommendations, in keeping with qualifications of BLM's qualified staff. The BLM will not require the consultant to amend the final report to conform to the BLM's decision. Instead, the BLM's decision, not the consultant's recommendations, will form the basis for Section 106 compliance.

b. When a consulting party, defined in 36 CFR 800.2(c), other than the consultant making the determination, disagrees with BLM eligibility determinations, BLM will request the view of the SHPO on an eligibility determination.

If the SHPO and BLM cannot agree whether the eligibility criteria are met, or if the Council so requests, the BLM will seek a formal determination of eligibility from the Keeper of the National Register pursuant to 36 CFR Part 63.2.

c. If an affected Indian tribe does not agree with a BLM determination that a property of religious and cultural significance is not eligible for the NRHP, the affected tribe may ask the Advisory Council on Historic Preservation to request that the BLM to seek a determination of eligibility from the Keeper of the National Register.

C. No Adverse Effects

1. No Historic Properties Present: If, as a result of an appropriate inventory (as defined in BLM Manual 8110 and this Protocol), the BLM determines that there are no historic properties within the APE, BLM will report to SHPO as per Section III.B of this Agreement, notify interested persons, if any, and proceed with the undertaking.

2. No Historic Properties Affected: If the BLM determines that identified historic properties will be avoided with the Standard Measures in Appendix H, the BLM can determine that the undertaking will have no effect on historic properties and proceed with the undertaking without SHPO consultation. Documentation for the undertaking will include the basis for this determination.

3. Effect Situations: In determining if an undertaking has an effect on historic properties, the BLM will follow 36 CFR 800 and apply the Criteria of Effect and Adverse Effect.

a. Effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register of Historic Places.

b. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

4. SHPO Involvement. If the undertaking is being reviewed by the SHPO pursuant to Section II, the BLM will determine effects in consultation with SHPO. Issues relating to BLM's findings of effect or treatment which cannot be resolved between BLM and SHPO shall be referred to the Advisory Council for review.

a. Effects to historic properties located within an APE but extending outside of the APE must be treated as if the property is completely within the APE.

b. In accordance with the Council's *Treatment of Archaeological Properties - A Handbook*, Principles; 36 CFR part 68 (1995); and BLM Manual 8140, avoidance is the preferred strategy for treating potential adverse effects on cultural properties. When an undertaking is planned within or around the boundaries of historic properties, and the BLM treats potential effects to properties potentially affected--including properties eligible or important for reasons other than the information they contain--with the Standard Measures in Appendix H, so that the undertaking will not affect the qualities that contribute to the significance of the properties, the undertaking will be considered to have ~~no~~ adverse effect." In these cases, the BLM need not consult with the SHPO on effect before proceeding with the undertaking.

c. If avoidance is not prudent or feasible, the BLM will consider a range of alternative physical or administrative treatments to minimize potential effects. The BLM may make a determination of effect resulting from implementation of these treatments as described in section V.C.5. The BLM will provide appropriate documentation including a report on identification and evaluation efforts and a treatment plan intended to minimize effects to the SHPO, in accordance with V.C.5.

5. No Adverse Effect Situations include but are not necessarily limited to:

a. restoring, rehabilitating, stabilizing or otherwise altering a building, structure, or feature using means consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68 and applicable guidelines);

b. transferring, leasing, or selling a historic property with adequate restrictions and legally enforceable restrictions or conditions included in the transfer documents to ensure the long-term preservation of the property's historic significance; or

c. conducting applicable undertakings in accordance with Appendix F, Categorical No Adverse Effect Situations; or,

d. treating visual effects by maintaining the integrity and existing character of the

historic landscape. Treatment is adequate when the level of change to the characteristic historic landscape can be seen but does not attract attention from the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant historic features of the characteristic historic landscape. If this objective cannot be achieved, BLM will consider additional measures to treat visual effects to setting in consultation with SHPO.

D. Adverse Effects. BLM will consult with SHPO for any undertaking resulting in an adverse effect determination. Undertakings resulting in adverse effect determinations are those for which treatment includes some or all of the following:

1. Implementing a data recovery plan for a property that is significant because of the data that it contains, provided the plan reflects the Advisory Council's Guidance on the Recovery of Significant Information from Archaeological Sites (May 18, 1999) and is accomplished using a Memorandum of Agreement or other agreement document involving SHPO and other appropriate parties;
2. Undertakings resulting in an adverse effect determination are those affecting properties of local or state significance and for which treatment can be achieved through the following:
 - a. documenting, to the standards in Appendix G, the significant architectural, historical, or engineering attributes of an architectural or historic building, structure, or feature; or
 - b. implementing a treatment plan resulting in interpretation, public education, collection of oral histories, or other methods agreed to by BLM and the SHPO.
 - c. Adverse effects to properties that are National Historic Landmarks, or otherwise eligible or listed as nationally significant will be determined and treated in consultation with the SHPO and Council, pursuant to Section II.D. As early as possible in the planning process, BLM will notify the SHPO and Council if an undertaking may have an adverse effect on a NHL or other nationally significant property. In these cases, the BLM's determination of effect with supporting documentation can be sent to the Council and SHPO for concurrent review.
 - d. An undertaking's potential effects to properties of religious and cultural significance, as defined in BLM Manual 8120, and reasonable treatments for those effects can only be determined in consultation with the people who value the property. For Indian tribes and for Native American individuals, consultation shall be guided by BLM Manual 8120, *Tribal Consultation Under Cultural Resources Authorities* and BLM Handbook H-8120-1, *General Procedural Guidance for Native American Consultation/Guidelines for Conducting Tribal Consultation*. BLM Manual 8120 will also be used as a basis for determining and treating adverse effects to historic properties of religious and cultural significance.
 - (1) The BLM, with tribal concurrence, may seek the assistance of the SHPO in resolving disputes about effects on properties of religious and cultural significance.
 - (2) If Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony are encountered during an undertaking involving BLM managed

lands, the parties will comply with the Native American Graves Protection and Repatriation Act (NAGPRA) and its implementing regulations at 43 CFR Part 10, Subpart B. Human remains and associated grave goods on private land will be handled according to the provisions of Nevada statute NRS 383.

e. BLM will prepare a Memorandum of Agreement addressing adverse effects when BLM and SHPO agree on the measures to be taken.

(1) If BLM and SHPO cannot agree on the measures to be taken to address adverse effects from an undertaking, the dispute resolution measures in Section XIV will be implemented.

E. Treatment Limitations

Where BLM's treatment options for historic properties on non-Federal lands may be limited due to land status or statutory authority, appropriate treatment actions will be developed by BLM in consultation with the SHPO. The BLM will inform the SHPO of potential limitations to treatment as early as possible in the planning process. An adverse effect is created when treatment limitations are so severe that BLM and SHPO cannot develop appropriate treatment.

VI. DISCOVERY SITUATIONS

A. Planning For Discoveries

The BLM will require discovery plans for large and complex undertakings and those involving land disturbance in areas known to contain buried sites. If the undertaking is being reviewed by the SHPO pursuant to Section II, the proposed discovery plan will be forwarded to the SHPO for review along with BLM's determination of effect for the undertaking. With SHPO concurrence, the discovery plan will govern how discoveries will be handled.

B. Unplanned Discoveries

If a Discovery Plan is not developed, and the BLM determines, after completion of the review process outlined in this Protocol, that an undertaking may affect or has affected a previously unidentified property that may be eligible for the National Register, the BLM will:

1. Ensure that activities associated with the undertaking within 100 meters of the discovery are halted and the discovery is appropriately protected, until the BLM Authorized Officer issues a Notice to Proceed (NTP).

- a. If the undertaking is not being reviewed by the SHPO pursuant to Section II, BLM will determine if an adverse effect exists. If an adverse effect is found, BLM will identify the applicable criteria of significance and will propose actions to resolve the adverse effects. BLM will notify SHPO, the Council, affected tribes and any other identified consulting parties, who will have 48 hours from the initial notification to respond to BLM, which will take any recommendations into account regarding eligibility and proposed treatment, and will then implement appropriate actions. A copy of the resulting report will be provided to consulting parties within 90 days after report completion and acceptance by BLM.

b. Notices to Proceed (NTP) may be issued by the BLM under any of the following conditions:

- (1) evaluation of potentially eligible resource(s) results in a determination that the resource(s) are not eligible; or
- (2) the fieldwork phase of the treatment option has been completed; and
- (3) the BLM has accepted a summary description of the fieldwork performed and a reporting schedule for that work;

2. If the undertaking was approved under the stipulations at Section II, the BLM shall notify the SHPO and consider SHPO's initial comments on the discovery. If the undertaking was approved under the stipulations at Section II.D, the BLM shall notify the SHPO and the Council and consider the SHPO's and Council's initial comments on the discovery.

a. Within two working days of notification to the SHPO, the BLM shall notify the proponent, tribes, and other interested persons as appropriate, of the BLM's decision on eligibility and proposed treatment, if any, and solicit comments on the BLM's proposed course of action;

b. The SHPO, Council, tribes, and other interested persons as appropriate, will be asked to provide BLM with comments within two working days of BLM's notification. Any timely comments offered by the SHPO, Council, Tribes, and other interested persons will be documented, considered in dealing with the discovery, and, subject to confidentiality requirements, be made available for public inspection;

c. The BLM shall notify the SHPO, Council, tribes, and other interested persons of its decision regarding evaluation and treatment and shall ensure that treatment actions, if any, are implemented; and

d. The BLM shall ensure that reports of treatment efforts for discovery situations are completed in a timely manner and conform to the stipulations of this agreement. Final reports on the treatment effort shall be sent to the SHPO, Council, tribes, and other interested persons as appropriate, for informational purposes, within 90 days after BLM has accepted the report.

e. Potential treatment options include archaeological excavation and removal under terms of an approved data recovery plan reflecting the Advisory Council's Guidance on the Recovery of Significant Information from Archaeological Sites (May 18, 1999).

VII. STAFFING AND OBTAINING SPECIALIZED CAPABILITIES

A. Staffing

1. Per the NHPA, Section 112, the BLM will ensure identification and evaluation of cultural resources by specialists who meet the qualifications and are classified in the appropriate professional series by the Office of Personnel Management (e.g., Series 193 for archaeologists). Specialists at, or below, the GS-7 level are considered to be performing duties in a trainee or developmental capacity. Reports prepared by GS-7 or below specialists, District Archaeological Technicians, volunteers or any

cultural resource consultant, must be submitted to the SHPO after review by a GS-9 or higher grade cultural resources specialist. Any involved resources will be evaluated by a GS-9 or higher grade cultural resources specialist.

2. When new managers or cultural resources specialists are hired by a BLM office, the BLM will ensure that the new managers or cultural resources specialists receive orientation and training, within 90 days, in BLM Manual procedures and procedures for operating under this Protocol; the BLM and SHPO may agree to an alternative time frame in specific cases. It shall be the responsibility of the BLM DPO to provide appropriate orientation and training to new managers and cultural resource specialists; the DPO will coordinate with SHPO to involve SHPO in training. Training needs will be reviewed during the annual review meeting. As funding is available, BLM may provide assistance to SHPO for purposes of this training. Prior to the orientation, the BLM office will be required to follow the procedures at 36 CFR Part 800 when no trained cultural resource specialists are on staff. Once the orientation and training are completed, the State Director will notify the SHPO and the affected BLM office that new staff may implement the procedures of this Protocol.

a. The SHPO will invite BLM to participate in training of new SHPO review and compliance personnel.

3. The BLM may utilize the services of qualified consultants for purposes of inventory, evaluation, treatment, and management. BLM will ensure that consultants, who may also be represented as permittees or as contractors, either working directly for the BLM or for a land-use proponent, will meet the educational and experience requirements established in the Secretary of the Interior's Historic Preservation Professional Qualification Standards (36 CFR 61, Appendix A [1983]). Persons working in the capacity of a consulting archaeologist must qualify according to standards established in BLM Manual 8150.12B2b and by Nevada BLM, including separate provisions for qualifications relating to prehistoric archaeology and historic period archaeology.

B. Specialized Capabilities

When the BLM is involved in an undertaking requiring expertise not possessed by available BLM staff (e.g., architectural history), it will obtain that expertise to determine National Register eligibility, effects, and treatment for the cultural properties in question. The BLM may request the assistance of the SHPO staff in such cases or may obtain the necessary expertise through contracts, BLM personnel from other states, or cooperative arrangements with other agencies. Those persons will be qualified per those criteria set forth in VII.A.3, above.

VIII. RELATIONSHIP TO OTHER AGREEMENTS AND OTHER AUTHORITIES

A. In the event the NPA is suspended or terminated, this agreement will remain in effect until a replacement for the NPA is made. Existing project specific agreements remain in effect.

This protocol will be implemented in accordance with provisions of 36 CFR 800 issued August 5, 2004, and in effect at the time of signing.

B. BLM and SHPO may agree, by reference or by incorporation, to use procedures and related appendices of this State Protocol Agreement in other plans, memoranda and agreements, including programmatic agreements. The procedures and related appendices include:

1. notification or consultation with SHPO,
2. definition of an undertaking or the APE,
3. identification and evaluation of cultural resources, including definitions and determinations of resource types which are categorically not eligible (Appendix E),
4. reporting procedures and recording of cultural resources,
5. tribal involvement,
6. public participation,
7. professional qualifications,
8. unplanned discoveries,
9. reporting,
10. documentation standards for historical resources of local and state significance (Appendix G), and
11. avoidance measures.

IX. ADMINISTRATIVE INTERACTION AND REPORTING REQUIREMENTS

The BLM Nevada State Office, with input from the district offices, will prepare a report to the SHPO that describes the implemented actions taken in the previous federal fiscal year. This report will be due to the SHPO in December of each year and will include the information outlined in Appendix A.

X. SHPO INVOLVEMENT IN RESOURCE MANAGEMENT PLANNING

The BLM and SHPO have agreed to limit SHPO involvement in case-by-case undertaking review and to increase SHPO participation in the BLM land-use planning process. In order to allow broad and active participation by SHPO in BLM's planning activities, the BLM and SHPO agree that:

A. Resource Management Planning

Each District Office responsible for preparing or amending a land use plan (Resource Management or Management Framework Plan) or preparing an Activity Plan (such Fire Management Plans, Allotment and Habitat Management Plans, Cultural Resource Management Activity Plans, Travel Planning and Recreation Management Planning) that may affect cultural resources will invite the SHPO to participate, as a cooperating agency, from the beginning of the planning process. The SHPO agrees to provide the BLM with technical assistance in preparing National Register nominations.

B. Project Planning

As early as possible in the scoping/planning process for major undertakings (i.e., large surface disturbing projects, land transfers, rights of way, etc.), the appropriate BLM Manager will contact the SHPO to discuss likely effects to cultural resources. This discussion should focus on facilitating these projects to meet cultural resource preservation goals. Project planning discussions may be by telephone, correspondence, or meetings, as agreed between the parties.

C. Informal Consultation

The SHPO is encouraged to meet with the BLM State Office or a BLM Manager at any time to discuss annual work plans, specific undertakings, outreach efforts, or other issues related to Cultural Resource Management. The BLM will make every effort to arrange such meetings in a timely

manner and to provide information requested by the SHPO. The SHPO and BLM personnel may confer informally, at their discretion, on specific undertakings or the BLM Cultural Resource Management Program.

Field Tours: BLM Field Offices will notify the SHPO, in writing, of public field tours relating to land use planning efforts (RMPs and RMP amendments) or to Environmental Impact Statement (EIS) planning efforts that may affect cultural resources. The BLM should also invite SHPO's participation in other projects or activities that may be subject to Environmental Analysis (EA) land use planning efforts and involve very sensitive or controversial cultural resources issues.

PART 2. SECTION 110 AND OTHER ACTIVITIES

XI. COOPERATIVE ACTIVITIES

The BLM and the SHPO recognize the advantages of working together on a wide range of cultural resource preservation activities, pursuant to NHPA sections 110 and 112. Accordingly, BLM and SHPO will cooperatively pursue the following efforts:

A. Data Sharing and Information Management

The BLM and the SHPO will work jointly in regard to Data System Management, to include a statewide automated cultural database which will be accessible from all BLM Offices and available to appropriate persons. The BLM and the SHPO will further collaborate on ways to synthesize and use the automated cultural data to develop Geographic Information System (GIS) capabilities. The BLM and the SHPO will continue to cooperate in this endeavor by providing financial, personnel, hardware, and software resources as funding becomes available. The SHPO agrees to be responsible to maintain this system (currently known as the Nevada Cultural Resources Information System, or NVCRIS), or systems. To the extent allowed by current funding levels, the BLM will support and cooperate with SHPO in developing and maintaining NVCRIS to support BLM's activities, particularly in planning and inventory.

B. State BLM Supplemental Guidance

In addition to the procedures described in Bureau-wide directives and Manuals, Nevada BLM will be guided by procedural supplements (guidelines or handbooks) issued by the Nevada State Office. The BLM will update these supplements as needed to conform to Bureau-wide directives, policies issued by the Nevada State Director, new laws, new regulations, and operational needs. The SHPO will be invited to participate in development and subsequent revisions of all supplements and handbooks. BLM will also be guided by procedural supplements (guidelines or handbooks) issued by the SHPO for historic archaeology and historic architecture. The BLM will be invited to participate in developing any subsequent revisions of all SHPO supplements and handbooks.

BLM field procedures will be detailed in a Nevada BLM Handbook as a supplement to BLM Manual procedures. Until this is done, the standards (but not the processes) in the Statewide Programmatic Agreement, dated July 29, 1990 and the 4th edition of the *BLM Nevada Cultural Resources Inventory General Guidelines* will remain in force. All changes or amendments to the handbook procedures will be made in cooperation with the SHPO.

C. Public Outreach, Site Stewardship, and Heritage Education

The BLM and the SHPO will work cooperatively to promote and enhance public education and outreach in Historic Preservation and Cultural Resources Management through the following programs:

1. Archaeology Awareness and Historic Preservation Month: The BLM and the SHPO will participate in and support financially, as funding permits, *Archaeology Awareness and Historic Preservation Month* activities, including public presentations, field tours and excavations, exhibits, archaeology fairs, posters, brochures, and educational activities.

2. Project Archaeology: The BLM and the SHPO will support *Project Archaeology* as a component of BLM's Heritage Education Program, by encouraging staff archaeologists to be trained and serve as facilitators in the program, with the goal of

integrating the teaching of archaeological concepts and preservation ethics in Nevada schools statewide.

3. Adventures in the Past/Heritage Education: The BLM and the SHPO may, as funding permits, cooperatively work on the interpretation of cultural resources through a variety of media including, but not limited to exhibits, brochures, lectures, radio and television promotions, Internet web pages, and interpretive signs.

4. Nevada Archaeological Association: The BLM and the SHPO are encouraged to work cooperatively with the Nevada Archaeological Association to promote preservation ethics, good science, and professional standards statewide to amateur archaeologists by participating in society meetings, serving as chapter advisors, providing presentations and demonstrations, and providing assistance as appropriate.

5. Professional Organizations: The BLM and SHPO cultural resource specialists are encouraged to participate in and work cooperatively with professional historic preservation organizations to promote preservation ethics, science, history, and professional standards statewide, and open dialogue regarding historic preservation issues.

6. Site Stewardship:

a. The BLM is committed to supporting the SHPO statewide site stewardship program and will:

(1) identify cultural resources locations where BLM desires monitoring to occur and will share related cultural resources data;

(2) provide training support (including accompaniment during an initial site visit) and training opportunities to site stewards, as possible within limitations of funds and staff time. BLM will also support the program by limiting site stewards to those enlisted BLM volunteers that have been appropriately trained in the SHPO program.

(3) where possible, BLM field offices will designate a cultural resources specialist as the point of contact responsible for coordinating site stewardship

activities.

b. The SHPO agrees to:

- (1) coordinate the statewide program and related documentation,
- (2) maintain a roster of appropriately trained stewards
- (3) work with BLM to match stewards with resources to be monitored, and
- (4) provide reporting data to BLM regarding site steward activities and accomplishments.
- (5) SHPO will coordinate with BLM to ensure that site stewards working on BLM managed lands are enrolled as BLM volunteers prior to working as site stewards.

D. Historic Context and Research Design Development

The BLM and the SHPO will jointly develop standards and guidelines for historic contexts and research designs and will strive to involve other land-managing agencies and the public in this effort. The BLM and the SHPO will jointly develop statewide priorities for historic context or research design needs and develop high priority contexts and designs, as funding permits. Project-specific contexts may be developed as needed.

Historic contexts must be consistent with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716). In accordance with Section 101(b)(3) of the NHPA, the SHPO shall review and provide comments on BLM historic context documents developed as general guidance independent of any particular undertaking. Non-undertaking specific historic contexts that define site eligibility criteria, levels of adequate inventory, site documentation requirements, standards for assessment of effects, or appropriate treatment of historic properties shall require SHPO concurrence prior to implementation.

As supplements to this Protocol, the BLM and SHPO may jointly develop research plans, or treatment approaches, designed to answer specific questions, or deal with recurring treatment issues, in ways that programmatically resolve the issue. Such supplements will include a clear process for resolving the issue and funding commitments to ensure that the issue is resolved in a timely manner.

E. Public Participation

The BLM will seek and consider the views of the public when considering undertakings in compliance with this Protocol through the public participation opportunities mandated by the National Environmental Policy Act (NEPA), and the Federal Land Policy and Management Act (FLPMA), as implemented at 43 CFR Part 1610.3. Interested parties shall be invited to consult early in the review process if they have expressed an interest in a BLM undertaking or action subject to the Protocol, or if they have expressed an interest in a particular class of cultural resources (e.g., historic trails). Such interested parties may include, but are not limited to, local governments; grantees, permittees, or owners of affected lands or land surfaces; Indian Tribes, organizations, and individuals; and those seeking to participate as consulting parties in a particular undertaking. Participation shall be guided

by 36 CFR 800 and by BLM Manual 8110.12. American Indian participation shall be guided by the provisions of BLM Manual 8120 and Handbook H-8120-1 and by 36 CFR 800.

F. SHPO Planning

The SHPO will invite BLM to participate in the identification of problems, issues and potential solutions in the SHPO's State Historic Preservation Plan (SHPP). The BLM will reflect those components of the SHPP in its planning process, as appropriate.

PART 3. PROGRAM REVIEW AND MONITORING

XII. PROGRAM REVIEW

The NPA assigns duties to the Preservation Board to ensure that the cultural resources policies and procedures are being followed appropriately by the BLM offices. Further, where problems are identified, the Preservation Board is assigned the responsibility for movement to correct the matter.

The Preservation Board may choose to review an office's certification status to operate under terms of the NPA and state protocol agreement. The State Director, a BLM manager, the ACHP, or the SHPO may request that the Preservation Board initiate a review.

This Protocol establishes an internal process of program review in order to ensure that Nevada offices are operating in conformance with policies and procedures laid out in the NPA and this Protocol, prior to invoking assistance from the Preservation Board.

A. Review. Professional review of field office programs is a component of certification. Such reviews are intended to improve operations at individual BLM offices having responsibilities under this Protocol as well as the cultural resource program statewide. The DPO will ensure that reviews take place. Reviews may involve any aspect of a program's function including, but not limited to, documentation, findings and recommendations, record keeping and curation, security, and professional contributions.

1. If the SHPO documents a pattern of failure to comply with the terms of this Protocol, the SHPO may ask the State Director for a program review of a district or field office's status and its capability for carrying out the terms of the NPA and this Protocol.
2. A district or field office manager or the BLM State Director may request reviews that would be organized or led by the DPO.

B. Levels of DPO Review. Three levels of review are available to the DPO: annual review, technical review and program review. Findings of reviews shall be relevant for purposes of assessing certification status of the BLM's offices. The SHPO or a BLM Manager may also request a review of a BLM office's status and its capability for carrying out the terms of the NPA and this Protocol.

1. Annual Review. The DPO shall assess annually each office's ability to implement the provisions of the Protocol. The Annual Review will be based primarily on information and data submitted for the Annual Report required in Appendix A of this Protocol; however, other data also may be considered.

2. Technical Review. The DPO shall determine whether BLM offices are maintaining an appropriate level of technical capability and performance in particular program elements such as documentation of protocol actions, Section 110 actions, curation, inventory documentation, determinations and findings from Annual Reviews.

3. Program Review. The DPO shall determine whether BLM offices' Cultural Resource programs are fully functional in their ability to implement the Protocol. Program reviews are broad-based reviews, some of which take place at the district or field office. Review teams will consist of the DPO, representation from the Nevada State Historic Preservation Office and any other BLM staff the Nevada State Office deems appropriate. A review team shall have the ability to interview cultural resource staff, other resource staff and managers, have access to Cultural Resources Management records and maps, NEPA files, and other appropriate documentation. The team would be responsible for developing findings and generating a set of recommendations to be reviewed by the State Director. When the State Director accepts the report, the report will be sent to the appropriate district or field office manager. Reporting will occur per terms of XIL.B.4.

4. Reporting. The DPO shall document the findings of the review and following acceptance by the State Director, forward the findings with the report to the SHPO. When recommendations to correct deficiencies receive SHPO concurrence and are accepted by the State Director, implementation of such recommendations shall become the responsibility of the BLM Manager to initiate corrective actions within sixty (60) days from the date the recommendations are accepted by the State Director. Depending on the nature of the identified deficiencies, the State Director may elect to place a Field Office in provisional status according to the procedures describes in Stipulation XIII of this Protocol.

XIII. DECERTIFICATION FOR CAUSE

A. Action Plans

The State Director shall be informed if review by the DPO determines that there are compliance problems with a district or field office. The BLM State Director may ask the DPO to prepare an action plan, in consultation with the SHPO, that when implemented would bring that office into compliance with this Protocol. The DPO, in consultation with the SHPO, may also recommend that the State Director place a district or field office on a provisional status based on findings from any of the reviews specified in Stipulation XII of this Protocol.

The BLM State Director may request a review and recommendations from appropriate staff and/or the Preservation Board.

B. Provisional Status

A BLM office is under Provisional status when the State Director has directed the office to implement an Action Plan. The involved BLM office will continue to operate under terms of the Protocol until deficiencies are corrected within the terms and time limits set under the Action Plan. While on provisional status, a district or field office will have the opportunity to correct deficiencies under the Action Plan at any time. If all parties agree that the problems have been corrected, the State Director will issue a memorandum to the affected district or field office manager and SHPO that the district or field office is once again in compliance and restored to certified status.

1. If not corrected beforehand, upon expiration of the provisional status term, the parties to this Protocol shall convene to determine whether identified deficiencies have been satisfactorily corrected. Their findings shall be conveyed to the State Director. Should the State Director determine that such deficiencies remain uncorrected, or should new deficiencies that the parties deem significant be identified, the decertification process shall be initiated.

C. Decertification for Cause

If the State Director determines that a BLM office remains out of compliance, he or she may decertify a Field Office from operating under the terms of this Protocol. A BLM office that is decertified from operating under this Protocol will comply with the regulations at 36 CFR Part 800 until it is reinstated.

The State Director, in consultation with the SHPO, shall develop an action plan to bring any decertified office into compliance with this Protocol. After the subject BLM office believes that it has completed the actions specified in the plan, it will notify the State Director through the BLM DPO.

The District or Field Office Manager, the DPO or the SHPO may request that the Preservation Board review a district or field office's certification status. The Preservation Board will respond under the terms of the NPA at Component Eight. If the Preservation Board finds that a BLM office does not maintain the basis for its certification (e.g., the professional capability needed to carry out these policies and procedures is no longer available, or the office is not in conformance with this Protocol), and the BLM Manager has not voluntarily suspended participation under this Protocol, the Preservation Board will recommend that the State Director decertify the district or office, per the NPA.

1. A district or field office manager may ask the State Director to review the Preservation Board's decertification recommendation, in which case the State Director may ask the Director to review the Preservation Board's decertification, in which case the Director will request the Advisory Council's participation in the review, per the NPA.

2. The Preservation Board will notify the Nevada SHPO and the Advisory Council if the status of a certified office changes. In consultation with the SHPO, and at the direction of the State Director, the DPO will prepare a Plan of Action to address the identified deficiencies. The DPO may consult with the Preservation Board in preparing a Plan of Action.

3. When a district or field office is suspended or decertified, the responsible manager shall follow the procedures of the most current version of 36 CFR 800 to comply with Section 106.

4. If a suspended or decertified district or field office is found to have restored the basis for certification, the Preservation Board will recommend that the State Director recertify the office.

XIV. BLM-SHPO DISPUTE RESOLUTION

The NPA requires this Protocol to contain provisions for resolving disagreements. This section addresses that requirement in relation to BLM-SHPO disagreements and also establishes measures for dispute resolution involving members of the public and Indian tribes, for use when this Protocol is applied, referenced or included as part of another agreement.

A. Disputes Involving BLM and SHPO

1. The BLM or the SHPO may object to an action proposed or taken by the other pursuant to this Protocol. When informal resolution is not effective or satisfactory, the objecting party shall notify the other party in writing of the objection. Within seven (7) calendar days following receipt of notification, the parties shall initiate a formal 30 calendar day consultation period to resolve the objection. If the objection is resolved within this time frame, the parties shall proceed in accordance with the terms of that resolution.

2. If the objection is not resolved within this time frame, and the parties have not agreed to extend the consultation period, the DPO shall refer the objection to the Preservation Board, which will provide the State Director with its recommendations, per Component 2 of the NPA. If the State Director accepts the Board's recommendations, the State Director shall promptly notify the SHPO of such acceptance, provide a copy of the Board's recommendations, and afford the SHPO 30 calendar days following receipt of the notification to comment on the recommendations. If the SHPO concurs in the Board's recommendations within this time frame, the State Director and the SHPO shall proceed in accordance with the Board's recommendations to resolve the objection.

3. If either the State Director or the SHPO rejects the Board's recommendations after a period of consideration not to exceed 30 days, the State Director shall promptly notify the Board in writing of the rejection, and immediately thereafter submit the objection, including copies of all pertinent documentation, to the Advisory Council on Historic Preservation for comment in accordance with Component 4 of the NPA. Within 30 calendar days following receipt of any Council comments, the State Director shall make a final decision regarding resolution of the objection and in writing notify the Board, the SHPO and the Council of that decision. The objection shall thereupon be resolved. In reaching a final decision regarding the objection, the State Director shall take into account any comments received from the Board, the SHPO, and the Council pursuant to this stipulation.

B. Disputes by a Member of the Public or a Federally-recognized Indian tribe or individual

1. If a Member of the Public or a Federally-recognized Indian tribe objects at any time in writing to the manner in which this Protocol is being implemented, the BLM shall consult with the objecting party for a period not to exceed 30 days and, if the objecting party requests, with the SHPO, to resolve the objection. If the objecting party and the BLM resolve the objection within 30 days, the BLM shall proceed in accordance with the terms of that resolution. The BLM should inform SHPO of any objections and the outcome of attempts at resolution within 10 days after period of resolution has expired.

2. If the objection cannot be resolved, and if the objecting party has not requested review by the Council under II.D.3 of this Agreement, the DPO shall refer the objection to the Preservation Board, which will provide the State Director and the objecting party with its recommendations for resolving the objection. If the State Director and the objecting party accept the Preservation Board's recommendations, the State Director shall proceed in accordance with these recommendations to resolve the objection.

3. If either the State Director or the objecting party rejects the Preservation Board's recommendations for resolving the objection, the State Director shall refer the objection to the Council in accordance with Component 4 of the NPA. The State Director shall make a final decision regarding the resolution of the objection and shall in writing notify the Board, the objecting party, the SHPO and the Council of that decision. The objection shall thereby be resolved. In reaching a final

decision regarding the objection, the State Director shall take into account any comments received from the Board, the objecting party, the SHPO, and the Council pursuant to this paragraph. Any objection filed pursuant to this paragraph shall not prevent the BLM from proceeding with project planning; however, project implementation shall be deferred until the objection is resolved pursuant to the terms of this paragraph.

XV. AMENDMENTS AND TERMINATION OF THE PROTOCOL

A. The BLM or the SHPO may propose amendment of this Protocol at any time, whereupon the parties shall consult to consider such amendment. "Amendment" refers to the process of adding supplemental procedures or modifying current procedures for specific BLM programs when parties to the Protocol wish those procedures to be made explicit. The amendment process culminates in the issuance of Protocol Amendments, which are administratively appended to the Protocol on their effective date. Amendments to the Protocol will only become effective upon signature of both parties. Protocol Amendments shall be housed in an appropriate and designated part of this Protocol.

B. The BLM or SHPO may terminate this Protocol or any Protocol Amendment. The party proposing termination shall in writing notify the other party of intent to terminate and explain the reasons for proposing termination. Within seven calendar days following receipt of such notification, the parties shall initiate a 90 day consultation period to seek alternatives to termination. Should such consultation result in agreement on an alternative to termination, the parties shall proceed in accordance with the terms of that agreement. Should such consultation fail, the party proposing termination may terminate this Protocol or any Protocol Amendment by providing the other party with written notice of such termination. Termination shall render this Protocol or any affected Protocol Amendment to have no further force or effect, as appropriate.

C. In the event of termination of this Protocol, the BLM shall comply with the provisions of the latest version of 36 CFR 800 for undertakings covered by this Protocol. In the event a Protocol Amendment is terminated, BLM shall comply with the latest version of 36 CFR 800 for the program or practices subsumed under the Protocol Amendment except insofar as SHPO and the BLM in writing agree to subsume such program or practices under this Protocol.

D. This Protocol shall terminate automatically on the fifth anniversary of its execution and have no further force or effect, unless it is extended by written agreement of the parties. Should the Protocol not be extended and should no successor agreement document be in place at the time of automatic termination, BLM shall comply with the latest version of 36 CFR 800, except with regard to those activities addressed in Protocol Amendments which the parties in writing agree shall remain in full force and effect.

XVI. APPENDICES

- A. Report Contents and Scheduling
- B. Special Situations

- C. Categorical Exemptions
- D. Recordation and Evaluation of Historic Linear Resources and Districts
- E. Resource Types Categorically Not Eligible
- F. Categorical No Adverse Effect Situations
- G. Documentation Standards for Historical Resources of Local and State Significance
- H. Avoiding Properties
- I. Architectural Resources
- J. National Programmatic Agreement

XVII. APPROVALS

BUREAU OF LAND MANAGEMENT

[s] Ron Wenker October 5, 2009
State Director, Nevada Date

STATE HISTORIC PRESERVATION OFFICE

[s] Ronald M. James October 26, 2009
Nevada State Historic Preservation Officer Date

APPENDIX A: REPORT CONTENTS AND SCHEDULING

A. Annual Report Contents

1. Inventory Needs Assessment documentation compiled by the State Office from needs assessment forms submitted to the SO as provided in Section I.B.1.b.
2. A list of eligible properties including property type and the criteria under which each is eligible,
 - a. Criteria are defined using the relevant Secretary of the Interior's significance criteria a, b, c and d, per 36 CFR 60.4;
 - b. Acceptable property types include archaeological, architectural, and those of cultural and religious importance.
 - (1) Eligible archaeological resources shall be categorized by prehistoric and historic site types;
 - (2) Eligible architectural resources shall be listed separately;
 - (3) Properties of cultural and religious importance will be listed separately.
3. A list of properties determined ineligible, categorized by historic and prehistoric sites;
 - a. Site types include archaeological, architectural, and properties of cultural and religious importance.
 - (1) Non-eligible archaeological resources shall be categorized by prehistoric and historic site types;
 - (2) Non-eligible architectural resources shall be listed separately;
 - (3) Properties of cultural and religious importance will be listed separately.
4. A list by Field Office of reports not submitted and a schedule for their completion and submission;
5. A list of proactive cultural resources projects and activities (i.e., Section 110 responsibilities), their nature, purpose and general location, and
6. The BLM federal fiscal year Annual Report on Cultural Resources.

B. Annual Report Schedule

The Annual Report for a federal fiscal year shall be due to SHPO on December 31 following the end of that fiscal year.

C. Field Office Visits

1. Each year the BLM and SHPO may conduct joint on-site visits to Field Offices to determine if:

- (a) the Office has access to qualified professional staff;
- (b) undertakings are receiving appropriate cultural resource consideration;
- (c) project documentation is completed and sent to SHPO in a timely manner;
- (d) cultural resources staff are making appropriate accurate professional judgments;
- (e) cultural resource identification, evaluation and treatment has occurred before undertakings proceed; and
- (f) follow-up monitoring, where required by avoidance stipulations, MOA or treatment plan specifications, is being completed.

2. The BLM/SHPO team will prepare a joint report for each field visit, within 60 days of the visit, and submit the report to the State Director.

APPENDIX B: SPECIAL SITUATIONS

A. Emergency Situations

1. Emergency situations are undertakings implemented within 30 days after a disaster or emergency has been formally declared by the appropriate authority, unless that time frame has been modified based on BLM's request to the Council to extend the period.

2. Unless BLM has:

(a) approved procedures in place at the time the emergency situation is declared for taking historic properties into account, based on consultation with SHPO/THPO, affected tribes and the Council, or has

(b) developed a PA to resolve adverse affects from undertakings relating to the emergency situation, then

(c) the BLM shall afford SHPO and/or affected THPO, and any Indian tribes that may attach religious and cultural significance to historic properties likely to be affected, seven days prior notification of the pending undertaking.

3. If BLM determines that circumstances do not permit seven days for comment, the BLM shall notify the Council, the SHPO and/or affected THPO, and any affected Indian tribes and invite comments within the time available.

B. Lands Actions

1. Transfers

a. Transfers to Federal Agencies: Where BLM proposes to transfer or withdraw land to another federal agency that must comply with Section 106 of the NHPA, BLM need not conduct a field inventory of the lands to be transferred. Upon transfer the BLM will provide a copy of pertinent cultural resource data to the agency receiving such land.

Data identified as proprietary by Native Americans will not be transferred to the recipient agency without the written permission of the Native American group identifying the data as proprietary. BLM will notify the agency receiving the lands that there are specific Native American concerns regarding the lands and identify a point of contact for dealing with the concerns.

b. Transfers to Other Entities: Where lands are considered for conveyance to other entities, the BLM will:

(1) review its cultural resource data base to determine if conveyance may affect known cultural resources or areas where undiscovered cultural resources are likely to occur;

(2) discourage selection of lands where such effects are likely, unless BLM determines after compliance with Stipulation V.A., that the conveyance is in the public

interest; and

- (3) comply with this protocol if it decides to proceed with the conveyance.

2. Restrictive Covenants

Restrictive covenants should be used only when bonding for the necessary data recovery or treatment is not appropriate and BLM assumes responsibility for funding and completing the treatment or data recovery. Covenants should not contain an automatic sunset clause, and should remain in effect no longer than is necessary to complete the field portion of the data recovery or treatment.

3. Retention of Significant Resources

The BLM may elect to retain lands identified for disposal when the cost of treatment or data recovery outweighs public benefits which might be gained by the exchange. The BLM may also elect to retain lands when it is not feasible to adequately treat the expected effects on scientific, public, traditional or conservation values.

C. BLM Responsibilities on Non-Federal Lands

1. The intent of the National Historic Preservation Act is to consider the effects of federal decision making on historic properties regardless of the land status involved. Therefore, the BLM will assure that its actions and authorization are considered in terms of their effects on cultural resources located on non-federal as well as federal lands.

2. The determination of the extent of BLM's responsibility for identifying and treating adverse effects to non-federal historic properties is based on the independent evaluation of the following factors:

- a. Would the project remain viable if the federal authorization were not provided?
- b. How likely are historic properties in the area of potential impact?
- c. The degree to which BLM authorizations affect the location of surface disturbing activities on non-Federal lands.

3. The BLM will conduct, or cause to be conducted, an inventory and evaluation of cultural resources on non-federal lands within the area potentially impacted by proposed land uses, whether the undertaking was initiated by BLM, or in response to a land use application.

4. The BLM will consider the effects of its decision-making upon historic properties. It will either treat, or cause to be treated, adverse effects to non-federal historic properties that would result from land uses carried out by or authorized by BLM, or will consult with the SHPO and the Council on the basis of an adverse effect determination.

5. When treatment involves data recovery, adequate time will be allocated for the analysis of the artifacts, samples, and collections recovered from non-federal lands and for report preparation. The

artifacts, samples, and collections recovered from non-federal lands remain the property of the non-federal landowner unless donated to the federal government, a state facility, or are otherwise subject to state law. The BLM must receive complete and true copies of field notes, maps, records of analyses, photographs, other data, and reports for treatment work conducted on behalf of the federal government. Reports resulting from work on non-federal land will be made available to the land owner.

6. Identification and/or treatment of adverse effects may be required as a condition of a lease, permit, or license issued by BLM, whether federal or non-federal lands are involved.

D. Travel Management

1. Introduction: As part of its land use planning process, BLM is required to designate off-highway vehicle (OHV) routes and areas on public lands as open, limited or closed (see 43 CFR 8342 and 43 CFR 8340.0-5). These designations must be included in the Records of Decision for Resource Management Plans (RMPs), Travel Management Plans (TMPs); and any other plans that designate OHV routes or areas.

In some cases, route designations, such as continued use with no change in use, will allow the continuation of a longstanding use of the public lands and will create minimum new impacts to cultural resources. Other designations will benefit cultural resource protection by reducing the proliferation of OHV routes and providing clearer enforcement authority to reduce impacts to public lands. Still others will increase impacts to cultural resources by opening new areas or concentrating previously dispersed use.

Given the nature and anticipated effects of BLM decisions made to designate OHV routes or areas in land use plans and travel management plans, the parties agree that these decisions are undertakings subject to compliance with Section 106 of the NHPA. Section 106 compliance for these undertakings will be handled as follows:

2. Planning: Evaluations of routes or areas to be designated as closed to protect cultural resources should be based on existing inventory information and not postponed until additional information is acquired.

Available cultural resource information must be used to take into account potential impacts on cultural resources when making route or area designations. This includes areas where use is introduced, expanded or intensified through OHV designation. It also includes any changes that result in expansion or deepening of an existing route, or creating a new route.

Each land use plan or travel management plan should include a process for prioritizing route or area inventory and monitoring efforts, and the implementation of treatment measures.

SHPO will be given the opportunity to be a cooperating agency in travel management planning efforts being analyzed by means of an EIS.

3. Area of Potential Effect (APE): The APE should include both the areas in which direct and indirect impacts are likely. If route designation is expected to affect only the area previously impacted along the route, the APE can be limited to the area previously impacted. If route designation would increase the APE by authorizing, or allowing, use outside of the area previously impacted, then the new APE should be inventoried and impacts treated prior to implementing the travel plan. Designated use areas adjacent to existing and future designated routes where various activities, including parking vehicles and camping, are authorized or allowed, should be included in the APE.

4. Inventory: The decision to inventory should be based on the nature of the use authorized by the designations and the likelihood that cultural resources will be affected by the designations. Inventory efforts should focus on proposed route designations that change OHV use or travel patterns in ways that could adversely affect cultural resources. The decision relating to inventory must be documented using the Needs Assessment process.

Route or area closures need not be inventoried to Class III standard unless there is a reasonable expectation that the closure will shift OHV in ways that result in adverse effects on cultural resources. Areas expected to receive additional use that could adversely affect cultural resources should be inventoried to Class III standards.

Class III inventories are not required when designations would allow OHV use to continue on routes that have been effectively open or limited in use. Class III is necessary when the route or right-of-way is expanded in ways that could impact cultural resources

Class III inventories are required prior to designating new routes or new areas not previously open for OHV use.

Class III inventories are not required for routes in areas (1) where there is a low probability of finding cultural resources, or (2) where cultural resources are not likely to be affected by OHV use.

5. SHPO Consultation: If the SHPO elects to become a cooperating agency in the plan, then SHPO consultation will occur during plan developments. If not then SHPO should be consulted prior to initiating a land use or travel management planning effort to ensure that appropriate identification, monitoring, and treatment options are developed and implemented during or after the effort.

6. Coordination with Tribal Governments: The planning team should coordinate with tribal governments prior to initiating a land use or travel management planning effort to ensure that appropriate identification and treatment options are developed and implemented during or after the effort. SHPO will be informed to the tribal heritage resource identification effort and consulted on evaluations and effect determinations as specified in this protocol.

7. Treatment/Monitoring: A cultural resource specialist shall be included in the team for monitoring the effects of OHV use and route or area designation actions. Specific projects undertaken to improve, or rehabilitate, routes or areas are subject to Section 106 review and may require Class III inventory and SHPO consultation.

When monitoring is proposed as mitigation for potential effects from route or area designation, the decision record should make it clear: (1) when the results of monitoring will automatically initiate treatment actions; (2) what actions should be taken; and (3) the conditions under which travel can be resumed. This should obviate the need for further environmental analysis or a plan amendment prior to the emergency closure.

Route or areas in which monitoring reveals adverse effects to cultural resources will be protected through an emergency closure action and remain closed until the effects can be appropriately treated.

8. Plan Modification: A cultural resource specialist should be included on any team working on periodic plan maintenance or on a plan amendment.

Cultural resource monitoring and inventory information, gathered after a plan is approved, maintained, or

amended, shall be used to review and update the route network as necessary in any plan maintenance or plan amendment process.

9. Emergencies: Each travel management plan shall follow the process described in 43 CFR 8342 for closing routes or areas to avoid emergent impacts to cultural resources.

APPENDIX C: CATEGORICAL EXEMPTIONS

1. Reintroducing endemic or native species into their historical habitats in ways that do not involve surface disturbance.
2. Maintaining, replacing or modifying existing projects, facilities, routes, or programs that do not disturb additional surface area, or historic properties; or where the ground has been previously disturbed to the extent that historic properties could not exist; or where the facility itself is not a historic property.
3. Conducting, or approving permits for, non-archaeological data collection and monitoring activities, not associated with proposed undertakings, which involve new surface disturbance less than 1 square meter. Such activities could include forage trend monitoring, stream gauges, weather gauges, research geophysical sensors, photoplots, traffic counters, animal traps, or other similar devices.
4. Classifying lands as to their cultural resource use, mineral character, vehicle use, waterpower and water storage values where the classification itself does not directly entail surface disturbance.
5. Issuing withdrawal continuations, modifications, extensions, terminations, or revocations where there would be no change in use or surface disturbance.
6. Issuing withdrawal terminations, modifications or revocations and classification cancellations and opening orders where the land would be opened to discretionary land laws and where each discretionary action would be subject to the NHPA Section 106 process.
7. Renewing existing rights-of-ways characterized by complete surface disturbance (roads, pipelines, power lines, communication sites, etc.) when no new surface disturbance is authorized.
8. Continuing Recreation and Public Purpose Act lands, small tract lands, or other land disposal classifications where the continuation conveys no additional rights.
9. Assigning land use authorization where the assignment conveys no additional rights and the assignee agrees to abide by any cultural resource stipulations in the original authorization.
10. Issuing permits and rights-of-way where no additional surface disturbance is authorized.
11. Issuing rights-of-way for overhead lines with no pole, tower, or other surface disturbance.
12. BLM easement acquisitions.
13. Installing facilities, such as, recreational, special designation, regulatory, or information signs, visitor registers, kiosks, cattle guards, gates, temporary corrals, or portable sanitation devices in previously disturbed areas outside of known historic properties.
14. Issuing or modifying regulations, orders, standards, notices, and field rules where no new surface disturbance is authorized or is not subject to NHPA review.
15. Decisions and enforcement actions (that do not involve cultural resources) to ensure compliance with laws, regulations, orders, lease stipulations, and all other requirements imposed as conditions of

approval, when the original approval was subject to the NHPA Section 106 process.

16. Approving non-surface disturbing operations pursuant to 43 CFR 3000 to 43 CFR 3299 (Oil & Geothermal).

17. Conducting minerals exploration that conforms to casual use (43 CFR 3802.1-2 and 43 CFR 3809.5(1)).

18. Approval of modifications to, or variances from, activities authorized in an approved mine or exploration plan of operations that do not involve additional surface disturbance or affect cultural resources.

19. Dispersed non-permitted recreation activities, such as rock hounding, that do not involve new surface disturbance.

20. Issuing recreation permits authorizing:

- a. use on rivers and trails or in other specified areas where use is similar to previous permits for which environmental documents addressing cultural resource concerns have been prepared and which will not affect cultural properties;
- b. Off Highway Vehicle (OHV) events over courses where Section 106 consultation has already been completed and no changes in the course, spectator areas, pit areas, or other surface disturbing activities is allowed; and
- c. long-term visitor use that does not involve surface disturbance and does not increase the probability of vandalism of cultural resources.

21. Authorizing OHV events that are limited to previously disturbed or non-historic routes and routes with no historic properties that are highly visible from the course. Previously disturbed and non-historic routes include: developed roads, roads and trails where use has created surface disturbance at least 2 meters wide, roads less than 50 years old, and active washes (washes with recent loose sandy/gravelly/silty in the non-vegetated bottoms of drainage) that are subject to annual water action.

22. Continued use of high explosives, designated target areas within the Training Ranges that have been used historically for this purpose and are highly disturbed, as shown in Appendix K, Figure 1.

APPENDIX D: RECORDING AND EVALUATING HISTORIC LINEAR FEATURES OR DISTRICTS

Many of the most important and prominent cultural resources in Nevada are linear features from the historic period. These include trails, roads, highways, railroads, canals, telegraph lines, fences, and other similar features. Some historic linear features have an excellent documentary record showing when they were created, who was involved in their creation, where they are located, and what has happened to them during their existence. However, problems arise in determining how much to record, how to evaluate, and thresholds of integrity. As a result, a consistent method of providing the information required to record, evaluate, and manage linear features is provided in this appendix.

The evaluation of a linear resource is more challenging than that of a non-linear resource with manageable boundaries. The linear resource may possess varying states of preservation and integrity, and may pass through federal, state, county, and private lands, causing recordation and evaluation to be complex tasks. Surveys of linear resources should attempt to ascertain or reconstruct the nature, extent, and chronology of the resource, and the historical context to which it belongs. Recording linear features is problematical because the full extent of the resource usually extends beyond the APE. It should be agreed upon in advance whether the project should involve the recordation and evaluation of the entire resource or a portion of it. The investigator should prepare a historical context to evaluate the entire linear feature unless BLM and SHPO agree otherwise.

A. Conducting Research for Historic Linear Features or Districts

Pre-field research may indicate the presence of historic linear features. They may be present on GLO plat maps and USGS topographical maps. Secondary sources of history may also provide information about their presence.

When linear features are encountered, the investigator needs to assess whether a linear resource is historic in origin. The following three criteria should be applied to make such a determination:

1. Is the general alignment present on historic maps, such as GLO plats or USGS maps?
2. Does the resource possess artifacts of the period?
3. Does the resource possess physical characteristics similar to other identified linear resources?

Fieldwork must be supplemented by historical research to locate historic photographs, maps, and plans, or engineering drawings of the resource.

To evaluate the feature, the BLM will prepare a historic context using information found in records such as GLO records, State Board of Control/Engineers records, Highway Department records, Army Topographical Corps reports, USGS topographical maps, aerial photographs, and county records. General histories of Nevada and the region should be consulted to determine if the project or the individuals involved are historically significant. Newspapers may be checked to see if the construction event was widely reported at the time or if the feature was considered important in engineering or design, and local histories should be consulted to determine if the event or individuals were considered important by the local population. The investigator should also consult the transportation chapter of the *Nevada Comprehensive Preservation Plan* (1991) and any Certified Local Governments within the APE. References should be cited in the

documentation, whether they yielded pertinent information or not. The results of the records search should be incorporated into the report and onto the *Nevada Cultural Properties Form* to evaluate the linear resource.

B. Documenting Historic Linear Resources

Some specific considerations for documenting linear resources are:

1. Location and Boundaries--on a map (or maps) of appropriate scale indicate the location of the known extent of the resource and identify the portion(s) being documented, as well as any feature associated with the linear resource.

a. Linear resources may intersect and exceed limits of an APE. Unless otherwise specified by the BLM's cultural resource specialist handling the project, recording of linear features exceeding the APE will extend 100 meters beyond the APE boundaries.

2. Description--provide information on the construction techniques, configuration of, and materials used to construct the linear feature. Describe any features and/or artifacts that may be associated with it. Describe in detail each cultural feature associated with the linear resource. Features of a linear resource generally consist of components integral to the functioning of the resource. Feature descriptions should include information about its construction details, dimensions, and any brand names or patent information recorded on machinery. Plans, cross-sections, and elevations of associated features should be included in the engineering documentation section of the report. Examples of features associated with linear resources include:

a. Roads: retaining walls, culverts, borrow pits, road beds and grades, fences, bridges, and tunnels;

b. Ditches/Water Systems: siphons, flumes, spill gates, gate valves, dams, headgates, sluices, canals, pipes, ditch/flume tenders' cabins, and reservoirs;

c. Trails: blazes, cairns, retaining walls, and paving;

d. Railroad Grades: through cuts, sidings, retaining walls, culverts, spurs, signals, switch stations, depot remains, fences, bridges, tunnels, and trestles;

e. Telegraph/Power Lines: poles, access roads.

3. Setting--Describe in detail the natural or physical environment through which the linear resource passes. Such information would include descriptions of natural features, landscape characteristics, slope, vegetation, etc. Provide an estimate of the proportion of the resource that has been destroyed or modified, where possible.

4. Dimensions--describe the dimensions of the entire linear feature or the portion being documented in the following manner:

a. Top Width--measure the linear feature at its highest point. For water systems such as ditches and canals, the top width should be measured at the crest of the berm(s) or wall(s). Record more than one width or range of widths, if appropriate. For example, a single water

delivery system may be composed of a flume, earthen ditch, and concrete canal with different top widths. Clearly identify the elements being measured and the locations where measurements were taken.

b. Bottom Width--provide a width for the base of the feature, or provide a range of widths, as appropriate.

c. Height or Depth--provide the maximum depth or height of the resource, as applicable, or indicate the variation in that dimension along the length of the linear feature, or the segment being documented. Note any changes to this measurement, such as siltation in a ditch.

d. Length--provide the overall length of the linear feature and the segment being documented, if applicable.

C. Evaluating Historic Linear Resources: National Register Criteria and Integrity Issues

Evaluating the significance and National Register eligibility of a linear resource is as problematical as documenting it, because it may be significant under one or more of the four National Register eligibility criteria, and it most likely will display varying states of preservation and integrity. An investigator must identify the criteria under which the linear resource may be eligible for inclusion in the National Register before considering integrity issues. However, integrity, and thereby eligibility may be determined on a segment-by-segment basis.

The National Register defines integrity as the ability of a resource to convey its significance. The evaluation of integrity must always be grounded in an understanding of a resource's physical features and how they relate to its significance. To retain historic integrity a resource will possess at least several of the seven aspects of integrity. These aspects of integrity are: location, design, setting, materials, workmanship, feeling, and association.

Setting is an important factor in demonstrating integrity of a linear resource. The setting must reflect the character of the historic period with minimal intrusive elements. The National Register has been liberal in the evaluation of numerous linear resources in Nevada by determining eligibility on the basis that there has been little change in the landscape since the historic period. For example, a railroad grade may lack ties and tracks, but if little of its historical appearance has changed, it may still be eligible for the National Register under Criterion A. Because of the importance of setting to a linear resource, viewsheds may become a major consideration in determining project effects. However, setting may be less important in evaluating a water conveyance feature because the feature may be most significant for its engineering, and its design and workmanship become most important in determining integrity.

Some linear resources possess structural and/or engineering features (e.g., the Marlette Lake Water System), and some possess none (e.g., the Old Spanish Trail). Therefore, assessing integrity of design and workmanship may have limited applicability, or it may be highly significant. Some considerations regarding design and workmanship might be to determine if the linear feature has distinctive engineering features such as rock retaining walls, trestles, or culvert. If so, determine whether these elements exhibit structural integrity. If the resource retains some degree of its original fabric and workmanship, ascertain if it is sufficient to demonstrate the feature's significance. Significance might then be viewed in terms of distinction as a representative of a type or style. It

would also be important to determine if there are any other associated resources present and in sufficient numbers to convey an understanding of the linear resource.

On-going maintenance and continued use of a linear resource may or may not affect the resource's integrity. Maintenance and use that has been conducted consistent with methods employed when the resource was developed do not compromise the historic integrity of the resource. These resource activities include canals, the use of roads along the canal, and cleaning silt from the canal; for railroads, the in-kind replacement of ties, rails and switching facilities; and for roads, in-kind repairing, grading, and cleaning of roads. Maintenance and use that is not consistent with historic use compromise the integrity of a historic resource. Such actions would include changing headgate or siphon design for canals, lining earthen ditches with concrete, changing the ballast type, rail type, or other structures for railroads, and changing the surface material and grade of roads. Modification of the route of any linear feature may also compromise its integrity.

Feeling and association may be important facets of integrity for trails (Oregon-California Emigrant Trail), but their retention alone is never sufficient to support eligibility of a property for the National Register.

APPENDIX E: RESOURCE TYPES CATEGORICALLY NOT ELIGIBLE

A. Isolate artifact

A single artifact or pieces from a single artifact, i.e., 10 pieces of glass from a single bottle. An isolate artifact is considered single and unassociated when separated by 30 meters or more from any other artifact. For example, two flakes of the same or different raw material separated by 29 meters would be documented as a site. Ten pieces of glass from a single bottle spread across 31 meters would be an isolate. Isolates are not recorded on a site form, but are listed in a table designated by number, description, and location.

B. Isolated or Unassociated feature

A single feature unassociated with other features or artifact scatters that are undateable; e.g. a prospect pit, a claim marker, an audit, or a shaft. An isolated or unassociated feature is considered single and unassociated when separated by 30 meters or more from any other feature or artifact. If these features are elements to a historic district, they are not isolated or unassociated. In addition, if an isolated feature is unique because of its construction (elaborate stonework claim marker) or distinctive qualities, the feature has to be evaluated for eligibility. Isolated features that have potential data (fire hearth) need to be evaluated for eligibility. Isolated or unassociated features need not be recorded on a site form, but are listed in a table designated by number, description, and location.

C. Post-1950 Cultural Resources

Cultural resource sites that post-date 1960 (or contain a majority of artifacts that post-date 1960) are not considered eligible for the purposes of Section 106 compliance unless the site is of exceptional significance as defined in National Register B Bulletin 22, entitled *How to Evaluate and Nominate Potential National Register Properties That Have Achieved Significance Within the Last 50 Years*.

D. Unassociated Historic Artifact Scatters

This site type is categorically not eligible when it cannot be definitively associated with a specific historic theme as defined in the *Nevada Comprehensive Preservation Plan* (1991). One example of this site type is a single episode roadside refuse deposit.

Unassociated artifact scatters will be considered categorically ineligible with the submission of the following information:

1. A minimal level of archival research does not reveal a possible association. The feature or site in question may not be depicted on the following documents:
 - a. General Land Office map (provide date);
 - b. Land Status map;
 - c. Mineral Survey records;
 - d. Nevada State Museum records;
 - e. State Water Engineer's records;

f. 15 minute Quadrangle (provide date); or

g. Local city and county records.

2. A brief justification for this determination will be included in the eligibility section of the report and will address the following topics:

a. location and type of nearest recorded site; and

b. location of the nearest known town, community, or historical development.

E. Linear Resources

Linear resources in isolation from other linear resources, archeological deposits, and buildings/structures are discussed below in this framework for categorical exemptions. Artifacts directly associated with that linear resource, such as an insulator for a telecommunication line is considered inclusive to that linear resource. If only a segment of the linear resource is present within the project area, and is determined ineligible (non-contributing), the remaining portions of the linear resource are considered unevaluated for the purposes of Section 106 compliance.

1. Roads/Trails: If a road or trail is undateable, cannot be historically associated with a historic theme, lacks engineered features associated with the road or trail, and has been bladed, then that segment is considered not eligible under all criteria.

2. Water Conveyance: If a water conveyance system is undateable, cannot be historically associated with a historic theme, and lacks engineered features associated with the water conveyance feature, then that segment considered as not eligible under all criteria.

3. Fences: If a fence is undateable, lacks unique construction features, is constructed of metal T-posts and barbed wire, then that segment of the fence is considered not eligible under all criteria.

4. Telecommunication lines (telegraph, telephone, power transmission): If a telecommunication line is undateable, lacks unique engineered features associated with that segment of the telecommunication line, then that segment is considered not eligible under all criteria.

APPENDIX F: CATEGORICAL NO ADVERSE EFFECT SITUATIONS

A. Single Pass Geophysical Exploration

Single pass geophysical exploration can be a categorically determined to have no adverse effect where:

1. All traffic associated with exploration must follow routes that avoid cultural resources. Company flagging crews will identify and flag anticipated detours on the route, so that potential detours can be inventoried along with the main route.
2. The following may be excluded from cultural inventory requirements:
 - a. vibroseis and conventional truck-mounted shothole drill routes and operations located on constructed roads or well-defined existing roads and trails;
 - b. pedestrian routes and placement sites for hand-carried geophone, cables, or similar equipment;
 - c. cross-country operations of seismic trucks and support vehicles on bare frozen ground or over sufficient snow depth (vehicle traffic does not reveal the ground) so as to prevent surface disturbance;
 - d. one time (single pass) routes of wheeled vehicles under 10,000 lbs GVW;
 - e. above ground seismic blasting (Poulter method);
 - f. helicopter-supported activities, including shothole drilling and above ground seismic blasting (Poulter method) in most areas, that do not require helicopter staging area preparation and vehicle use off of roads and trails; and
 - g. exploration activities defined as casual use in 43 CFR 3150.
3. Other geophysical exploration activities that require blade work or other surface disturbing activities. These activities also involve additional direct and indirect effects for vehicle traffic. Consequently, the following situations will usually necessitate cultural inventory as determined by the Field Manager on a case-by-case basis:
 - a. cross-country vibroseis and conventional truck or OHV mounted shothole drilling operations;
 - b. surface disturbing activities associated with any geophysical technique such as blading access routes or helicopter staging areas, or disc-and-drill seeding for rehabilitation;
 - c. portions of jug truck and OHV routes, —backpack" shothole drilling, helicopter-supported activities including shothole drilling, and above ground seismic blasting (Poulter method) in areas with potential for significant fragile surface or subsurface cultural resources (dune fields, antelope traps, standing structures, etc.).

4. This exemption does not apply to 3D seismic exploration projects or to any other types of multiple pass projects.

B. Hazards Abatement

1. Hazards abatement where cultural resources are not involved.

2. Authorizing or installing devices to protect human or animal life that do not involve new surface disturbance.

3. Abandoned Mine Hazard Abatement. Nevada Department of Minerals (NDOM), in cooperation with the BLM, identifies and abates mine hazards on Public Lands in Nevada. Some of these mine hazards are over 50 years in age. When the BLM and NDOM find it necessary to close or barricade mine workings that present immediate health and safety concerns, the BLM will ensure that the following measures are implemented:

a. Temporary Closures: When a temporary fence is installed to limit public access to the hazard, the BLM will:

(1) prior to installing a temporary fence, ensure inspection of the fence location by cultural resources staff or a DAT, and the fence moved, if necessary, to avoid effects on cultural resources.

(2) inform the SHPO of all temporary closures. This will include for each closure the nature of the hazard, UTM coordinates established using an appropriate global positioning system unit, a map showing the location of the fence in relation to cultural resources, and a brief description of the cultural resources involved.

b. Permanent closure of abandoned mines over 50 years old, identified on a BLM list of proposed closures for a given fiscal year, can be done without prior BLM/SHPO consultation if:

(1) Prior to any ground-disturbing activity, a qualified historical archaeologist:

(a) prepares a resource assessment of the individual mine site(s) targeted for permanent closure. The assessment must record the shafts/adits to be closed and define the historical attributes of these shafts/adits.

(b) records and conducts Class III inventory in areas from which fill will be taken and define and document the cultural attributes of this areas; and

(c) Takes 5 x 7 inch black and white photographs of the shafts/adits before and after closure. The pictures must sufficiently illustrate the construction/engineering features of each shaft/adit, artifact concentrations, as well as an overview depicting its setting within the landscape. Each photograph will be accompanied by a photo point number, a corresponding UTM location, and photo direction; and

(d) by means of a 7.5' USGS topographic map as well as global positioning system to determine and record UTM coordinates, locates and maps each

shaft/adit as well as corners of all inventory areas from which fill removal is proposed; and

(e) produces an archival copy of the resource assessment, photographs, and maps within 60 days of finishing the permanent closure. Each BLM office will provide a report to the Nevada SHPO on the basis of the federal fiscal year.

(f) A “qualified historical archaeologist” is defined as someone who meets qualifications for inclusion on a Nevada BLM cultural resources use permit in the capacity of Principal Investigator or Crew Chief as a historic period archaeologist.

(2) During closure, either a qualified historical archaeologist or an appropriately trained DAT will:

(a) monitor placement of fill into each shaft/adit to ensure that significant historical archaeological features are not damaged by the activities;

(b) take 5 x 7 inch black and white photographs of the shafts/adits after closure and of any fill/borrow areas after removal or use, including overviews depicting setting within the landscape;

(c) file a final monitoring report with the BLM and SHPO that outlines field procedures employed to ensure compliance with this item;

(d) ensure that fill is taken only from areas previously inventoried by a qualified archaeologist and is not part of another archaeological/ historic site;

(e) ensure that the landscape is restored to the no adverse effect standard defined in Section IV.B. 3. within the historic landscape; and

(f) files a final monitoring report with BLM and SHPO that outlines field procedures employed to ensure compliance with this item.

(g) Appropriately trained DATs are those persons who have successfully completed a regimen of instruction provided by Nevada BLM in the identification of archaeological remains (particularly those of the historic period), map reading, site record interpretation, photography, and use of GPS locating devices.

C. Trespass Abatement

Removing non-significant structures, machines, or materials that are less than 45 years old, such as, abandoned vehicles, trash dumps, trespass buildings, ranches, and mines, and other similar items.

The site from which these materials are removed may be reclaimed, without additional SHPO consultation, as long as the reclamation does not expand previous surface disturbance.

D. Fences

1. Exclosure Fences

a. Exclosure fences can be categorically determined to have no adverse effect where cultural resources within the proposed exclosure have been sufficiently inventoried and evaluated so that the fence will not divide an historic property and place a portion of it outside of the fence and there will be no historic properties within 10 meters of the fence. An exception is possible where the fence can run through a historic property by following the edge of an existing road that is on the outside of the exclosure, and the fence is kept on the edge of the road disturbance;

b. the fence is placed so that it does not call attention to historic properties;

c. the fence is constructed with methods that minimize surface disturbance; and

d. there will be no livestock grazing within the exclosure.

2. Other Fences

Other fences can be categorically determined to have no adverse effect where:

a. it is possible to run the fence through a historic property by following an existing road, or similar surface disturbance, and the fence, and associated trailing is kept within the road disturbance;

b. the fence and associated trailing can be placed so that it avoids all cultural resources in the manner specified in Appendix H.

E. Spring Development Pipelines

Spring development pipelines can be placed across historic properties within previously disturbed areas and categorically determined to have no adverse effect if:

1. the pipeline is either installed on or above the surface or placed below the surface by excavating a trench with hand tools or a mechanical trenching device (e.g., Ditchwitch™) that is no more than 8" wide and 18" deep;

2. the spring itself is not a cultural resource and therefore the spring development, separate from the pipeline, will not affect an historic property;

3. the pipeline impacts no more than 5% of the surface exposure of the site and is located by an archaeologist in an area of low artifact density with no features;

4. an archaeologist monitors the trenching and sample fill from the trench to detect subsurface cultural deposits and the project will be halted if the archaeologist determines that the installation is having unexpected effects; and

5. the trench will be backfilled using hand tools.

F. Sale of Subsurface Mineral Estate

The BLM can convey the subsurface mineral estate to the surface owner, without field inventory and SHPO consultation, if it finds that the parcel has no potential for containing mineral deposits. The SHPO will be notified of the transfer and sent an informational map showing the lands affected and a list of any known cultural resources within the transfer area.

G. Rejuvenating Existing Seedings

Undertakings to rejuvenate existing seedings can be considered as categorically having no adverse effect if:

1. the original seeding was plowed;
 2. the proposed rejuvenation does not extend beyond the boundaries of the original seeding;
- and
3. rejuvenation activities will not impact more than the top 10 cm of the plowed surface.

H. Roads and Trails

1. New undertakings that involve road construction, reconstruction, and improvement projects that may affect cultural resources will be considered using the procedures in this Protocol.

2. If an historic property is traversed by facilities or improvements created within the last 50 years, these existing facilities or improvements may be used for a project so long as their use is consistent with the function for which they were created and that use does not further affect cultural resources (e.g., the use of existing access roads that use or traverse linear sites such as railroad grades). Such continued use shall be considered to have no effect on historic properties.

3. Continued use or reuse of a road or trail will not affect a property and no case-by case consultation with the SHPO is necessary under the following circumstances:

- a. when a physical barrier along the traveled way (fences, boulder barriers, existing pavement) prevents further damage to cultural resources;
- b. where the roadway or railway was cut through or is situated below a property (e.g., archaeological deposit) through which it passes. The absence of a property (e.g., cultural deposit) may be documented by field work in the form of surface observations and/or subsurface test excavation. These excavations may include shovel test, excavation units, or auger bores.

I. Fire Management

1. Wildland Fire Management. As defined by the National Wildland Coordinating Group, a wildland fire is any non-structure fire that occurs in the wildland. Wildland fires are categorized as either (1) wildfires or (2) prescribed fires.

a. Wildfires are unplanned ignitions or prescribed fires that are declared wildfires. A wildland fire may be concurrently managed for one or more objectives (or uses) and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives.

(1) Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on Land Use and Resource Management Plan and associated Fire Management Plans and will follow specific prescriptions contained in operational plans.

b. Prescribed Fire is any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements (where applicable) must be met, prior to ignition.

2. Wildland Fires: Wildfires will be suppressed in accordance with Guidance for Implementation of Federal Wildland Fire Management Policy February 2009 replacing the Federal Wildland Fire Management Policy (June 2003). In these emergency situations there is no need to consult with the SHPO prior to suppressing the fire. Fire rehabilitation will be done in accordance with Appendix F, Section J.

Response to wildland fires will be based on ecological, social and legal consequences of the fire. The circumstances in which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected, dictate the appropriate response to the fire.

a. Use of Fire. Use of fire refers to the management of wildland fire for one or more objectives (or ~~uses~~), including to allow fire to function in its natural ecological role. The decision support process for protection of cultural resources during use of wildland fire may be accomplished without prior SHPO consultation when a manager implements a decision support process to guide and document wildfire management decisions which meets the following conditions. The process will also provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions.

(1) A Cultural Resource Specialist with concurrence by the appropriate BLM Manager determines that there is a low probability of discovering vulnerable archaeological sites within the proposed fire area; and

(2) There is written documentation that the area has burned within the last 50 years at a sufficient intensity so that there is a low probability that vulnerable resources in the use area could have survived the fire; or

(3) The use area has been previously inventoried and no historic properties were identified; or

(4) The use area will be managed within prescription limits outlined in a fire management plan (FMP) that has been reviewed by SHPO.

b. If archaeological sites or historic properties are found within the fire areas, these resources or areas will be protected to ensure that fire temperatures do not exceed 600 degrees (F) in the vicinity of the historic property by means such as hand-constructed fire lines, foam wetting agents, or fire shelter fabric outlined in the approved FMP.

3. Prescribed Fires (Rx): The BLM agrees that prescribed burns have the potential to affect historic properties. Properties at high risk from prescribed burns include, but are not limited to historic buildings, structures and artifacts, prehistoric and ethnohistoric wooden structures (houses, wing traps, ramadas), ethnohistoric pinion processing equipment, rock art, and sites, such as rock shelters and habitation areas, with flammable organic deposits. Prescribed Fire Plans will be developed in accordance with the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide and BLM Supplement in order to allow for SHPO consultation as defined in this Protocol. Prescribed Fire Areas may be ignited by BLM without SHPO consultation if:

- a. A Cultural Resource Specialist with concurrence by the appropriate Field Manager determines that there is a low probability of discovering vulnerable archaeological sites within the proposed fire area; and
- b. There is written documentation that the proposed fire area has burned within the last 50 years at a sufficient intensity so that there is a low probability that vulnerable resources could have survived the fire; or
- c. The proposed prescribed fire area has been previously inventoried and no historic properties were identified; or
- d. The proposed prescribed fire area will be managed within the prescription limits (that protect historic properties from fire areas by hand-constructed fire lines, foam wetting agents, or fire shelter fabric) outlined in the approved prescribed fire plan that has been reviewed by the SHPO.

4. Avoidance Measures: Identified cultural resources that may incur damage from fire shall be excluded from Rx fire areas and protected by appropriate means to ensure that fire temperatures do not exceed 600 degrees (F) in the vicinity of the historic property. Avoidance measures may include, but may not be limited to hand-constructed fire lines, foam wetting agents, or fire shelter fabric. New fire line construction routes (e.g., dozer lines) shall be surveyed and fire lines reconfigured to avoid historic properties.

5. Tribal Consultation: Native American consultation, as appropriate, should be completed at the Resource Management Plan level as well as at the Fire Management Plan level to identify concerns regarding the burning of resources or resource areas of religious or cultural importance.

J. Fire Stabilization/Rehabilitation

1. Any fire stabilization/rehabilitation activities (such as aerial seeding, most hand planting, temporary fences on steep slopes, and etc.) that do not involve mechanized surface disturbance, will not be inventoried or treated for Section 106 purposes. Rehabilitation activities involving more than 10 cm depth of mechanized surface disturbance will be handled to Class III standard. When determined appropriate in the Inventory Needs assessment process giving consideration to factors such as the number and types of expected cultural resources properties and their sensitivity, proposed

rehabilitation methods and anticipated impacts, rehabilitation activities such as rangeland drilling involving no more than 10 cm depth of mechanical surface disturbance will be handled with the procedures specified here.

2. Prior to initiating survey, the BLM will complete a records and literature search, as specified in the BLM General Guidelines, to identify known resources and areas with a high probability of containing resources in primary context.

3. When determined appropriate in the Inventory Needs assessment process, fire stabilization/rehabilitation activities that involve mechanized surface disturbance less than 10 cm depth will have the Area of Potential Effect surveyed based on the records search to identify areas that are likely to contain archaeological resources in primary context. In general, 100 meter transect surveys, with deviations to inspect high probability areas will be used. The BLM and the SHPO can agree, through informal discussions, to other survey approaches appropriate to individual rehabilitation undertakings.

4. All archaeological resources discovered or relocated, will be plotted on maps and recorded on the BLM Nevada IMACS short form. Resources, except those previously determined not eligible, by BLM and the SHPO, or that have been previously treated, will be flagged for avoidance and avoided during rehabilitation activities.

5. Flagging will be placed to minimize the potential for looting and vandalism and removed as soon as possible after re-seeding is completed. Sites will be hand seeded for camouflage as appropriate.

6. All areas inventoried in this manner will not be considered to have been inventoried for any other purposes and any subsequent undertakings in these areas will be inventoried to Class III standards.

7. The BLM will not consult with the SHPO prior to authorizing fire stabilization/rehabilitation activities conducted under these provisions. The BLM will provide the SHPO with an informational copy of a map showing the APE, area surveyed, and an informational copy of the short form(s) for any archaeological resources within it.

K. Grazing Management: The BLM recognizes the potential for grazing to affect historic properties through: (1) the concentration of livestock on cultural resources; (2) construction and maintenance of grazing facilities; and (3) other grazing operations in the immediate vicinity of historic properties. Therefore, grazing shall be administered as follows:

1. Issuing Grazing Permits:

a. as a permit comes up for renewal, the range staff and the cultural staff will discuss the potential impacts to cultural resources from grazing. Using archaeological site maps and use pattern maps, areas of high grazing use and known concentrations of cultural resources, or areas of high potential for significant resources, will be identified;

b. when there are known grazing conflicts with cultural resources, these will be mitigated or eliminated by amending grazing practices authorized in the permit;

c. when there is a high probability of grazing conflicts, the range and cultural staff should visit the area to see if there are, in fact, ongoing impacts from the grazing practices authorized in the permit. If there are, the permit will be amended to eliminate or mitigate these impacts;

d. the permittee and BLM staff will be made aware that the standard stipulations in the permit give BLM the ability to expeditiously mitigate or eliminate impacts to cultural resources discovered after the permit is approved;

e. prior to the start of each fiscal year, each Field Office will prepare a general letter to Tribes informing them of plans and schedules for permit renewals in the upcoming fiscal year and inviting them to share their concerns, if any, with issuing or renewing the grazing permit identified in the letter. There is no need to consult with tribes on each renewal, but only on renewals in areas where they express an interest or that you know that they have an interest;

f. if the permit application is being considered as an Administrative Determination (AD) under NEPA, and the process above is followed, there is no need to consult with the SHPO before renewing each permit. The SHPO will be provided with an information copy of the memorandum to the permit file documenting the analysis used in authorizing the permit; a map showing known resource conflict areas; and a description of the measures used to mitigate impacts;

g. if the permit application is being considered in an EA or EIS, it will be analyzed through the standard Section 106 and Native American consultation processes outlined in this Protocol.

2. Range Improvements and Projects: After a permit has been issued or renewed, range improvements, surface disturbing projects, and changes in grazing practices (that will concentrate grazing and could create impacts) will be approved through the standard Section 106 and Native American consultation processes outlined in this Protocol.

L. Mechanical, Chemical and Manual Vegetation Fuels Management Activities

1. Project Planning

a. Fuels management projects include methods for mechanical, chemical, or manual vegetation manipulation that have the potential to adversely affect historic properties. Fire management activities involving wildland fire use or prescribed fires are addressed in the SPA, Appendix F.I and are not considered further here.

b. Mechanical, chemical, and manual vegetation fuels management proposals shall conform to approve Fire Management Plans which are subject to concurrence with the SHPO, per section X of the SPA.

c. A qualified Cultural Resources Specialist (CRS) will assist the Field Manager to establish the Area of Potential Effects (APE) for a fuels management project. The APE will include all areas where a proposed treatment may be purposefully or inadvertently applied and any buffer zones included in the project plan. The CRS is responsible for completing a cultural resources

Needs Assessment form as part of project planning and having it approved prior to project implementation.

2. Definitions

a. High sensitivity cultural resources are those for which the proposed fuels management project, if implemented, could result in loss of, or damage to, those qualities that may qualify the site for listing on the National Register of Historic Places (NRHP). Cultural resource specialists will determine this sensitivity.

(1) Resources listed on or eligible for the NRHP (also known as ~~historic properties~~) as well as known but unevaluated resources will be treated as if they are high sensitivity properties.

(2) Properties with high sensitivity to mechanical or manual treatments have surface or near-surface features or areas with patterns of distribution or relationships that may contain information important to understanding history or prehistory. Examples include, but are not necessarily limited to hearths; rock rings; a complex of ground stone implements; areas of discrete, single episode flaked stone reduction; remnants of historic structures or structural complexes; historic debris concentrations, rare or unusual features such as game drive traps.

(3) Examples of properties with high sensitivity to chemical treatments include, but are not necessarily limited to, those where chemical applications may:

(a) Alter the integrity or appearance of artifact assemblages, buildings or features in such a manner as to diminish or eliminate the potential for interpretation or alter those qualities that may qualify the site for listing on the NRHP; or

(b) Affect the utility of samples or artifacts for analysis, such as the contamination or alteration of radiocarbon samples through use of chemical treatments.

3. Inventory Requirements

a. Inventory requirements for mechanical, chemical and manual vegetation or fuels management activities will be determined in the Inventory Needs assessment process found at Section V.A.

b. Areas known or expected to contain high sensitivity resources should be subject to Class III inventory.

c. When deemed appropriate in the needs assessment process, areas of a fuels management APE involving no mechanized surface disturbance (such as through aerial seeding, hand clearing up to 10 cm in depth, installing temporary fences on steep slopes, non-organic chemical treatments, etc.) and that are expected to have no effect on high sensitivity resources need not be inventoried. High sensitivity sites will be avoided or effects treated prior to initiating the proposed action. As determined during the needs assessment analysis, staging areas, access routes, and other support facilities will be inventoried to Class III standards and

redesigned to avoid impacts, unless alternative strategies are developed per section 6a.

(1) When deemed appropriate in the needs assessment process, the area of a non-mechanized "top and scatter" hand-thinning project will be considered a non-ground disturbing activity provided no activity results in disturbance over 10 cm below surface.

(2) If removed or displaced fuels are to be burned, staging and burn areas will be inventoried to Class III standards for a distance of 30 meters beyond the exterior margins of the proposed burn area, unless established otherwise through the needs assessment analysis or unless alternative strategies are developed per Appendix F.L.6.

d. Those portions of a fuels management APE involving more than 10 cm depth of surface disturbance will be inventoried to Class III standards and effects appropriately treated, unless alternative strategies are developed.

e. When deemed appropriate in the needs assessment process, fuels management activities involving less than 10 cm depth of mechanized surface disturbance, and for which the surface will not be removed, will be handled with the procedures specified here.

(1) The APE will be examined to re-locate known historic properties and unevaluated sites and to examine areas likely to contain high sensitivity cultural resources. In general, field examinations could be accomplished using 100 meter transect separation, with deviations accomplished through reconnaissance inventory to re-locate known resources or to inspect high probability areas. An APE with ground cover restricting visibility may require closer intervals as determined by the CRS.

(2) All archaeological resources discovered or re-located by means other than Class III inventory will be plotted on 7.5-minute US Geological Survey topographic maps and recorded on the BLM Nevada IMACS short form, unless alternative strategies are developed per section 6a of this amendment. Class III inventory site documentation and reporting will be as per the SPA.

(3) Site boundaries will be determined in all cases. In instances where surface fuel density precludes adequate surface visibility, a minimum buffer of 50-meters will be established beyond the known site perimeter where avoidance is proposed during project implementation.

(4) Class III inventory along margins of historic roads or trails (i.e., those known or likely to be more than 50 years old) generally will be done for 100 meters on each side of the physical traces of the road or trail identified in the field and within the project area.

4. Treatment

a. Appropriate steps for avoidance or treatment of effects to historic properties shall be implemented prior to initiating the undertaking.

b. Resources for which eligibility determinations are deferred shall be treated as if

they are historic properties.

c. High sensitivity resources will be flagged and avoided during management activities, except for those previously determined not eligible, by BLM and the SHPO, or that have been previously treated in relation to those qualities that would be affected by the proposed fuels management project.

(1) Standard avoidance measures found in Appendix F.L.6 will apply.

(2) Where vegetation removal or reduction may pose a threat to site integrity through post-treatment effects such as erosion or vandalism, sites will be hand-seeded or otherwise treated (e.g., camouflage, mitigation) as appropriate.

5. Special Considerations

a. Rejuvenation of Existing Seeded Areas. When deemed appropriate in the needs assessment process, the APE for a project to rejuvenate an existing seeding need not be inventoried if:

(1) The project is done with the same methods as the original seeding; and

(2) The project APE does not extend beyond the boundaries of the original seeding; and

(3) Rejuvenation activities will not impact more than the top 10 cm of the plowed surface; and

(4) Known historic properties and unevaluated sites will be avoided; and staging areas, access routes, and other support facilities will be inventoried to Class III standards and redesigned to avoid impacts, based on determinations in the needs assessment analysis. The use of vegetation mosaics to camouflage cultural resources should be considered.

Or,

(5) Past seeding projects may have resulted in disturbance to depths exceeding 10 cm below surface. If the needs assessment analysis indicates that this prior disturbance precludes affecting known or potential historic properties using methods proposed for a mechanical, chemical or manual fuels management project, no cultural resources inventory is required, per the SPA, Appendix C.

6. Avoidance Measures

a. Avoidance measures may include retention of existing vegetation as buffer zones to ensure adequate avoidance or to obscure the exact location of a sensitive cultural resource.

b. The design of vegetation mosaics may incorporate cultural resource areas but should not be limited to them, in order to avoid creation of inadvertent signals for the presence of sites that could lead to vandalism. Vegetation mosaics should include buffer zones extending

beyond actual site boundaries.

c. Temporary markers used to identify outer boundaries of avoidance areas shall be distinctive from other project markers to minimize the potential for confusion and inadvertent damage to sites. Markers around cultural resources or their buffer zones must be removed after completion of the project or project phase. The use of monitors (e.g., Project Inspector) to ensure successful resource avoidance is recommended.

7. Compliance

a. The BLM and the SHPO can agree, through informal discussions or formal consultations, to other inventory and treatments appropriate to individual fuels management projects.

b. The BLM need not consult with the SHPO prior to authorizing fuels management activities conducted under these provisions, except as noted. Nothing alters the BLM's agreement to request SHPO review for undertakings meeting threshold criteria expressed in the SPA, IIA-B.

c. For field reconnaissance conducted at less than Class III intensity, the BLM will provide the SHPO with project documentation consisting of (a) a copy of the approved Needs Assessment form, (b) a map showing the APE, area surveyed and survey method (e.g., reconnaissance, Class II), and (c) an informational copy of the short form(s) for any archaeological resources within it. Reporting requirements for all Class III inventory efforts remain as per the SPA.

(1) The site record for any NRHP-eligible (historic property) or unevaluated site that is not avoided by the proposed action shall include a specific statement of sensitivity and rationale for why no adverse effect will occur, unless this information appears in the Needs Assessment form.

d. Inventory accomplished at less than Class III intensity will not suffice for purposes of Section 106 compliance under other non-fuels management circumstances unless the inventory strategy was implemented based on project-specific consultation with the SHPO.

M. Fire Suppression Activity Damage

BLM policy requires that fire suppression activity damage repair actions be planned and performed primarily by the suppression incident organization as soon as possible prior to demobilization and that Fire Damage Assessment Reports be prepared. Fire suppression activity damage repair actions are documented by the fire suppression incident management team when possible, including both accomplished actions and those still needed to ensure that all planned actions are completed. In some cases, actions may be conducted by other units following containment of the wildland fire and demobilization of the incident management team.

Fire suppression activity damage repair must consider the extent and nature of ground-disturbing suppression-related activities including (but not limited to) dozer lines, temporary fire camps, and actions such as dozer line rehabilitation. Providing accurate locations to the cultural resource specialist, including GIS shape files derived from GPS mapping, may enhance the efficiency and

accuracy of determinations of the need for inventory. Where possible, cultural resources inventory should precede rehabilitation efforts in order to avoid the possibility of increased damage to sites. Accomplishment of any necessary cultural resources inventory should not delay implementation of rehabilitation actions by incident equipment where such equipment must be removed for emergency actions.

For cultural resources, determinations of the need for and extent of inventory are made by a qualified cultural resource specialist and are documented using the needs assessment process in Section II.A of this agreement, based on known or expected site densities, modeling, sensitive areas, historical documentation, reconnaissance or observation during or after the fire, etc. To be implemented, this needs assessment form must be approved by the appropriate official of the incident management team, field office or agency.

Charges for cultural resources inventory and related activities are funded by the appropriate fire suppression account (fire number) but may not be charged to the Emergency Stabilization or Rehabilitation subactivity accounts.

Reporting requirements for such inventories will follow the Statewide Protocol Agreement with the Nevada State Historic Preservation Office. Results of inventory will be summarized for inclusion in a separate confidential appendix to the Fire Damage Assessment Report.

Measures necessary to evaluate sites affected by suppression-related activities for eligibility to the National Register of Historic Places, or to treat effects from suppression-related activities will be discussed in consultation with SHPO, per terms of this Protocol.

Measures necessary to evaluate sites affected by suppression-related activities for eligibility to the National Register of Historic Places, or to treat effects from suppression-related activities, are charged to the appropriate fire suppression account. These procedures and accounting practices for suppression-related effects to cultural resources apply equally to Federal and non-Federal property.

In instances where qualified persons accompanied mechanized equipment during fire suppression for the purpose of avoiding cultural resource damage, the reporting information includes identification of personnel and any results (such as descriptions and locations of sites avoided). Location maps of disturbance and avoidance areas should be provided as part of the report.

APPENDIX G: DOCUMENTATION STANDARDS FOR HISTORICAL RESOURCES OF LOCAL AND STATE SIGNIFICANCE

This appendix deals with treatment of historic, not prehistoric, resources and provides standards for historic resources eligible for inclusion in the National Register at a state or local level of significance, not at a national level of significance. Should the BLM propose to affect historic resources significant at the state or local level, the agency may propose treatment to mitigate the effect. In the past, BLM not only consulted with the SHPO but sought advice from the National Park Service (NPS) on the kinds of treatment that would be required. NPS no longer requires HABS/HAER documentation on properties of local or state significance, instead, requesting that SHPOs create their own state standards. Seeking advice from NPS is now unnecessary unless the resource is of national significance.

To assist in preparing a treatment plan and in estimating costs, this appendix provides standards for treatment of historic resources as agreed upon by the BLM and the SHPO.

A. Levels of Significance

Within the framework of the National Register, the level of significance is defined as the geographic magnitude or scope of a property's historical significance and can be national, state, or local. Local significance is defined as the importance of a property to the history of its community, such as a town, city, or county. Likewise, state significance refers to the importance of a resource to the history of the state in which it is located. The following documentation standards are specific to historic resources eligible to the National Register at the local or state level of significance.

B. Resource Categories

For the purposes of this document, a historic resource is defined as a historic district, building, site, structure, or object; specifically, any such resource that is listed or eligible for listing in the National Register of Historic Places. The following is a partial listing of historic resource types that might be subjected to the level of documentation described herein:

1. District--a geographically-definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development; may also comprise individual elements separated geographically but linked by association or history. Examples of historic districts are mining sites with multiple resources, including buildings and equipment; farms and ranches; and various linear resources, such as water systems and railroads.
2. Building--a structure enclosing a space and providing protection from the elements and that shelters some form of human activity; typically includes walls, a roof, and other components. Commercial buildings may include banks, breweries, casinos, factories, foundries, garages, hangers, laundries, mortuaries, office buildings, railroad stations, blacksmith's shops, stores, theaters, and warehouses; residential types may be single family dwellings, duplexes, apartment buildings, barracks, dormitories, hotels, bunkhouses, quarters, shacks, and shanties; institutional buildings may be academies, amphitheaters, armories, arsenals, asylums, aviaries, Capitols and other governmental buildings, churches, courthouses, fortifications, hospitals, jails, libraries, museums, post offices, and schools; agricultural and rural buildings may be barns, blinds, cellars, kennels, pole structures, Quonset huts, sheds, stables, smokehouses, and storehouses.

K.2.4.7 New Mexico Protocol

**PROTOCOL AGREEMENT
Between
NEW MEXICO BUREAU OF LAND MANAGEMENT
And
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER**

I. PURPOSE

The Bureau of Land Management's (BLM) National Programmatic Agreement (PA) and pertinent BLM manuals and handbooks take the place of the Advisory Council on Historic Preservation's regulations at 36 CFR 800 and associated Advisory Council guidance. This Protocol implements the PA in New Mexico by describing how the New Mexico State Historic Preservation Officer (SHPO) and the New Mexico Bureau of Land Management (NM BLM) will operationalize the PA in New Mexico.

Objectives of this Protocol are to acknowledge the maturation of the NM BLM's cultural resources management program and encourage a shift toward more programmatic consultation with an emphasis on more proactive program accomplishments as a result. This second version of the Protocol reflects finalization of the BLM's national manuals governing the cultural resources program and the results of a complete cycle of Field Office program reviews within New Mexico.

II. APPLICATION OF PROTOCOL

A. RELATION OF PROTOCOL TO PMOA 168 AND 36 CFR 800

1. The New Mexico statewide cultural resources Programmatic Memorandum of Agreement No. 168 (PMOA) became effective October 19, 1982. This PMOA was suspended when the NM BLM became certified to operate under the PA. The PMOA will remain in a state of suspension for as long as the PA and this Protocol remain in effect. Should the PA be terminated, all NM BLM Field Offices will resume meeting their Section 106 obligations through procedures outlined in the PMOA until such time as it can be replaced with a new statewide programmatic agreement. Such a new statewide programmatic agreement would be prepared with full tribal government and general public input and consultation.

2. Should any Field Office become decertified for failure to live up to obligations specified in either the Protocol or its Field Office Certification Plan, that individual Field Office will meet its Section 106 obligations through the processes outlined in 36 CFR 800.

3. This Protocol does not apply to undertakings involving multiple SHPOs or areas within the jurisdiction of Tribal

Preservation Offices. The NM BLM will consult with both the SHPO and Tribal Preservation Officer as provided for in NHPA Section 101(d)(2)(D)(iii) when proposed undertakings could affect historic properties located on lands owned by the NM BLM which have been determined by the courts to constitute Dependent Indian Communities.

4. If any BLM office in NM feels it cannot comply with the procedures set forth in this Protocol for a particular undertaking, it shall notify the NM BLM Deputy Preservation Officer (DPO) and the SHPO prior to any decisions being made that could affect any historic properties within the area of potential effect. Following consultations with the SHPO and DPO, the Deputy State Director for Resources (NM 930) may allow Field Offices to meet their Section 106 responsibilities for that particular undertaking by complying with the procedures at 36 CFR 800, including all requirements for consultation with the SHPO, Advisory Council on Historic Preservation, Indian tribes, and interested parties.

B. RELATIONSHIP OF PROTOCOL TO EXISTING AND FUTURE BLM-SHPO AGREEMENTS

1. Existing. Project-specific PAs will remain in effect until the undertakings have been completed and all reports submitted and approved according to the terms of the Agreements. In addition, the most current versions of the following agreements will remain in effect indefinitely and are incorporated into this Protocol. Until they are modified to conform to this Protocol, compliance steps elaborated in these programmatic agreements will be followed even though they may vary somewhat from the procedures outlined in this Protocol. These Agreements include:

a. Memorandum of Agreement (MOA) Governing Transfers of Public Lands to Private Ownership via Land Exchanges or Sales (Appendix 1).

b. MOU Regarding Cultural Resource Protection Responsibilities among USDI Bureau of Land Management, New Mexico and New Mexico State Land Office and New Mexico Historic Preservation Division (governs NM BLM-State land exchanges) (Appendix 2).

c. Assistance Agreement between United States Department of the Interior, Bureau of Land Management, and the State of New Mexico (governs support for the New Mexico Cultural Resources Information System--NMCRIS) (Appendix 3).

2. Future. The NM BLM and the SHPO may agree to amend the Protocol specifically to address particular geographic locations or classes of similar undertakings as new needs are recognized.

Such amendments will take these procedures into account and will be prepared only when compliance issues are complex and must vary to a considerable degree from this Protocol. Any future amendments negotiated under the terms of this Protocol will be executed solely by the NM BLM and the SHPO.

C. APPLICATION OF PROTOCOL TO MULTI-AGENCY UNDERTAKINGS WITHIN NEW MEXICO OR TO UNDERTAKINGS OCCURRING ACROSS SEVERAL STATES

1. If an undertaking will affect lands administered by several different agencies or Indian tribes within New Mexico and the NM BLM is the lead agency, the NM BLM will follow this Protocol for the entire undertaking if this is acceptable to the other agencies and Indian tribes. Each land managing agency, however, is responsible for making determinations of National Register eligibility for resources it manages. If any other agency or tribal government objects to the application of this Protocol to lands they administer, then the NM BLM along with all the other consulting parties will negotiate and adhere to provisions in a project-specific PA or other agreement or will follow the procedures contained within 36 CFR 800.

2. Where undertakings will affect lands administered by several different agencies within New Mexico and another federal agency is the lead, consultation procedures used by the lead agency will be followed. Each land managing agency, however, will be responsible for determinations of National Register eligibility for the resources it manages.

3. Where undertakings will affect lands administered by several different agencies within New Mexico without NM BLM or another federal agency taking the lead, NM BLM will follow the Protocol for lands under its jurisdiction. The NM BLM will indicate on its transmittal to SHPO that this is a multi-agency project submitted without a federal lead.

4. For large or multi-state undertakings, an attempt will be made to develop a single PA which will have to be negotiated and accepted by all the SHPOs and agencies involved. If this occurs, a federal lead, if possible, will be identified for multi-state undertakings.

III. SHPO INVOLVEMENT IN BLM MANAGEMENT PROCESSES

A. SHPO will be invited to act as a preparer/reviewer when NM BLM writes or prepares EISs, large-scale management plans, wild and scenic river plans, or wilderness management plans. SHPO will assist in the preparation or will provide review comments only for those planning efforts that could result in foreseeable effects to cultural resources.

B. When NM BLM programs other than cultural resources management formulate policies that could have a major impact upon historic properties, the BLM will afford the SHPO an opportunity to comment upon draft manuals, handbooks, and Instruction Memoranda.

IV. MONITORING

A. Each NM BLM Field Office will commit to in-field monitoring 10 percent of surveys undertaken by permittees in a given year. Carlsbad Field Office will monitor 5 percent of permittee surveys in a given year.

B. In addition, 10 percent of those undertakings where avoidance of historic properties was recommended will be monitored during or after construction to check the direct and indirect effects on nearby cultural resources for undertakings approved in a given year. Carlsbad Field Office will monitor 5 percent of those undertakings in a given year where avoidance of historic properties was recommended.

C. The NM BLM will monitor site conditions as agreed to in the following land exchange agreements:

Stanley (Taos Field Office)
Shooting Range (Albuquerque Field Office)
Navajo-Hopi (Las Cruces Field Office)
Delaware I, II, and III (Carlsbad Field Office)
Rio Bonito (Roswell Field Office)

D. Where it is difficult to complete monitoring with in-house personnel, the NM BLM will consider contracting for such inspections, including the use of any On-Call contracts that may be available or require the project proponent to contract for comparable services.

V. SUPPORT FOR COOPERATIVE PROGRAMS

A. DATA MANAGEMENT

1. **COST.** Subject to the availability of funding, the NM BLM will support NMCRIS at the rate of \$40,000 annually. These funds will be provided by the State Office from the benefiting activity program(s).

2. **DATA SHARING.** Services provided by ARMS, data submission requirements, and specifications for deliverables and reports are provided in the most current version of the Assistance Agreement between the NM BLM and the SHPO governing cooperation to support NMCRIS (Appendix 3).

3. SCHEDULES FOR DATA SUBMISSION.

- a. Negative Results, Only Ineligible sites found, and No Effect Situations. Inventory reports in which only Isolated Manifestations or nothing was found; reports that document only sites found ineligible for nomination to the National Register; and reports in which all eligible historic properties are avoided to achieve a situation of no effect will be submitted monthly to the SHPO.
- b. No Adverse Effect, and Adverse Effect. Inventory reports will be submitted to SHPO as they are completed.

4. COMPLETION OF INVENTORY REPORTS

- a. The NM BLM will not allow projects to be completed without adequate provisions for the timely completion of all reports and site records generated under the terms of this Protocol.
- b. All NM BLM-prepared inventory reports will be submitted to the SHPO within 6 months of completion of fieldwork.
- c. The NM BLM may utilize provisions for office support contained within its On-Call contract to complete the preparation of all backlogged reports that BLM staff cannot submit in a timely manner.
- d. Documentation of backlogged reports shall include reports with project activity forms and site records along with a xerox of the United States Geological Survey quadrangle map depicting the inventory area and site location(s), if applicable. Submissions will also include a project Activity Form completed to the degree possible according to the information known about the past project that generated the inventory.

5. STANDARDS

- a. Definitions of Isolated Manifestations and Sites. Until modified by mutual agreement, the NM BLM and the SHPO will continue to utilize the definitions for Isolated Manifestations, Category 1, and Category 2 sites contained within Addendum No. 1 to PMOA No. 168, dated 11/2/87 (see Appendix 4).
- b. Site Records. The NM BLM will ensure that all site records are prepared according to the latest NMCRIS guidance (Appendix 5). ARMS shall accommodate and support BLM standards for recording cultural resource locations using Global Positioning System (GPS) technology, through modification of current data forms and the NMCRIS database structure.
- c. Survey Reports. The NM BLM will ensure that inventory reports are prepared according to the latest guidance provided in

H-8100-1 Procedures for Performing Cultural Resource Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities. Current requirements for Small-Scale inventory project reports (Appendix 6) and Large-Scale inventory reports (Appendix 7) are attached.

d. Major Testing/Excavation Reports. The NM BLM will ensure that major testing and excavation reports are prepared according to the latest version of NM BLM reporting standards for data recovery projects (Appendix 8).

e. While, as stated in the BLM's National Programmatic Agreement, the BLM's National Manuals "help guide" decision making, more precise standards and procedures applicable to New Mexico will continue to be found in the most current version of H-8100-1 Procedures for Performing Cultural Resource Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities.

f. Copies of the applicable standards are attached as appendices to this Protocol.

g. SHPO will provide Field Offices with immediate feedback concerning the submission of any reports or sites that, in the opinion of SHPO staff, fail to meet New Mexico Cultural Resource Information System standards.

h. Resource Management Plans (RMP). The level of cultural resource information and the kinds of long-term management decisions needed in land use plans are specified in BLM Information Bulletin No. 2002-101 (Appendix 12). This guidance provides direction for how Field Offices will identify and describe the cultural resources covered by the plan, establish goals for the cultural heritage program, assign use allocations to all cultural properties in the RMP area, and articulate management actions required to meet stated goals. Such planning will utilize ARMS' Geographical Information System capabilities to display projected cultural resource distributions or sensitivity maps for the planning area.

i. Electronic Records Submission. Whenever possible, the NM BLM will ensure that all cultural resource information submitted is in an electronic format compatible with NMCRIS standards. ARMS shall be responsible for developing exchange formats and computer applications to support such transfers and NM BLM will require its staff and permittees to follow these standards and use these applications. NM BLM and SHPO will collaborate to develop the workflow procedures and infrastructure required to track cultural resource projects electronically.

j. Seismic Project Documentation. The NM BLM will ensure that all cultural resource inventories conducted for the purpose of permitting seismic exploration undertakings submit geospatial

data to SHPO in current NMCRIS shapefile format. Polygon GIS layers must include archeological site locations as well as survey area boundaries and be documented as to projection, datum, and accuracy level. Data must be submitted directly to ARMS and be identified by NMCRIS and LA numbers assigned during registration.

B. JOINT BLM-SHPO OUTREACH, EDUCATION, AND DATA SYNTHESIS EFFORTS

1. Subject to the availability of funding, the NM BLM will commit \$20,000 annually towards support for such joint outreach, education, and data synthesis projects as the statewide Site Watch program, Project Archeology, and regional research designs. An attached Assistance Agreement (Appendix 9) describes the projects to be jointly undertaken, the products to be produced, and the obligations of each party.
2. The NM BLM and the SHPO may cooperatively publish research results, popular interpretations of the prehistory and history of New Mexico, as well as brochures or other media that can inform and inspire the public concerning New Mexico's wealth of cultural resources.
3. Each Field Office Certification Plan will describe those heritage education and public outreach activities it plans to engage in within its Proactive Elements Section.
4. The NM BLM will continue to support Heritage Preservation Month activities.

C. STEWARDSHIP AND SITE PROTECTION

The NM BLM supports SHPO efforts to develop and expand a statewide Site Watch program of citizen involvement in the monitoring and protection of endangered sites. The NM BLM agrees to serve on the Advisory Committee that coordinates and develops policies for the statewide Site Watch program.

D. HERITAGE TOURISM

The BLM is committed to fully implementing Executive Order 13287 entitled "Preserve America." The NM BLM will join with the SHPO and other State agencies such as the Department of Tourism to explore how NM BLM-managed heritage resources can best contribute to community economic development through heritage tourism. The NM BLM will seek to establish partnerships with State and local governments, Indian tribes, and the private sector to promote the preservation of heritage resources and to explore ways to realize the economic benefits these properties can provide.

E. CERTIFICATION AND TRAINING

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1. The NM BLM will implement the provisions of this Protocol only with the professional cultural heritage specialists listed in the Statewide Certification Plan. However, other NM BLM staff may assist the professional cultural heritage staff in much the same manner as crewmembers. Such assistance may take the form of assisting NM BLM professional staff in field survey and site recordation, report preparation or the maintenance of maps and records, or site protective measures.
2. The SHPO will be provided the opportunity to acknowledge and concur with the most current version of the State Certification Plan (Appendix 10), which will be a compilation of all Field Office Certification Plans, by signing the document.
3. Within each Field Office's Certification Plan, adequate levels of professional staffing needed to carry out the plan over the next five years shall be specified. Opportunities to supplement the current professional cultural heritage staff with additional permanent hires, seasonal or temporary archeologists, or industry-funded archeological positions shall be identified.
4. It is recognized that participation of NM BLM cultural heritage staff in professional societies and annual meetings (e.g. Society for American Archaeology, Society for Historical Archaeology, Southwest Symposium, Pecos Conference, Jornada Mogollon Conference, etc.) is integral to staying abreast of developments and advances in the discipline and for enhancing professional knowledge and skills.
5. SHPO will assist in development and implementation of all training connected with the Protocol. This may include updated training for NM BLM managers, NM BLM cultural heritage specialists, and SHPO staff concerning new consultation procedures, or any other NM BLM or SHPO training involving programs of mutual interest.
6. SHPO will participate in the annual review of a set of Field Offices to determine adherence to provisions of Field Office Certification Plans and compliance with the provisions of the Protocol. Within 30 days of the Field Office review, the SHPO shall submit to the BLM Deputy Preservation Officer and the Field Office Manager a written assessment of the office's adherence to the provisions of this Protocol and progress made in meeting the commitments expressed in Field Office Certification Plans.
7. If the SHPO determines that a Field Office has displayed a pattern of noncompliance with the Protocol or Field Office Certification Plan, the SHPO may request a review of a specific Field Office outside of the review schedule contained in the State Certification Plan.

F. REPORTING AND REVIEW

1. The NM BLM will provide an annual report to the SHPO containing summary information on activities conducted under this Protocol. The report will include a duplicate of the Cultural Resource Program Annual Report submitted to BLM's Washington Office.

2. In addition to data contained in the above report, the NM BLM will also annually provide succinct information on the following:

- a) Descriptions of circumstances when areas of effect were not surveyed to 100%, including projects covered by Categorical Exclusions (CX) and Determinations of National Environmental Policy Act Adequacy (DNA), and a justification for why less than Class III survey was carried out
- b) Areas considered so disturbed that no archeological inventory was called for
- c) Post-review discoveries
- d) Circumstances where NM BLM disagreed with SHPO opinion that an action constituted an undertaking
- e) Results of monitoring site conditions on those land exchanges listed in Section IV.C
- f) Schedule for completion of cultural resource inventory reports for those projects where the fieldwork has been completed but the write-up has not been finalized
- g) Any changes to or updates of individual Field Office Certification Plans
- h) The circumstances under which undertakings were approved in contradiction to the procedures contained in this Protocol.
- i) Any additions to Appendix 11, Actions Not Considered to be Undertakings.
- j) Discussion of training and professional development accomplished during the previous year for the NM BLM cultural heritage specialists
- k) Actions taken to deal with emergency situations

3. The Annual Report will be submitted to SHPO by October 31 of each year and will provide statistics for the preceding BLM fiscal year.

4. The SHPO will provide an annual report to the NM BLM on November 30 of each year. At a minimum, it will specifically address the following:

- a) Section One will provide a status report of accomplishments, budget expenditures and any concerns associated with such joint projects as the ARMS Data Share Agreement (as a separate deliverable specified in the current Assistance Agreement), Data Synthesis efforts, such as regional overviews or regional research designs, heritage education projects, and the Site Watch program.

b) Section Two will offer any suggestions for improving the 106 process as defined by the Protocol. It is here that any feedback on eligibility determinations and the monitoring of no effect projects shall be provided.

c) Section Three will describe broad patterns of permittee performance in relation to standards for completing site forms and inventory reports. Identified areas of weakness may become the subject of joint NM BLM-SHPO sponsored training courses.

d) Section Four will provide a detailed comparative analysis of the performance and productivity of individual permittees.

e) Section Five will include any suggestions concerning additional training of NM BLM cultural heritage staff needed to fulfill their responsibilities under this Protocol.

5. Meetings may be called by either party involving the NM BLM management team, NM BLM cultural heritage specialists, and SHPO staff at any time to review how well this Protocol is being operationalized.

VI. CASE-BY-CASE REVIEW PARAMETERS

A. BLM PARTICIPANTS IN SECTION 106 PROCESS

1. This Protocol is founded upon two fundamental principles. These are that 1) NM BLM management recognizes and accepts its affirmative responsibilities for compliance with the NHPA and other cultural resource management legislation, and 2) streamlined consultation procedures are the direct result of the empowerment of NM BLM cultural heritage specialists and management's commitment to maintaining a high level of training and expertise of this staff.

2. Agency officials who take legal and financial responsibility for Section 106 compliance include Field Office Managers and the State Director. Only these individuals have approval authority for undertakings.

3. As acknowledged in the BLM National PA, the NHPA, 36 CFR 800, and the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* and *Federal Agency Historic Preservation Programs* regarding identification, determinations of eligibility, and treatment, these activities must be conducted by professionally qualified individuals. Those individuals within the BLM are the cultural heritage specialists.

4. If NM BLM agency officials disagree with the advice provided to them by their cultural heritage specialists, they may consult with the SHPO concerning these disagreements under the case-by-case consultation procedures established within 36 CFR 800.

B. DETERMINATION OF UNDERTAKING

1. "Undertakings" are defined by the 1992 amendments to the National Historic Preservation Act to be "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of the agency; those carried out with Federal financial assistance; those requiring a Federal permit, license, or approval; and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency." This is the definition that will be used in this Protocol.

2. NM BLM cultural heritage specialists will consult with Appendix 11 and determine whether a proposed action constitutes an undertaking, regardless of whether the environmental consequences of the proposed action will be analyzed in a CX, DNA, or Environmental Assessment. The NM BLM acknowledges its separate legal obligations under NEPA and NHPA and the fact that actions processed under NEPA as CXs or DNAs may still be undertakings subject to the provisions of this Protocol. If there is a question whether a proposed action constitutes an undertaking that might affect historic properties, the SHPO's opinion will be sought. The SHPO will provide such an opinion within 10 calendar days of receipt of the request for the opinion. The SHPO's opinion and the NM BLM's agreement or disagreement with that opinion will be made part of the records for the proposed action. The NM BLM's annual report to the SHPO will list each case where the SHPO's opinion was sought and whether the NM BLM accepted or disputed the SHPO opinion.

3. Appendix 11 lists those actions NOT considered undertakings. This list may be modified by the NM BLM if the NM BLM determines that any other actions do not constitute undertakings. The NM BLM will notify the SHPO when it is adding another action to the list in Appendix 11.

C. DISTURBANCE

NM BLM cultural heritage specialists will determine if land disturbance or other recent geomorphological conditions within the area of potential effects have reduced or eliminated the need for cultural resource inventories. If this is the case, the NM BLM will document this for inclusion in the annual report and will approve the action with a reduced level of inventory or no inventory with no SHPO consultation.

D. INVENTORY

1. NM BLM cultural heritage specialists will determine the area of potential effects that will be subject to inventory. This determination will define the geographic area within which the

undertaking might directly or indirectly cause changes to the character or use of any historic properties should they exist.

2. If the area of potential effects has been previously inventoried, the NM BLM cultural heritage specialist will determine the adequacy of previous inventory efforts, regardless of the date of the inventory. A NM BLM decision to accept the results of past inventory efforts will be based on the geomorphological stability of the area of potential effects, the field methods used, and confidence derived from field monitoring of the results of other surveys by the investigators involved.

3. Normally, the NM BLM will require that Class III inventories (100% coverage) will be conducted within the area of potential effects for all undertakings it authorizes, licenses, or approves that have the potential to affect historic properties.

4. The NM BLM and the SHPO agree that for certain classes of undertakings, less than Class III coverage may be appropriate and sufficient to document historic properties within the area of potential effects. Less than Class III coverage is appropriate where alternative identification strategies, such as oral history interviews, background research, or Class II sample surveys are sufficient to identify historic properties within the area of potential effects; the conduct of archeological surveys would pose a health risk to the crew; the effects to any historic properties are expected to be slight or non-existent; or the effects of the undertaking can be more properly assessed later in the decision-making process. Such undertakings include:

- * Low-impact fire or fuels treatments
- * Low and moderate value mineral exchanges
- * Hazardous material cleanup

5. It is agreed between the SHPO and NM BLM that knowledge of direct effects of fires and fuel treatments upon cultural resources is evolving and that consideration of data from current and upcoming studies will inform discussions about these effects and appropriate inventory and treatment during the life of this Protocol.

6. The NM BLM and the SHPO may jointly determine that specific areas do not need to be inventoried because current information suggests that the area has little or no potential to contain historic properties. Documented low site probability areas may be described and listed as an appendix to this agreement.

7. With the exception of the situations described in VI.C., VI.D.4., and VI.D.6., whenever the NM BLM proposes to approve an undertaking with Class I and/or Class II coverage, the SHPO will be provided a full justification in writing before the undertaking is approved.

E. DETERMINATION OF ELIGIBILITY

1. Normally, determinations of eligibility will be made by the NM BLM's professional cultural heritage specialists without consultation with the SHPO. However, any NM BLM cultural heritage specialist may contact the SHPO office concerning determinations of eligibility when he or she feels that assistance or additional perspectives relating to this decision would be helpful.
2. More detailed procedures for determining the eligibility of specific site types or regionally-specific eligibility criteria may be developed by the NM BLM in cooperation with the SHPO and attached later to this Protocol. If developed, such procedures will define how eligibility determinations will be made for particular sites, culture areas, geographic regions, or Field Offices.
3. When a new cultural heritage specialist is hired by a NM BLM Field Office, that individual will conduct determinations of eligibility in one of two ways for six months after beginning his or her employment. The cultural heritage specialist may either conduct consensus determinations of eligibility in consultation with the SHPO or, for those offices with more than one cultural heritage specialist, the individual can make preliminary determinations of eligibility that are reviewed and co-signed by another of the Field Office's cultural heritage specialists listed in the office's Certification Plan.
4. The NM BLM will consult with the SHPO regarding determinations of eligibility when a) its professional cultural heritage specialist lacks the experience, formal education, or training to evaluate the properties in question or b) during controversial undertakings its determinations are likely to be questioned by project proponents, Indian tribes, or outside parties.
5. The SHPO will monitor a sample of determinations of eligibility decisions throughout the year and report on the results during periodic Field Office Protocol reviews and within the annual report prepared for the NM BLM. Indications of substantial or systematic disagreement will be reported to the NM BLM for its consideration.
6. Any determination of eligibility that indicates that the property in question is of national significance will be guided by National Register Bulletin 15, Section IX.
7. Only exceptional properties will be considered eligible for nomination to the National Register of Historic Places based on

multiple criteria. General associations with events or persons significant in the past will not be considered sufficient for determinations under Criteria A or B. As specified in National Register Bulletin 15, "A property is **not** eligible if its associations are speculative... Mere association with historic events or trends is not enough, in and of itself, to qualify under Criterion A: the property's specific association must be considered important as well... Criterion B applies to properties associated with individuals whose specific contributions to history can be identified and documented." For example, sites considered eligible under Criterion D will also be considered eligible under Criterion A only when the site is specifically mentioned in oral and written traditions; under Criterion B only when depicted rock art figures represent specific, known personages, ceremonies, or historic events and are illustrative not commemorative of the person's important achievements; and under Criterion C when the property is truly significant for its physical design or construction.

8. If the NM BLM makes a determination of eligibility without consultation with the SHPO, that determination shall be considered final for Section 106 purposes. If SHPO disagrees with a NM BLM determination of eligibility, the SHPO will provide written comments and the NM BLM will take these comments into consideration on future determinations of like properties.

9. If the NM BLM elects to make a determination of eligibility decision as a consensus determination in consultation with the SHPO and a disagreement arises between the NM BLM and the SHPO regarding the eligibility for a particular property or group of properties and if consensus cannot be achieved through further discussions, a final determination of eligibility will be sought from the Keeper of the National Register.

F. RESULTS OF IDENTIFICATION AND EVALUATION

1. If archeological surveys find only isolated manifestations or no cultural resources at all, the report will be sent in monthly to the SHPO. The undertaking will be approved by NM BLM with no SHPO consultation.

2. Undertakings that have the potential to only damage or destroy sites determined not to be eligible will be approved with no SHPO consultation. Such reports will be sent to the SHPO on a monthly basis.

3. If the inventory documents sites determined to be eligible and they cannot be avoided to achieve a situation of no effect, then the NM BLM will follow the procedures described below under DETERMINATIONS OF EFFECT/TREATMENT.

G. DETERMINATIONS OF EFFECT/TREATMENT

1. When a new cultural heritage specialist is hired by a NM BLM Field Office, that individual will conduct determinations of effect in one of two ways for six months after beginning his or her employment. The cultural heritage specialist may either conduct consensus determinations of effect in consultation with the SHPO or, for those offices with more than one cultural heritage specialist, the individual can make preliminary determinations of effect that are reviewed and co-signed by another of the Field Office's cultural heritage specialists listed in the office's Certification Plan.

2. **No Effect.** No effect is understood to mean that implementation of the undertaking will not alter the characteristics of the historic properties that would qualify them for inclusion in the National Register. If all sites documented by the inventory that are determined to be eligible for nomination to the National Register of Historic Places are avoided so that a situation of no effect results, then the report will be sent in monthly to the SHPO. The undertaking will be approved by NM BLM with no SHPO consultation. The SHPO will review a sample of such undertakings periodically throughout the year and will report the results of such monitoring in the annual report to the BLM. Any recommendations regarding no effect determinations will be given due consideration by the NM BLM.

3. **No Adverse Effect.** No adverse effects can be found when the undertaking's effects do not meet the criteria of adverse effect or the undertaking is modified or conditions imposed to avoid adverse effects.

a. **NO ADVERSE EFFECT BASED ON DATA RECOVERY.** (i) No Adverse Effect Based on Data Recovery can include treatment of historic or prehistoric archeological properties known or suspected to contain human remains. The NM BLM will determine appropriate treatment requirements for applicants or project sponsors. Copies of proposed treatment measures will be forwarded to SHPO, who shall be afforded 30 days to review and comment. Where the NM BLM cultural heritage specialist is a senior staff person with experience preparing and directing data recovery on similar sites in similar environments, no SHPO comments are expected.

(ii) The SHPO will inform the NM BLM within 10 working days if they will comment. If the SHPO does comment, they will do so within the 30-day time limit. If the SHPO objects to the adequacy of the treatment measures, the NM BLM and the SHPO must reach an agreement or the disagreement will be forwarded to the Advisory Council for their input in accordance with Section 4 of the PA. Following Advisory Council comment, the NM BLM will make a final decision.

(iii) "Agreed-Upon-Treatment-Measures" may be defined for certain classes of historic properties. They may be attached to this protocol and periodically updated through amendments to the protocol. Undertakings that employ the Agreed-Upon-Treatment-Measures for affected historic properties in specified regions can be authorized by the NM BLM without waiting for SHPO comment and concurrence. (Previous examples of such agreed upon treatments include the Fruitland Coal Gas Gathering System Data Comparability Guidelines and Overview and Research Design for the Fruitland Coal Gas Development Area). The NM BLM will notify the SHPO when proposing to use these measures in a new geographic region prior to implementation.

b. NO ADVERSE EFFECT WHERE EFFECT IS POSITIVE. For those undertakings that will affect historic properties positively, such as stabilization/restoration projects, the same procedures presented in paragraphs VI.G.3.a (i-iii) above will be followed.

4. **Adverse Effect.** Adverse effects occur when an undertaking will alter the characteristics of historic properties that qualify them for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects include reasonably foreseeable effects caused by the undertaking that are later in time or further removed in distance.

a. For those undertakings where the adverse effects to historic properties cannot be fully mitigated through some form of study or treatment, the NM BLM will consult with the SHPO to devise treatments that will minimize the adverse effects. A Memorandum of Agreement (MOA) shall be executed between the SHPO and the NM BLM to document their agreement regarding how adverse effects will or will not be treated. If the NM BLM and the SHPO cannot reach agreement regarding an acceptable response to a situation of adverse effect, the issue will be raised with the Advisory Council. Following input from the Advisory Council, the NM BLM will make a final decision.

b. When an undertaking will directly and adversely affect a National Historic Landmark (NHL), the NM BLM shall, to the maximum extent possible, undertake such planning and actions to minimize harm to the NHL. The NM BLM will consult with the SHPO and the Secretary of the Interior, usually represented by the National Park Service, regarding effects or treatments to NHLs. The NM BLM will also consult with the Advisory Council pursuant to Section 4.b.2 of the PA. Following receipt of input and advice from the Advisory Council, the NM BLM will make a final decision.

VII. POST-REVIEW DISCOVERIES**A. PLANNING FOR DISCOVERIES**

The NM BLM will encourage applicants to develop discovery plans for large and complex undertakings and those involving land disturbance in areas known to contain buried sites. Copies of such discovery plans will be forwarded to the SHPO along with any proposed treatment plans according to the provisions of VI.G.3.a.

B. UNPLANNED DISCOVERIES

If sites are discovered in the absence of a discovery plan, the NM BLM will make reasonable efforts to avoid, minimize, or mitigate adverse effects to those historic properties discovered. The NM BLM will halt any further actions that could cause additional damage to the discovered sites. The NM BLM will determine the National Register eligibility of the sites within 72 hours of discovery. For eligible properties that will be adversely affected, the NM BLM will insure that a treatment plan is prepared. The treatment plan will specify actions that will be taken to mitigate or minimize adverse effects to the historic properties. Any such unplanned discoveries and selected treatments will be reported fully in the annual report that the NM BLM will provide to the SHPO.

VIII. EMERGENCY SITUATIONS

In the face of emergency unplanned undertakings, such as wildland fire suppression, the NM BLM will meet its Section 106 obligations in the following manner. The NM BLM will make reasonable efforts to avoid, minimize, or mitigate adverse effects to those historic properties discovered. To the extent that such actions do not threaten life or property, the NM BLM will halt further actions until the discovered sites can be evaluated. Such evaluations of significance are expected to occur within 48 hours of discovery. For eligible properties, the preferred course of action will be to redesign the project so that adverse effects are avoided. To the extent that such actions will not threaten life or property for eligible properties that will be adversely affected, the NM BLM will insure that a treatment plan is prepared and executed. A complete report on any emergency situations, any affected historic properties, and any data recovery carried out will be included in the annual report provided by the NM BLM to the SHPO.

IX. NATIVE AMERICAN TRIBAL GOVERNMENT PARTICIPATION

A. Native American tribal governments will be encouraged to raise issues, express concerns, provide information, and identify

resources and places they would like the NM BLM to consider in its decision making.

B. The NM BLM recognizes that some cultural properties of traditional importance can only be identified through information supplied by the tribes and that the NM BLM has a responsibility to consult with tribes regarding the identification and determinations of effects to such properties.

C. In reaching a decision on how to treat affected historic properties, the NM BLM will fully consult with tribes as required by NHPA, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and other applicable legal mandates. Such consultation will occur regardless of the streamlined procedures governing NM BLM-SHPO consultation on treatment and will occur whether or not Agreed-Upon-Treatment-Measures have been negotiated and agreed to by the NM BLM and SHPO for certain classes of historic properties. After considering tribal input, the NM BLM will make the decision on how to proceed with appropriate treatment.

D. While consultations regarding specific undertakings may occasionally occur, the NM BLM will usually consult with Indian tribes programmatically through the public participation opportunities afforded by the land use planning and environmental review processes associated with the development of EISs and other large-scale regional plans.

E. In addition, the NM BLM will comply with the following guidance:

* BLM Manual 8120, Tribal Consultation under Cultural Resource Authorities.

* BLM Handbook H-8120-1, Guidelines for Conducting Tribal Consultation.

X. NM BLM RESPONSIBILITIES ON NON-FEDERAL LANDS

A. The intent of the National Historic Preservation Act is to consider the effects of Federal decision-making on historic properties regardless of the land status involved. Therefore, the NM BLM will assure that its actions and authorization are considered in terms of their effects on cultural resources located on non-Federal lands as well as Federal lands.

B. The NM BLM will determine the extent of its responsibility for identifying and mitigating adverse effect to non-Federal historic properties even if the undertaking is processed as a CX or DNA based on the independent evaluation of the following factors:

- 1) Would the project remain viable if the Federal authorization were not provided?
- 2) How likely are historic properties in the area of potential impact?
- 3) The amount of NM BLM lands involved.
- 4) The degree to which NM BLM authorizations affect the location of surface disturbing activities on non-Federal lands.

C. The NM BLM will conduct, or cause to be conducted, an inventory and evaluation of cultural resources on non-Federal lands within the area potentially impacted by proposed land uses, whether the undertaking was initiated by NM BLM or in response to a land use application.

D. The NM BLM will consider the effects of its decision-making upon historic properties. It will either mitigate, or cause to be mitigated, adverse effects to non-Federal historic properties that would result from land uses carried out by or authorized by NM BLM or will consult with the SHPO and Advisory Council on the basis of an adverse effect determination.

E. When mitigation involves data recovery, adequate time will be allocated for the analysis of the artifacts, samples, and collections recovered from non-Federal lands and for report preparation. The artifacts, samples, and collections recovered from non-Federal lands remain the property of the non-Federal landowner unless donated to the Federal Government, a State facility, or are otherwise subject to State law. The NM BLM must receive complete and true copies of field notes, maps, records of analyses, photographs, other data, and reports when mitigation work is conducted on behalf of the Federal Government. Reports resulting from work on non-Federal land will be made available to the landowner.

F. Identification and/or mitigation of adverse effects may be required as a condition of a lease, permit, or license issued by NM BLM, whether Federal or non-Federal lands are involved.

G. Because local regulations or state law (such as the New Mexico Cultural Properties Act, as amended 18-6-1 through 17) may still apply to the non-federal portions of an undertaking, the NM BLM will clarify for project sponsors the circumstances under which state, federal, or other laws and regulations apply.

XI. LEGAL ENFORCEABILITY

The BLM's National PA requires that each BLM state develop a Protocol agreement with their SHPO that specifies how they will interact under the PA. This Protocol between the NM SHPO and the NM BLM fulfills a key prerequisite for the NM BLM to operate under the terms of the PA. As such, this Protocol is a legally enforceable document in a court of law for those parties,

including the SHPO, with legal standing under 36 CFR 800 or as otherwise allowed under NHPA.

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XII. AMENDING THE PROTOCOL

A. Should changes occur to the National Historic Preservation Act, 36 CFR 800, or the National Programmatic Agreement, the SHPO and the NM BLM will meet and discuss the need to amend this document to reflect changes in the authorities under which the Protocol functions.

B. If the NM BLM or the SHPO wish to amend this Protocol at any time, they will consult to consider requested changes. Amendments will become effective when signed by both parties.

C. Five years from the last signature date of this agreement, the parties will formally review its terms and propose any needed revisions.

XIII. DISPUTE RESOLUTION

A. If, at any time, the NM BLM or the SHPO questions case-specific actions taken or recommendations made under this Protocol, they will consult to resolve the issue. If the issue involves actions proposed or taken by a Field Office, the SHPO will consult with the Field Office Manager to resolve it. If the issue cannot be resolved, the questioning party will request the assistance of the Deputy Preservation Officer to resolve the issue. If the issue still cannot be resolved, the Deputy Preservation Officer will refer it to the BLM Preservation Board. The BLM Preservation Board will provide recommendations to the State Director, who will make the final decision.

B. During the course of a case-specific dispute, the undertaking may continue, provided that no actions are taken which would adversely affect the properties involved in the dispute.

C. If any Native American tribal government or any member of the public objects at any time to the process by which this Protocol is being implemented, the NM BLM and the SHPO will together consult with the objecting party to resolve the issue. If the NM BLM, SHPO, and objecting party are unable to resolve the issue, the NM BLM will refer the matter to the BLM Preservation Board. The BLM Preservation Board will provide recommendations to the State Director, who will make the final decision. Such a final decision is subject to the appeal process described in 43 CFR Part 4.

XIV. TERMINATION OF PROTOCOL


The NM BLM or the SHPO may terminate this Protocol by providing sixty days notice to the other party, provided that they consult during this period to seek agreement on amendments to the Protocol, Field Office Certification Plans, or other actions that would avoid termination. The Deputy Preservation Officer or the SHPO may request the assistance of the BLM Preservation Board, National Council of State Historic Preservation Officers, or the Advisory Council on Historic Preservation in the consultation. If the Protocol is terminated for the entire state, the NM BLM will resume operating under the provisions of PMOA No. 168. (If an individual Field Office is decertified, that Field Office will operate under 36 CFR 800).

XV. APPENDICES

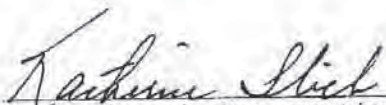
The following appendices are attached and incorporated into this Protocol:

1. NM BLM-SHPO Private Land Exchanges or Sales MOA
2. NM BLM-SLO-SHPO MOU on Land Exchanges
3. NM BLM-SHPO ARMS Assistance Agreement
4. Definition of Isolated Manifestations and Sites
5. NMCRIS Site Form Standards
6. NM BLM Small-scale Inventory Report Standards
7. NM BLM Large-scale Inventory Report Standards
8. NM BLM Data Recovery Report Standards
9. NM BLM-SHPO Data Synthesis, Heritage Education, and Site Stewardship Program Assistance Agreement and Modification One
10. NM BLM Statewide Certification Plan
11. List of Actions Not Considered to be Undertakings
12. Information Bulletin No. 2002-101, "Cultural Resource Considerations in Resource Management Plans"

APPROVED BY:


New Mexico State Director
Bureau of Land Management


Date


State Historic Preservation Officer
New Mexico


Date

K.2.4.8 Utah Protocol

**STATE PROTOCOL AGREEMENT BETWEEN
THE UTAH STATE DIRECTOR OF THE BUREAU OF LAND MANAGEMENT
AND THE UTAH STATE HISTORIC PRESERVATION OFFICER (SHPO)
REGARDING THE MANNER IN WHICH THE BUREAU OF LAND MANAGEMENT
(BLM) WILL MEET ITS RESPONSIBILITIES UNDER THE NATIONAL HISTORIC
PRESERVATION ACT (NHPA) AND THE NATIONAL PROGRAMMATIC
AGREEMENT (PA) AMONG THE BLM, THE ADVISORY COUNCIL ON HISTORIC
PRESERVATION (COUNCIL), AND THE NATIONAL CONFERENCE OF STATE
HISTORIC PRESERVATION OFFICERS (NCSHPO)**

This Protocol Agreement (Protocol) supplements the above-referenced national PA, and pertains to Sections 106, 110, 111 (a) and 112 (a) of the NHPA. It describes specific procedures regarding how the Utah SHPO and the BLM will interact and cooperate under the national PA. The goals of this Protocol and the national PA are to enhance planning for and management of historic properties under the BLM's jurisdiction or control and to ensure appropriate consideration of historic properties outside BLM's jurisdiction, but which may be affected by its actions. Undertakings involving non-federal lands for which BLM is considered the lead agent shall be considered federal actions and will be subject to requirements outlined in this Protocol. This agreement does not apply to tribal lands as defined in NHPA. The following are the agreed-upon procedures of the Protocol.

I. RELATIONSHIP OF THIS PROTOCOL AGREEMENT TO OTHER AGREEMENTS

All general compliance agreements not including on-going project specific programmatic agreements or MOAs, are terminated. Any BLM manager in Utah who elects not to follow the process set forth in this Protocol will comply with 36 CFR 800 procedures regarding individual undertakings until his or her difficulties with applying the Protocol are resolved following procedures detailed in Section IX (A), after which use of this Protocol will resume.

SHPO and BLM agree that (1) BLM conducts continuing programs and carries out specific undertakings that involve land disturbance and modification of the built and natural environments, and; (2) BLM bears legal responsibility for carrying out such undertakings consistent with the National Historic Preservation Act (NHPA), and that; (3) BLM's undertakings, including actions assisted, licensed, permitted, approved, funded, or authorized by BLM, being "undertakings" as defined in the Code of Federal Regulations [36 CFR 800.16(y)], are numerous, complex and far-reaching in their effects on lands and properties in Utah.

The following procedures will be implemented by the BLM under this Protocol to fulfill its responsibilities under the above-mentioned authorities.

II. ADMINISTRATIVE INTERACTION AND REPORTING PROCEDURES

BLM will send project logs (Attachment A) to the SHPO at the time BLM prepares its annual report to the Secretary of the Interior, usually in November or December. BLM will also prepare a summary report (Attachment B) that describes the implemented actions taken in the previous fiscal year and actions that are anticipated in the coming fiscal year. This report will be due to the SHPO by October 30th of each year, and will include information as outlined in Attachment B. By November 30th of each year, the SHPO will prepare a report that assesses the overall

effectiveness of BLM's implementation of this Protocol and makes recommendations for actions to be taken by BLM. The BLM will consider SHPO's assessments and recommendations for future actions and will apply them to the plan for the following fiscal year, as appropriate. If SHPO is not satisfied with BLM's response, procedures Section IX (A), below may be followed.

The SHPO, a BLM line manager, BLM's Deputy Preservation Officer for Utah, and the BLM Utah Cultural Resources Specialists will meet annually in November, or more often as needed, to discuss pertinent issues. The Council will be invited to participate. At the Annual meeting, the SHPO and BLM will exchange information relevant to the goals and objectives set forth in this Protocol. Other meetings to address emerging issues and their effects on historic properties may be arranged as necessary.

III. BLM AND SHPO INVOLVEMENT IN THE BLM STATE MANAGEMENT PROCESSES

BLM shall provide the SHPO the opportunity to participate at the development stage and all subsequent phases of land use planning in accordance with 43 CFR 1610.3 (Coordination with Other Federal Agencies, State and Local Governments, and Indian Tribes). BLM will provide the SHPO with all land management plans (e.g., Resource Management Plans, Cultural Resource Management Plans), special use plans (e.g., Fire Management Plans) and appropriate NEPA documents. Such plans will document methods to gain public input.

IV. COOPERATIVE PROGRAM DEVELOPMENT AND ACTIVITIES

A. Data Sharing and Information Management

1. Reporting. BLM will document all Undertakings. BLM will submit to the SHPO copies of all fieldwork reports for historic property inventories and Intermountain Antiquities Computer Site Forms (IMACS) as soon as possible after completion of the work, but not later than three months following completion of the fieldwork. If a final report will not arrive at the SHPO's office within the three month deadline, the BLM will notify the SHPO in writing, and will include in the correspondence a plan for completion and the expected date of submission.

BLM will review the work of permitted contractors and will ensure that Utah State Report Guidelines and the Secretary of the Interior's Standards and Guidelines (Secretary's Standards) are met in all documentation prepared by contractors and by all BLM staff.

All "backlog" documentation that exists in BLM files and which predates the signing of this Protocol will be submitted to the SHPO within twelve months of the implementation of this Protocol. Elimination of the backlog documentation is a condition of continuing field office certification. If the documentation will not arrive at the SHPO's office before the deadline, BLM will notify SHPO in writing, and will include in the correspondence a plan for completion and the expected date of submission.

2. Data exchange. The SHPO and BLM shall exchange information on a constant basis regarding the location and evaluation of cultural resources. Each agency will assure that such locational information is protected from unauthorized use. As appropriate, information exchange will be through the development of an automated database, managed by the SHPO. BLM will assist the SHPO in developing the system by providing financial, personnel, hardware and software resources, as funding becomes available (Memorandum of Understanding, February of 1996).

The SHPO will provide the BLM with automated cultural resources information and with reasonable amounts of hard copy information not yet available in the database, as requested by the BLM. Charges may be assessed and are subject to negotiation at the annual November meeting.

3. Maintenance of files. BLM and SHPO will support and maintain a fully compatible and up-to-date database. The BLM and SHPO will incorporate the results of project-specific surveys into the database as the results are produced. The review and analysis will be performed by BLM and SHPO annually, in time for the yearly meeting.

B. State-Level Historic Preservation Training

The SHPO will be offered the opportunity to assist the BLM in on-going training of field managers and supervisors, as well as of cultural resources staff, for certification purposes. Training resources might include, but are not limited to: Section 106 and Section 110 Training, planning documents, NAGPRA, and other training as necessary.

C. Public Outreach and Participation

BLM will develop and implement plans in support of public education and community outreach, along with cooperative stewardship and site protection, in consultation with SHPO. BLM will continue with its Project Archaeology Program and other Heritage Education efforts.

BLM will seek and consider the views of the public and Indian Tribes when carrying out the actions under the terms of this Protocol. BLM may coordinate this public participation requirement with those of the NEPA and the Federal Land Policy and Management Act of 1976 (FLPMA), along with other pertinent statutes. Interested parties shall be invited to consult in the review process [Section VII (B) below] if they have interests in a BLM undertaking or action on historic properties. Such interested parties may include, but are not limited to, local governments, especially those with historic preservation ordinances or resolutions (Attachment D); grantees, permittees, or owners of affected lands or land surfaces; and other interested parties, as determined by the BLM and SHPO.

V. NATIVE AMERICAN PARTICIPATION

BLM will comply with the NHPA, and the Native American Graves Protection Act (NAGPRA) and other applicable statutes if a property is subject to those laws. BLM will seek and consider the views of Indian tribes in accordance with the requirements of these and other statutes, regulations and policy directives including Executive Orders, Manuals, and memoranda.

VI. IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

A. Identification

BLM will make reasonable efforts to identify all historic properties and sacred sites on BLM-administered lands and private lands where a BLM undertaking will occur within Utah. BLM will ensure that project-specific surveys and other efforts to identify historic properties are conducted in accordance with appropriate professional standards, as defined in the Secretary's Standards, and the BLM's 8100 Manual.

B. Evaluation

During all inventories, BLM will ensure that historic properties identified are evaluated in a manner consistent with the Secretary's Standards, 36 CFR Part 60.4 and BLM's 8100 Manuals.

VII. SHPO Review Parameters

BLM shall complete inventory, evaluation and assessment of effects and the written documentation of these findings before proceeding with project implementation. Most of BLM's undertakings are routine in nature, and will normally be permitted to proceed and will not await submission of formal documentation to SHPO. For other undertakings, as described in Section V11 (A), below, BLM will consult with SHPO prior to implementation of the action. BLM will discuss the issue with SHPO in cases where there is any uncertainty.

A. Review Thresholds

A. At a minimum, the BLM will request the review of the SHPO along with the Council (as determined by the national PA) in the following situations:

- (1) non-routine interstate and/or interagency projects or programs;
- (2) undertakings that directly and adversely affect National Historic Landmarks or National Register eligible properties of national significance.
- (3) highly controversial undertakings, when Council review is requested by the BLM, SHPO, an Indian Tribe, a local government, or an applicant for a BLM authorization.

B. The BLM will request the review of SHPO in the following situations:

- (1) undertakings affecting National Register eligible or listed properties.
- (2) land exchanges, land sales, Recreation and Public Purpose leases, and transfers.
- (3) when BLM professional staff lack the appropriate regional experience or professional expertise, and until performance is mutually acceptable to the BLM Deputy Preservation Officer and SHPO.
- (4) when BLM's professional cultural resources staff wishes to bring a particular project to the attention of SHPO.

C. At a minimum, the BLM will not request the review of the SHPO in the following situations (except for the four circumstances at (B)above):

- (1) No Potential to Effect determinations by qualified BLM staff.
- (2) No Historic Properties Affected; no sites present, determined by qualified BLM staff.
- (3) No Historic Properties Affected; no eligible sites present, determined by qualified BLM staff.

- (4) No Historic Properties Affected; eligible sites present, but not affected as defined by 36CFR800.4.

When the above review thresholds are met, the following process will be undertaken.

B. Review Process

BLM will make determinations of eligibility according to 36 CFR Part 60.4 and effects according to criteria set forth in 36 CFR 800.5. BLM will confer with SHPO whenever questions about eligibility and/or effect arise. As appropriate, BLM shall invite interested parties to consult.

BLM will provide documentation in the form of complete and accurate IMACS site forms and inventory reports, as appropriate, to the SHPO, on all projects and undertakings. An informational letter (Attachment D, informational) will accompany this documentation. The SHPO may comment, in writing, on BLM's findings. The BLM will respond, in writing, to any SHPO comments. Both parties will include such comments and responses in the annual report that assesses effectiveness of the Protocol under Section 11.

Inventory will be documented following the Secretary's Standards, BLM procedures and 8100 Manual. Prompt transmission of this documentation will assure an updated database and will occur no later than three months after completion of fieldwork as described in Part IV (A) (1) above.

If a historic property will be affected, BLM will determine whether an MOA or a Treatment Plan is appropriate, in consultation with SHPO, and will document this in the concurrence letter (Attachment D, concurrence). When an adverse effect cannot be avoided through project redesign, BLM will prepare and implement an MOA or Treatment Plan for each property, group of properties, or class of properties that have been determined eligible for inclusion in the NRHP. The Treatment Plan or MOA will take into account the national policies set forth in Section 2 of the NHPA, as amended, and current professional standards. BLM and SHPO will jointly prepare MOAs. BLM will afford the SHPO 15 working days in which to comment upon Treatment Plans. If the SHPO and the BLM cannot reach agreement, dispute resolution procedures will be followed [Part IX (A)].

C. BLM Review

Within six months after signing of this Protocol, BLM and SHPO will meet to review the implementation of this Protocol.

BLM's Deputy Preservation Officer will conduct reviews of each field office (Attachment E), at least annually, in sufficient detail, to determine:

- (1) whether a qualified professional cultural resources staff is present;
- (2) whether undertakings are receiving appropriate cultural resource consideration;
- (3) whether project documentation is being completed and sent to SHPO in a timely manner;
- (4) whether cultural resource identification, evaluation and treatment has occurred before undertakings proceed;
- (5) whether final reports of treatment are being completed and sent to the SHPO; (7) whether follow-up monitoring, where required by avoidance stipulations, MOA or treatment plan specifications, is being completed.

D. Monitoring

The SHPO may monitor projects through field visits and inspection of records. The BLM will cooperate with the SHPO's monitoring activities.

E. Discoveries

In the event that potentially eligible historic properties are discovered during the course of ground disturbance and cannot be avoided, work in the immediate vicinity of the discovery will cease. BLM will evaluate the site and, in consultation with the SHPO, select the appropriate mitigation option. The BLM will implement the mitigation in a timely manner. The process will be fully documented (in reports, site forms and photographs), and the documentation will be forwarded to the SHPO. Large-scale projects will include a discovery process in the treatment plan. If any discovery involves NAGPRA materials, BLM will follow specific requirements of NAGPRA (43 CFR 10).

VIII. STAFFING

A. BLM will strive to hire professional staff that meet manual requirements. Field offices will employ at least one full-time, permanent professional, or will make arrangements to have their workload covered by a qualified professional from another office, or will work with Utah State Office and the SHPO to agree on temporary measures to cover the professional staffing needs of that office.

B. State Certification

BLM-Utah will ensure that expertise in prehistoric archaeology, historic archaeology, industrial archaeology, history, architectural history, historic architecture, Native American coordination, public outreach/heritage education and Traditional Cultural Properties (identification, evaluation and treatment) is available to all BLM-Utah staff (Attachment F). If BLM determines that it does not employ a staff member with a particular skill, it will obtain that expertise for the purpose of determining National Register eligibility, effects, and treatment for the cultural resources in question. The BLM may request the assistance of SHPO staff in such cases or may obtain the necessary expertise through contracts, BLM personnel from other states, or cooperative arrangements with other agencies.

When personnel changes occur, e.g., staff specialists or managers leave, field office certification will be reviewed. Until positions are filled and training is completed, BLM will ensure that qualified personnel are available to conduct the tasks outlined in this Protocol. If decertification is a possibility, the procedures in Section 8 of the national PA will be followed. Certification training topics will include, at a minimum, the national PA, the Protocol, and a review of the Handbook.

IX. DISPUTE RESOLUTION PROCEDURES, AMENDMENTS, AND TERMINATION

A. Dispute Resolution Procedures

Should the BLM or the SHPO object, in writing, within 30 days, to an action taken by the other party to this Protocol, they will consult to resolve the objection. If the dispute cannot be resolved, BLM and SHPO will mutually determine a course of action. Options might include consultation with the National Preservation Board, the Council or alternative dispute resolution procedures. If alternative arrangements are not mutually agreeable, the dispute will be referred to the Council.

B. Amendments to the Protocol

The BLM or the SHPO may request amendment of this Protocol at any time, whereupon the parties will consult to consider such amendment. Amendments will become effective upon signature of both parties and will be attached hereto.

C. Termination of the Protocol

The BLM or the SHPO may terminate this Protocol by providing thirty (30) days written notice to the other party, providing that the parties consult during this period to seek agreement on amendments or other actions that would avoid termination. Either may request the assistance of State Director, the Preservation Board, and/or the Council. In the event of termination, the BLM will operate under the provisions of 36 CFR Part 800 as described in Section 1.

X. OTHER STATE-SPECIFIC PROCEDURES

BLM will follow procedures and adhere to policies detailed in BLM Utah Manual Guidance: the Procedures (Attachment C) and other supplemental manual guidance, along with IMACS site forms. BLM and SHPO will jointly develop and revise handbooks and other guidance as necessary.

XI. ATTACHMENTS

Attachments may be added to this Protocol with the mutual approval of the SHPO and the BLM. Referenced attachments are:

- A. Example Project Log Page
- B. Outline of Topics Covered in Colorado BLM/SHPO Annual Report
- C. Procedures for Professionals
- D. Cover Letters
- E. BLM Review Form
- F. Professional Certification Information

BUREAU OF LAND MANAGEMENT

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By Date

UTAH STATE HISTORIC PRESERVATION OFFICER

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By Date

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APPENDIX L:
GIS DATA SOURCES AND METHODOLOGY

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APPENDIX L:

GIS DATA SOURCES AND METHODOLOGY

L.1 INTRODUCTION

Geographic information system (GIS) technology was instrumental in much of the analysis and all of the maps created for the “Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States” (Solar PEIS). GIS is a computer system for performing geographical analysis. GIS has four interactive components: (1) an input subsystem for converting into digital form (digitizing) maps and other spatial data; (2) a storage and retrieval subsystem; (3) an analysis subsystem; and (4) an output subsystem for producing maps, tables, and answers to geographic queries (Encyclopædia Britannica Online 2010a).

L.1.1 The Need for Geographic Information System Technology in the Solar PEIS

Within the six-state study area evaluated in the Solar PEIS, the U.S. Department of the Interior (DOI) Bureau of Land Management (BLM) administers almost 120 million acres (486,000 km²) of public lands covering approximately 7,355 paper topographic maps at a scale of 1:24,000. Not counting base data (roads, cities, county boundaries, etc.), approximately 50 separate layers of geospatial information—each covering a different topic—were analyzed and/or mapped in support of PEIS analyses.

These statistics highlight the fact that the broad geographic region being discussed by the Solar PEIS, coupled with the detailed analysis needed for the proposed solar energy zones (SEZs), made GIS technology essential both in the preparation of the document and in clearly presenting the document’s information to the public.

L.1.2 Data Standards and the Solar PEIS Master Geospatial Database

Geospatial data acquired for analysis in the Solar PEIS were assembled into a Master Geospatial Database residing on its own secure server. To the extent possible, the database adheres to applicable federal data standards.

Naming conventions and directory structures were derived from the Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) established by the U.S. Department of Defense (SDSFIE 2010).

When feasible, metadata have been attached to geospatial data in accordance with the Content Standard for Digital Geospatial Metadata endorsed by the Federal Geographic Data Committee (Federal Geographic Data Committee 1998). However, much of the data received from various sources were not accompanied by metadata. In these cases, an attempt was made to fill in a minimum of information before releasing the data to the public.

1 All data in the Master Geospatial Database were referenced to the Albers Equal Area
2 Conic projection with the central meridian at 114° west.

3
4 Along with the Master Geospatial Database, all data received for the project were
5 inventoried and kept in separate state-specific directories.

6 7 8 **L.2 DATA SOURCES AND LIMITATIONS** 9

10 GIS technology is only as good as the geospatial data that it uses for calculations and
11 analysis. Geospatial data consist of points, lines, polygons, and images, each with a special
12 data attribute that places features in their correct locations on the Earth, using one of the many
13 coordinate systems that have been established for this purpose.

14
15 While any piece of information with a specific location can become geospatial data, all
16 geospatial data must be digitized specifically for use in a GIS. Certain satellite, aerial, and
17 ground survey systems have been developed to create geospatial data from the survey data
18 automatically. However, most of the land use data needed for the Solar PEIS have been digitized
19 into geospatial data from conventional sources such as paper maps or aerial photos.

20
21 The accuracy of geospatial data digitized from conventional sources is difficult to express
22 in numerical terms. Although the accuracy of a U.S. Geological Survey (USGS) topographic
23 map (for instance), is stated to conform to U.S. National Map Accuracy Standards, the
24 registration of that map to a digital geospatial coordinate system is not always perfect, due to the
25 instability of paper caused by temperature and humidity. The skill of the person digitizing the
26 data is another factor in data accuracy, as that person makes constant decisions about how
27 closely to follow a jagged line or just where the center of a printed dot really is. Geospatial data
28 also include attributes such as feature names or other text entries that can be misspelled or
29 incorrectly entered. Finally, geospatial data are usually digitized for a certain purpose and may
30 not be appropriate for other uses.

31
32 Usually, part of the purpose of digitizing geospatial data is to be able to view them at a
33 certain map scale. Map scale refers to the size of the representation on the map as compared to
34 the size of the object on the ground (Encyclopædia Britannica Online 2010b). Large-scale maps
35 show the most detail and the least area. Small-scale maps show the least detail and the most area.

36
37 Geospatial data digitized for large-scale maps are not usually appropriate for use in
38 small-scale maps because small areas may lose their shapes, lines may blend together, and
39 jagged or curvy lines may look like thick lines. Once digitized, GIS tools can create a
40 “generalized” version of the geospatial data so that they can be displayed on a small-scale
41 map. However, the small-scale version will be less accurate than the original.

42
43 Likewise, geospatial data digitized for small-scale maps are usually not appropriate for
44 use in large-scale maps because they are not accurate enough to show the details expected from
45 a large-scale map. Once digitized for a small-scale map, geospatial data cannot be made more
46 accurate without expending the time and effort to basically redigitize them.

1 In the discussion of specific geospatial data sources to follow, the intended map scale will
2 be stated, if known. Otherwise, estimates of the digitized scale will be stated using the following
3 categories:

- 4
- 5 • Small Scale: The data were created to map regional areas such as large parts
6 of individual states (scales smaller than 1:2,000,000).
- 7
- 8 • Medium Scale: The data were created to map areas generally the size of a
9 county or National Forest (scales between 1:500,000 and 1:2,000,000).
- 10
- 11 • Large Scale: The data were created to map areas generally smaller than a
12 county or National Forest (scales larger than 1:500,000).
- 13
- 14

15 **L.2.1 Bureau of Land Management GIS Data**

16

17 The following is a discussion of the data received from the BLM, which form the basis
18 for most of the geospatial analysis performed for the Solar PEIS.

19

20

21 **L.2.1.1 Surface Management Agency Database**

22

23 According to the metadata that accompanies it, the “Surface Management Agency
24 data layer portrays tracts of federal land for the United States and classifies these holdings by
25 administrative agency. Multiple federal agencies have contributed to the contents of this layer
26 and it is in a continuous state of update. Source and date of feature updates are tracked to the
27 feature level.

28

29 This layer provides an answer for the question of who is the administrator of a
30 federally held parcel of land. It was created as a national reference theme for use with the
31 GeoCommunicator’s Land Manager Viewer (<http://www.geocommunicator.gov>).

32

33 This layer is a dynamic assembly of spatial data layers maintained at various federal and
34 local government offices. The best known available data layers from these sources have been
35 harvested and integrated into this layer. This layer represents a work in progress” (BLM 2010a).

36

37 As received from the BLM, the data are not topologically correct. This means that
38 overlaps can occur, which can allow two features to cover the same area. For instance, this could
39 mean that land administered by the U.S. Forest Service (USFS) can occupy the same area as land
40 administered by the BLM. In some cases, two features administered by the same federal agency
41 can also overlap.

42

43 Because acreage estimates using GIS technology must be based on topologically correct
44 geospatial data (i.e., no overlaps), Argonne National Laboratory, in consultation with the BLM
45 National Applications Office, developed GIS tools to essentially take the Surface Management

1 Agency data apart and put them back together again, giving preference to the most accurate data
2 received from various federal agencies, in a topologically correct layer, with no overlaps.
3

4 The processed Surface Management Agency data form the foundation for all calculations,
5 analysis, and maps regarding BLM land. It is important to note that these data were digitized at
6 various scales by different local BLM offices for various uses. At one time, the data contained a
7 caveat that they were not to be displayed at scales larger than 1:2,000,000. That caveat has been
8 removed, but experience with the data indicates that their accuracy is still about the same.
9

10 The dynamic nature of the data is noted in the metadata. Updates to administered land
11 parcels occur often at the local level. Updates to the Surface Management Agency data occur
12 less frequently. Also, the National Applications Office was directed to discontinue updates of
13 Surface Management Agency data in the fall of 2009. The last version of the data received for
14 the Solar PEIS was dated September 14, 2009. All of these limitations explain why there may be
15 discrepancies between data and maps produced for this PEIS using Surface Management Agency
16 data, and data and maps produced at the local level. Nonetheless, the Surface Management
17 Agency data were designed for planning purposes, making them appropriate for use in the Solar
18 PEIS. They are considered to be appropriate for display at medium scales.
19
20

21 **L.2.1.2 National Landscape Conservation System** 22

23 The National Landscape Conservation System (NLCS) includes more than 886 federally
24 recognized areas and approximately 27 million acres (109,265 km²) of National Monuments,
25 National Conservation Areas, Wilderness Areas, Wilderness Study Areas, Wild and Scenic
26 Rivers, National Scenic and Historic Trails, and Conservation Lands of the California Desert
27 (BLM 2010b).
28

29 The protected lands of the NLCS have been excluded from BLM-administered lands
30 being analyzed for solar energy development. Unlike the Surface Management Agency data,
31 geospatial data for these protected lands were not available in a consolidated form during the
32 time when the Solar PEIS was being prepared. This necessitated the compilation of data layers
33 to represent each of the protected areas in the NLCS using the best available sources.
34
35

36 **L.2.1.2.1 National Monuments.** Geospatial data for National Monuments were
37 compiled (assembled) from the best available data from the following sources:
38

- 39 • BLM Surface Management Agency data (see L.2.1.1., Surface Management
40 Agency Database);
41
- 42 • U.S. Forest Service Inventoried Roadless and Specially Designated Areas
43 (USFS 2010b);
44
- 45 • U.S. Fish and Wildlife Service;
46

- Administrative Boundaries of National Park System Units (National Park Service 2010);
- U.S. Geological Survey “fedlands” dataset (from the National Atlas [nationalatlas.gov 2009]); and
- National Trust for Historic Preservation (National Trust for Historic Preservation 2010).

These data are appropriate for display at medium scales.

L.2.1.2.2 National Conservation Areas. Geospatial data for National Conservation Areas were extracted from Surface Management Agency data (see L.2.1.1., Surface Management Agency Database) with additions from the BLM Utah State Office.

L.2.1.2.3 Designated Wilderness, Wilderness Study Areas, and Instant Study Areas. Geospatial data for Designated Wilderness, Wilderness Study Areas, and Instant Study Areas were compiled from the best available data received from the following sources:

- BLM state and/or field offices;
- U.S. Forest Service Inventoried Roadless and Specially Designated Areas; and
- U.S. Geological Survey “fedlands” dataset (from the National Atlas [nationalatlas.gov 2009]).

These data are appropriate for display at large to medium scales.

L.2.1.2.4 Wild and Scenic Rivers. Geospatial data for Wild and Scenic Rivers were acquired from the National Wild and Scenic Rivers System. According to the accompanying metadata, “Stream segment data [is] compiled from a variety of sources. Original National Wild and Scenic River system dataset [is] compiled by the USGS National Atlas in 2000. This source data is 1:2,000,000 scale. New segments added to the system since 2000 obtained and compiled at 1:24,000 scale” (USFS 2010a).

L.2.1.2.5 National Scenic and Historic Trails. Geospatial data for National Scenic and Historic Trails were compiled from the best available data received from the following sources:

- BLM state and/or field offices;
- U.S. Forest Service; and

- National Park Service.

The limitations of these data are noted in the metadata: “Accurate geospatial data on National Scenic and Historic Trails is difficult to acquire. Trails are administered by different federal agencies, each with their own structure of jurisdiction and data standards. The term “trail” is also used very loosely in regards to these designations. The Selma to Montgomery National Historic Trail, for instance, is described through driving directions... The Oregon National Historic Trail is the opposite condition, where the “trail” is really more of a corridor than a linear feature” (Argonne National Laboratory 2009).

These data are appropriate for display at small scales only.

L.2.1.2.6 Conservation Lands of the California Desert. The BLM California Desert District supplied geospatial data for Desert Wildlife Management Areas as well as habitat conservation areas for the Mojave ground squirrel, fringe-toed lizard, and flat-tailed lizard (BLM 2008). These data are appropriate for display at large to medium scales.

L.2.1.3 Other BLM Data Acquired from State and Field Offices

Areas of Critical Environmental Concern (ACECs) and Special Recreation Management Areas (SRMAs) were also excluded from BLM lands being analyzed for solar development. Geospatial data for each were compiled from data received from state and field offices and are generally appropriate for large-scale display.

L.2.2 U.S. Geological Survey

Most of the geospatial data for physical features used in analysis originated with the USGS. These include lakes and streams, digital elevation models, and land cover data.

L.2.2.1 The National Atlas

National Atlas data were used for maps and analysis of physical features such as:

- Ecoregions;
- Earthquakes and quaternary faults; and
- Aquifers, watersheds, and hydrography.

National Atlas data are generally appropriate for display at medium to small scales. For certain detailed maps and analysis, individual state geological survey data were used instead of National Atlas data.

1 L.2.2.2 National Elevation Database

2
3 The digital elevation models used in viewshed calculations for the visual resources
4 sections were taken from the National Elevation Database (NED) and acquired through the
5 Natural Resources Conservation System maintained by the U.S. Department of Agriculture.
6 These “10-meter” data (where each cell or pixel measures 10 meters by 10 meters) are
7 appropriate for use in large-scale maps and analysis and are considered to have a vertical
8 accuracy of better than 3 meters.
9

10 Shaded relief used in many of the maps was derived from “30-meter” digital elevation
11 models, also a part of the NED, purchased through the USGS Earth Explorer (USGS 2007).
12
13

14 L.2.2.3 National Hydrographic Database

15
16 The National Hydrographic Database (USGS 2010a) was used only to a limited extent for
17 Solar PEIS analyses, because it was considered too detailed for the level of analysis performed.
18 It is appropriate for large-scale maps only, and the attributes are more oriented to hydrologic
19 modeling than to land use planning. In most cases, streams and rivers from the National Atlas
20 were used instead.
21
22

23 L.2.2.4 Gap Analysis Program Data

24
25 Gap Analysis Program (GAP) data are managed by the USGS and provide land cover
26 and species data in uniform geospatial datasets derived from satellite imagery, existing maps
27 and other records, air photos, air video, and ground points (USGS 2010b).
28

29 All land cover analysis and maps in the document use the GAP data, which cover the
30 six subject states with a uniform 30-meter grid.
31
32

33 L.2.3 Bureau of Transportation Statistics

34
35 Most of the “base” data used in maps and analysis came from the National Transportation
36 Atlas Data published by the Bureau of Transportation Statistics (BTS). It was the source of
37 geospatial data for the following features.
38
39

40 L.2.3.1 Populated Place

41
42 According to the accompanying metadata, “These cities were collected from the 1970
43 National Atlas of the United States. Where applicable, U.S. Census Bureau codes for named
44 populated places were associated with each name to allow additional information to be attached.
45 The Geographic Names Information System (GNIS) was also used as a source for additional
46 information. This is a revised version of the December, 2003, data set. These data are intended

1 for geographic display and analysis at the national level, and for large regional areas. The data
2 should be displayed and analyzed at scales appropriate for 1:2,000,000-scale data” (BTS 2010).
3
4

5 **L.2.3.2 States and Counties**

6

7 Geospatial data for state and county boundaries were compiled by the BTS from several
8 different sources and are generally appropriate for display at large to medium scales.
9

10 **L.2.3.3 National Highway Planning Network**

11

12 Although some of the maps used in the transportation sections required more detailed
13 data, the National Highway Planning Network compiled by the BTS was used in the Solar PEIS
14 for maps and analysis of highways designated as county and above (state and federal).
15
16

17 According to the accompanying metadata, “The National Highway Planning Network
18 is a comprehensive network database of the nation’s major highway system. It consists of the
19 nation’s highways comprised of Rural Arterials, Urban Principal Arterials and all National
20 Highway System routes. The data set covers the 48 contiguous States plus the District of
21 Columbia, Alaska, Hawaii, and Puerto Rico. The nominal scale of the data set is 1:100,000
22 with a maximal positional error of ± 80 meters” (BTS 2010).
23
24

25 **L.2.3.4 Rail Lines**

26

27 The rail lines put out by the BTS originate with the Federal Railroad Administration.
28 According to the accompanying metadata: “The Rail Network is a comprehensive database of
29 the nation’s railway system at the 1:100,000 scale. The data set covers all 50 States plus the
30 District of Columbia” (BTS 2010).
31
32

33 **L.2.4 U.S. Bureau of the Census**

34

35 U.S. Bureau of the Census Summary Files 1 and 3 from the 2000 Census were used in the
36 analysis and mapping of environmental justice issues (minority and low-income populations).
37

38 Block group boundaries developed through the U.S. Bureau of the Census TIGER
39 program were acquired through an Environmental Systems Research Institute (ESRI) data portal.
40 According to the data for TIGER line files: “The positional accuracy varies with the source
41 materials used, but generally the information is no better than the established national map
42 Accuracy standards for 1:100,000-scale maps from the U.S. Geological (USGS); thus it is NOT
43 suitable for high-precision measurement applications such as engineering problems, property
44 transfers, or other uses that might require highly accurate measurements of the earth’s surface”
45 (U.S. Bureau of the Census 2010).
46
47

L.2.5 Platts PowerMap

Maps and analysis involving existing or proposed transmission lines for the Solar PEIS use Platts PowerMap as the source of geospatial data. According to the metadata, “The Platts Transmission Lines geospatial data layer has been created to display the electric transmission grid of North America... The horizontal accuracy of Platts geospatial data meets or exceeds the National Map Accuracy Standards for geospatial data at a 1:250,000 map scale” (Platts 2010).

L.2.6 Designated Corridors

Designated corridors include both federally designated Section 368 corridors and BLM locally designated corridors; these corridors were developed for federal land use planning purposes only and are not applicable to state-owned or privately owned land. Since designated corridors indicate existing or planned rights-of-way (ROWs) for energy transmission on federal land, they were included (along with existing transmission lines) in the evaluation of access from potential solar energy development to the electrical grid.

L.2.6.1 Section 368 Corridors

Section 368 corridors were developed to address Section 368 of the Energy Policy Act of 2005 (DOE and DOI 2008). They cover 11 western states and include the six-state study area evaluated in the Solar PEIS.

These data are appropriate for display at medium scales.

L.2.6.2 BLM State Office-Designated Corridors

Arizona, California, Colorado, and Nevada State Offices supplied geospatial data for designated corridors under their jurisdictions.

These data are appropriate for display at medium scales.

L.3 METHODS

The following sections relate to analysis used in the Solar PEIS from a GIS standpoint.

L.3.1 Analysis of Potential Effects Using Geospatial Data

Except for discussions of environmental justice and visual resources, acreage estimates of the potential effects of alternatives being considered in the Solar PEIS rely on just three types of GIS tools: the buffer tool, the intersect tool, and the union tool.

1 The buffer tool builds an area (or polygon) that extends a given distance away from a
2 given feature or features. The buffer created allows the analyst to select automatically any other
3 features that fall within it. This allows for simple statements of which resources may be within
4 15 mi (24 km) of a proposed SEZ (for example). Figure L.3.1-1 uses wetlands as an example.
5 The wetlands highlighted have been selected automatically because they fall within (or intersect)
6 the 15-mi (24-km) buffer.

8 The intersect tool computes the geometric intersection of features from two or more
9 separate layers of information. The new layer of information created shows only the areas of
10 intersection, which can then be counted or measured for length and area. Continuing the
11 wetlands example, notice that one of the wetlands is not only within the 15-mi (24-km) buffer,
12 but also extends into the proposed SEZ. The intersect tool would create the new area shown in
13 red in Figure L.3.1-2.

15 The union tool is a more sophisticated form of the intersect tool that adds two or more
16 layers of information together into a single new layer, which holds all the information from each
17 of the layers. This allows for the discernment of intersections while preserving the areas that do
18 not intersect. Statements such as the total acres of a particular wetland compared to the acres
19 intersected by a proposed SEZ are possible using the union tool. In Figure L.3.1-3, both the
20 wetlands and the proposed SEZ are contained in one layer of information.

22 The examples given use vector GIS technology, which stores features as points, lines,
23 or polygons. Continuous features such as land cover, elevation, or slope require analysis using
24 raster GIS technology, which stores information in rectangular cells (similar to pixels in a
25 computer screen) arranged in a matrix. The tools used to analyze vector data have equivalents
26 used to analyze raster data.

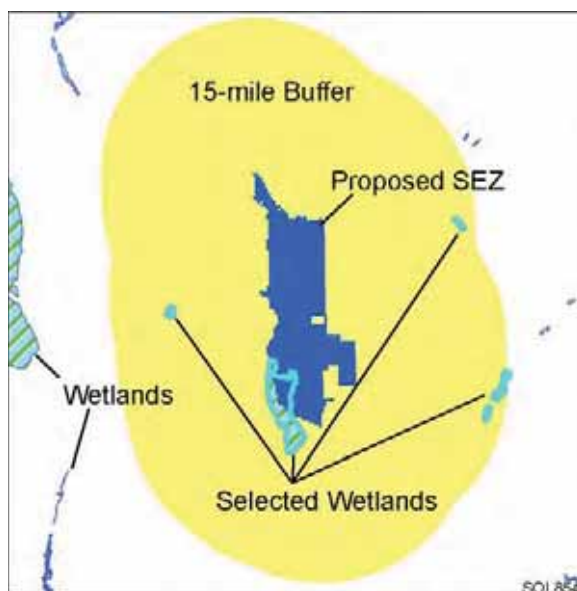


FIGURE L.3.1-1 Example of Buffer Tool

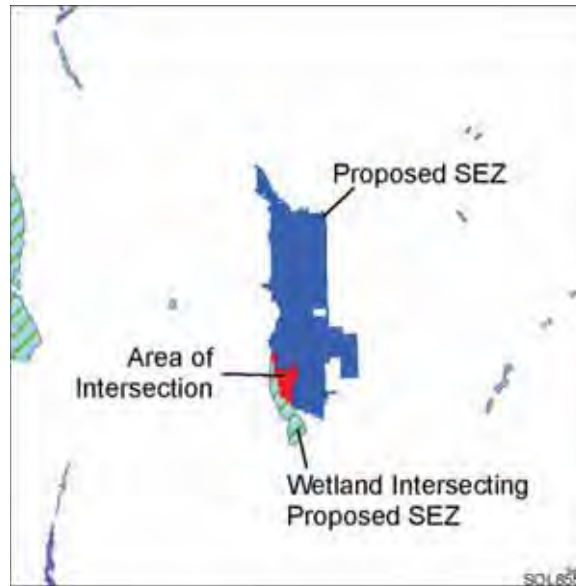


FIGURE L.3.1-2 Example of Intersect Tool



FIGURE L.3.1-3 Example of Union Tool

L.3.1.1 Environmental Justice

Environmental justice tables and maps involve a combination of GIS tools and Relational Database Management System (RDBMS) tools.

Block group boundaries were downloaded by county from the ESRI data portal, which offers a version of the U.S. Bureau of the Census TIGER data that is easier to use (ESRI 2010).

1 A 50-mi (80-km) buffer was created around the subject proposed SEZ (proposed SEZs
2 were analyzed one at a time). Because the buffer always intersected several counties, the block
3 group boundaries from each state were appended together using the append tool. The append tool
4 merges data from different areas into one area with the same data structure.

5
6 The geospatial data representing block group boundaries contain only spatial data and a
7 “key field” to match each individual block group to whatever tabular census data are associated
8 with it.

9
10 Tabular census data for the 2000 Census were downloaded for each subject state from the
11 U.S. Bureau of the Census Web site (U.S. Bureau of the Census 2010). Because Summary File 1
12 and Summary File 3 tables contain detailed census information down to the level of a census
13 tract, which is smaller than a block group, the data first must be summarized at the block group
14 level. The summarized data are then joined to a geographic table containing the “key field” using
15 RDBMS tools to create a new table that can be joined to the geospatial data.

16
17 Summary File 1, Table 1, was used to summarize minority population data and then
18 joined to the Summary File 1 geographic table. The results of the join were then joined to the
19 geospatial data using GIS tools.

20
21 Summary File 3, Table 7, was used to summarize minority population data and then
22 joined to the Summary File 3 geographic table. The results of the join were then joined to the
23 geospatial data using GIS tools.

24
25 With geospatial data for a state’s block groups containing the correct population data,
26 block groups were selected if they were within the proposed SEZ’s 50-mi (80-km) buffer. The
27 data from these block groups were then summarized per proposed SEZ into environmental
28 justice tables. Also, the geospatial data were used to map block groups with populations above
29 certain threshold percentages.

30 31 32 **L.3.1.2 Visual Resource Analysis**

33
34 Detailed analysis of the potential impacts on visual resources from the development of
35 solar facilities within proposed SEZs required raster GIS tools, which were not needed for other
36 resources, and in some cases, needed to be developed for the Solar PEIS. The viewshed tool
37 determines whether there is a line of sight between a target and the area surrounding the target.

38
39 The only inputs required for the viewshed tool are targets (or points) from which to
40 determine the line of sight and a digital elevation model (a grid of rectangular cells, each cell
41 representing the elevation at its center). The viewshed tool examines each individual cell in the
42 digital elevation model and determines whether or not there are one or more cells of higher
43 elevation between it and the target point. If there are none, that cell will be included in the
44 viewshed.

1 The result of the viewshed tool is another grid of rectangular cells; in this case, each cell
2 represents how many of the targets used as inputs have a line of sight to that individual cell.

3
4 For all proposed SEZs except Imperial East, 10-m (32-ft) (the approximate height
5 and width of each cell) digital elevation models from the USGS National Elevation Data
6 were used as inputs. For Imperial East, 10-m (32-ft) data were not available; 30-m (98-ft)
7 data were used instead.

8
9 The proposed SEZs represent large areas as opposed to specifically located targets. These
10 large areas required the use of sample points placed throughout the area of each SEZ to be used
11 as target inputs to the viewshed tool. The sample points were developed by dividing each
12 proposed SEZ into rectangular zones measuring approximately 1 mi (2 km) on each side. Zonal
13 sampling tools from the Spatial Analyst Extension were then used to calculate the location of
14 the highest point in each zone. These sampling points were then used as target inputs for the
15 viewshed tool. In some cases, more sampling points were added around the SEZ border, based
16 on the analyst's visual inspection of the surrounding terrain (as seen in the digital elevation
17 model.)

18
19 In addition to its geographical location on the ground, each target point can represent its
20 own height as well as the height of a person viewing it. Heights representing each of the four
21 potential solar energy technologies were used as target heights, and the viewer height remained
22 constant at 1.75 m (5.74 ft) for each set of targets. This resulted in four separate viewsheds for
23 each proposed SEZ, each representing a potential solar energy technology.

24
25 An additional parameter that is set in the viewshed tool is whether or not curvature of the
26 Earth is to be taken into consideration. The viewsheds for the proposed SEZs were calculated to
27 include the curvature of the Earth at a refractivity coefficient of 0.13.

28
29 More than a thousand hours of computer processing time were required to calculate all of
30 the viewsheds analyzed in the Solar PEIS.

31 32 33 **L.3.1.3 Distance Zones**

34
35 Each viewshed was intersected with buffers around the subject proposed SEZ to develop
36 distance zones. The distance zones then represented the area around the proposed SEZ, which
37 had line of sight to development somewhere within the proposed SEZ from 5, 15, or 25 mi
38 (8, 24, or 40 km).

39
40 Each distance zone was then overlaid on the 17 layers of data representing the different
41 classes of visual resources (e.g., wilderness areas). This was accomplished with Python language
42 scripting to automate the process. The intersection between each distance zone and each visual
43 resource layer was measured, and acreage estimates for each individual resource were calculated
44 by using the count of overlapping cells divided by the number of cells representing an acre.

L.4 GIS USED IN THE SOLAR PEIS

GIS tools discussed in preceding sections of this appendix are part of the main GIS platform used to analyze, map, and create other analysis products for the Solar PEIS. The main GIS platform is discussed in the following sections, along with other GIS technology that was used to help in the dissemination and analysis of geospatial data.

L.4.1 Main GIS Platform

The main GIS platform for the Solar PEIS was ArcGIS 9.3.1, a product of ESRI. This consists of Arc/Info licenses for desktop GIS using the ArcMap interface, as well as the Spatial Analyst extension used specifically for raster GIS tools.

L.4.2 ArcReader

ArcReader is similar to ArcMap as an interface to view and query geospatial data. ArcReader projects for each state were published from ArcMap master files for use by non-GIS staff.

L.4.3 GeoPDF

GeoPDF files are versions of Adobe's Portable Document Format (PDF) files, which allow simple analysis of geospatial data using lightweight extensions to Adobe Reader. Published from ArcMap, GeoPDF files were used extensively in field trips to proposed SEZs.

L.4.4 Google Earth

Google Earth was used extensively in visual resource analysis, as well as by many other disciplines, which benefited from access to satellite imagery. With Keyhole Markup Language (KML) files published from ArcMap, analysts were able to combine geospatial data from the project with the resources available in the Google Earth application. A selected set of these KML files will be available from the Solar PEIS website in the final draft.

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15 [fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRydLA1cj72](http://fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRydLA1cj72BTFzMTAwjQL8h2VAQAJp-nEg!!/?ss=119930&navtype=BROWSEBYSUBJECT&navid=0910000000000000&pnavid=null&ttype=roadmain&cid=FSE_003853&position=RELATEDLINKS&pname=Roadless-Home#Identification_Information)
16 [BTFzMTAwjQL8h2VAQAJp-nEg!!/?ss=119930&navtype=BROWSEBYSUBJECT&navid=](http://fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRydLA1cj72BTFzMTAwjQL8h2VAQAJp-nEg!!/?ss=119930&navtype=BROWSEBYSUBJECT&navid=0910000000000000&pnavid=null&ttype=roadmain&cid=FSE_003853&position=RELATEDLINKS&pname=Roadless-Home#Identification_Information)
17 [0910000000000000&pnavid=null&ttype=roadmain&cid=FSE_003853&position=](http://fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRydLA1cj72BTFzMTAwjQL8h2VAQAJp-nEg!!/?ss=119930&navtype=BROWSEBYSUBJECT&navid=0910000000000000&pnavid=null&ttype=roadmain&cid=FSE_003853&position=RELATEDLINKS&pname=Roadless-Home#Identification_Information)
18 [RELATEDLINKS&pname=Roadless-Home#Identification_Information](http://fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gDfxMDT8MwRydLA1cj72BTFzMTAwjQL8h2VAQAJp-nEg!!/?ss=119930&navtype=BROWSEBYSUBJECT&navid=0910000000000000&pnavid=null&ttype=roadmain&cid=FSE_003853&position=RELATEDLINKS&pname=Roadless-Home#Identification_Information). Accessed
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28 [portal/server.pt?open=512&objID=1482&mode=2&in_hi_userid=2&cached=true](http://gapanalysis.nbii.gov/portal/server.pt?open=512&objID=1482&mode=2&in_hi_userid=2&cached=true). Accessed
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APPENDIX N:
VIEWSHED MAPS FOR PROPOSED SOLAR ENERGY ZONES

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APPENDIX N:

VIEWSHED MAPS FOR PROPOSED SOLAR ENERGY ZONES

N.1 INTRODUCTION

Preliminary viewshed analyses were conducted to identify which lands surrounding the proposed solar energy zones (SEZs) would have views of solar facilities in at least some portion of the SEZ (see Appendix M for information on the assumptions and limitations of the methods used). For each SEZ, four viewshed analyses were conducted, assuming four different heights representative of project elements associated with potential solar energy technologies:

1. Photovoltaic (PV) and parabolic trough arrays (24.6 ft [7.5 m]);
2. Solar dishes and power blocks for concentrating solar power (CSP) technologies (38 ft [11.6 m]);
3. Transmission towers and short solar power towers (150 ft [45.7 m]); and
4. Tall solar power towers (650 ft [198.1 m]).

This appendix provides viewshed maps for the 24 SEZs, including separate maps for all 4 solar technology heights for each SEZ. Each map shows which lands surrounding each SEZ would have at least partial visibility of facility components within the SEZ that would be likely to be as tall as or taller than the specified height for each viewshed analysis.

The viewshed maps indicate selected federal, state, and U.S. Department of the Interior (DOI) Bureau of Land Management (BLM)-designated sensitive visual resource areas within the 25-mi (40-km), 650-ft (198.1-m) viewshed for each SEZ, in order to show those portions of sensitive resource areas that could be subject to visual impacts associated with solar energy development within the SEZ. Each map also includes colored lines indicating distance zones that correspond with the BLM's Visual Resource Management (VRM) system-specified foreground-midground distance (5 mi [8 km]), background distance (15 mi [24 km]), and a 25-mi (40-km) distance zone as well, in order to indicate the effect of distance from the SEZ on impact levels.

The maps are organized alphabetically by state, and by SEZ within each state.

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1 **N.2 VIEWSHED MAPS FOR ARIZONA SEZS**

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4 **N.2.1 Viewshed Maps for the Proposed Brenda SEZ**

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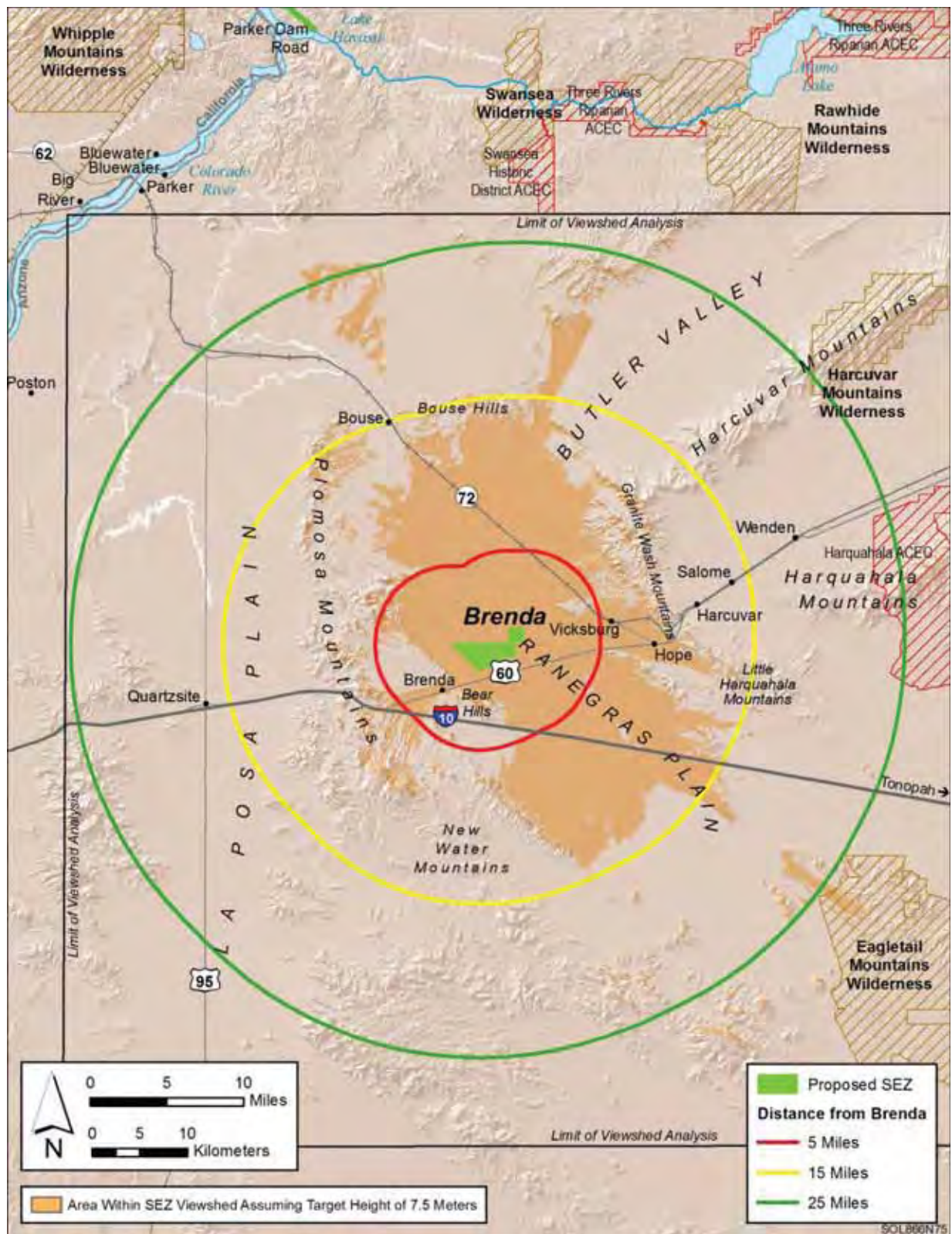


FIGURE N.2.1-1 Viewshed Analysis for the Proposed Brenda SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

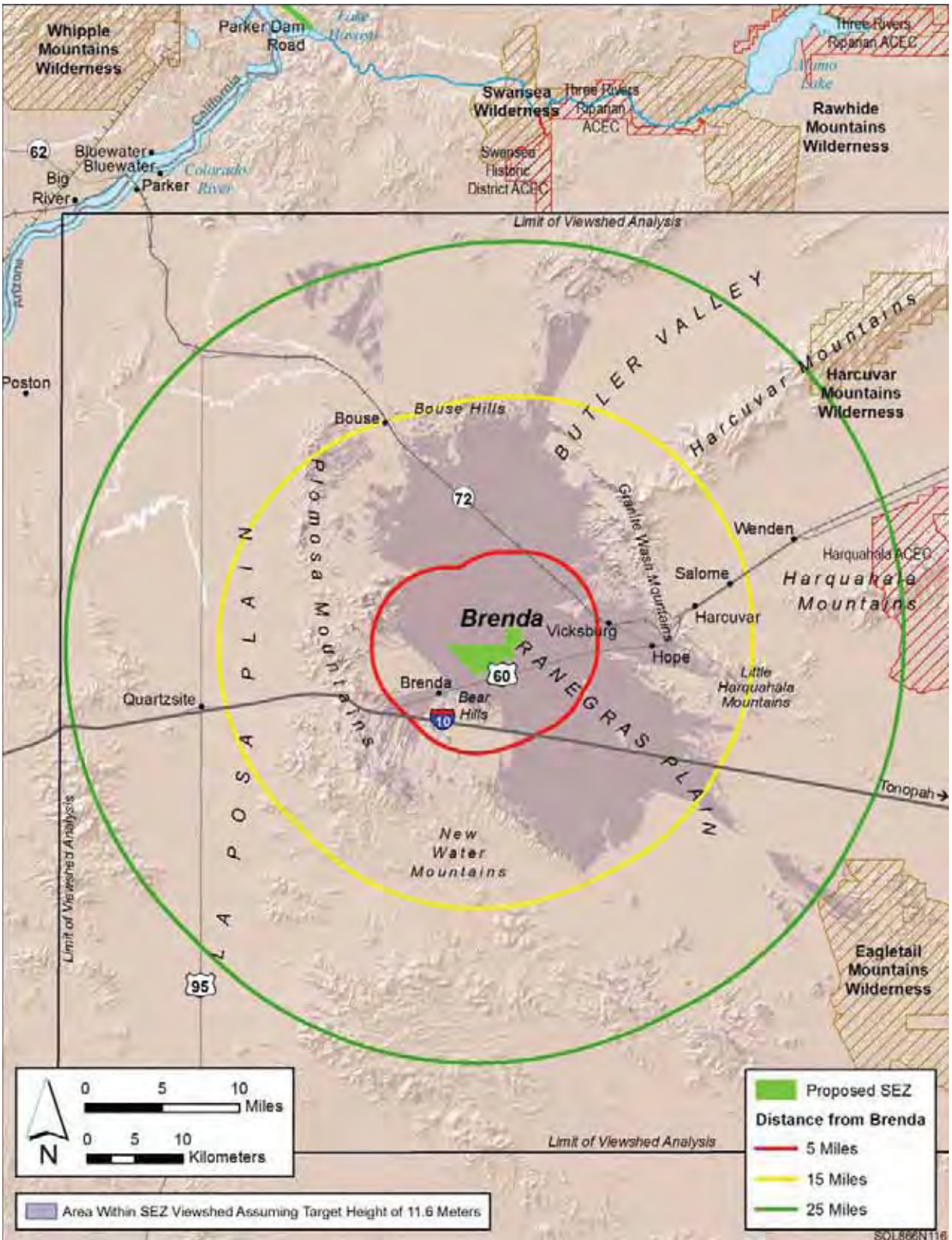


FIGURE N.2.1-2 Viewshed Analysis for the Proposed Brenda SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

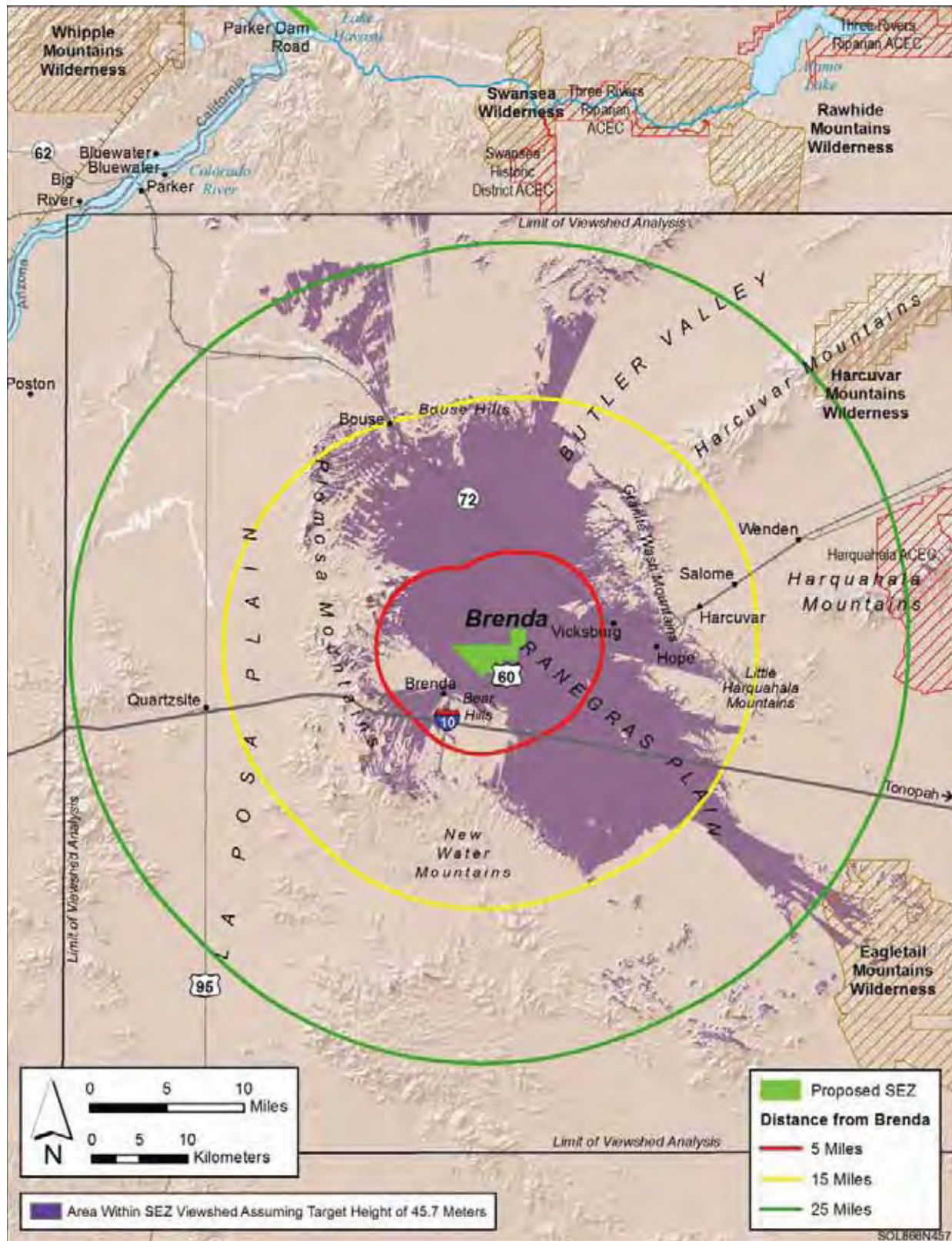


FIGURE N.2.1-3 Viewshed Analysis for the Proposed Brenda SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

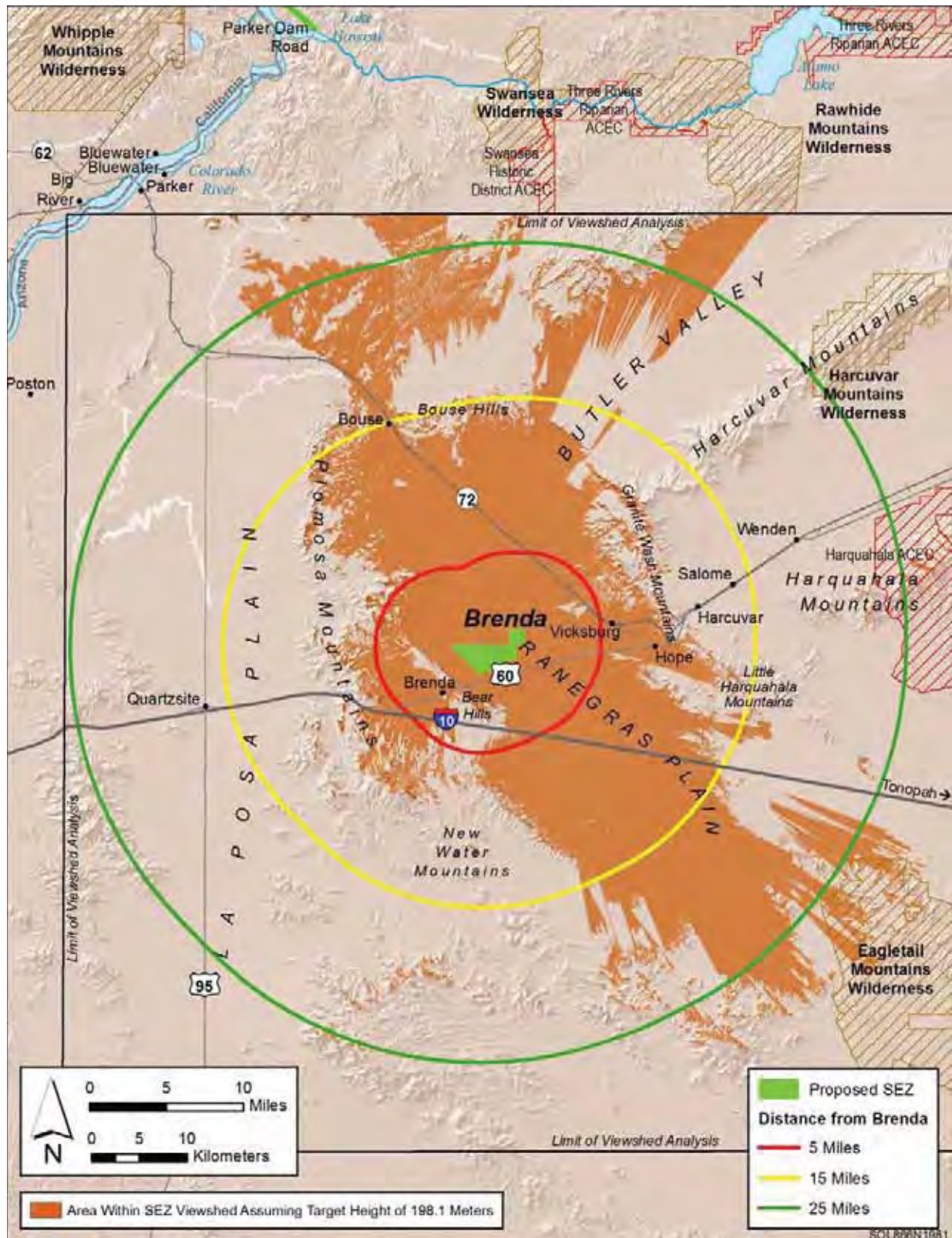
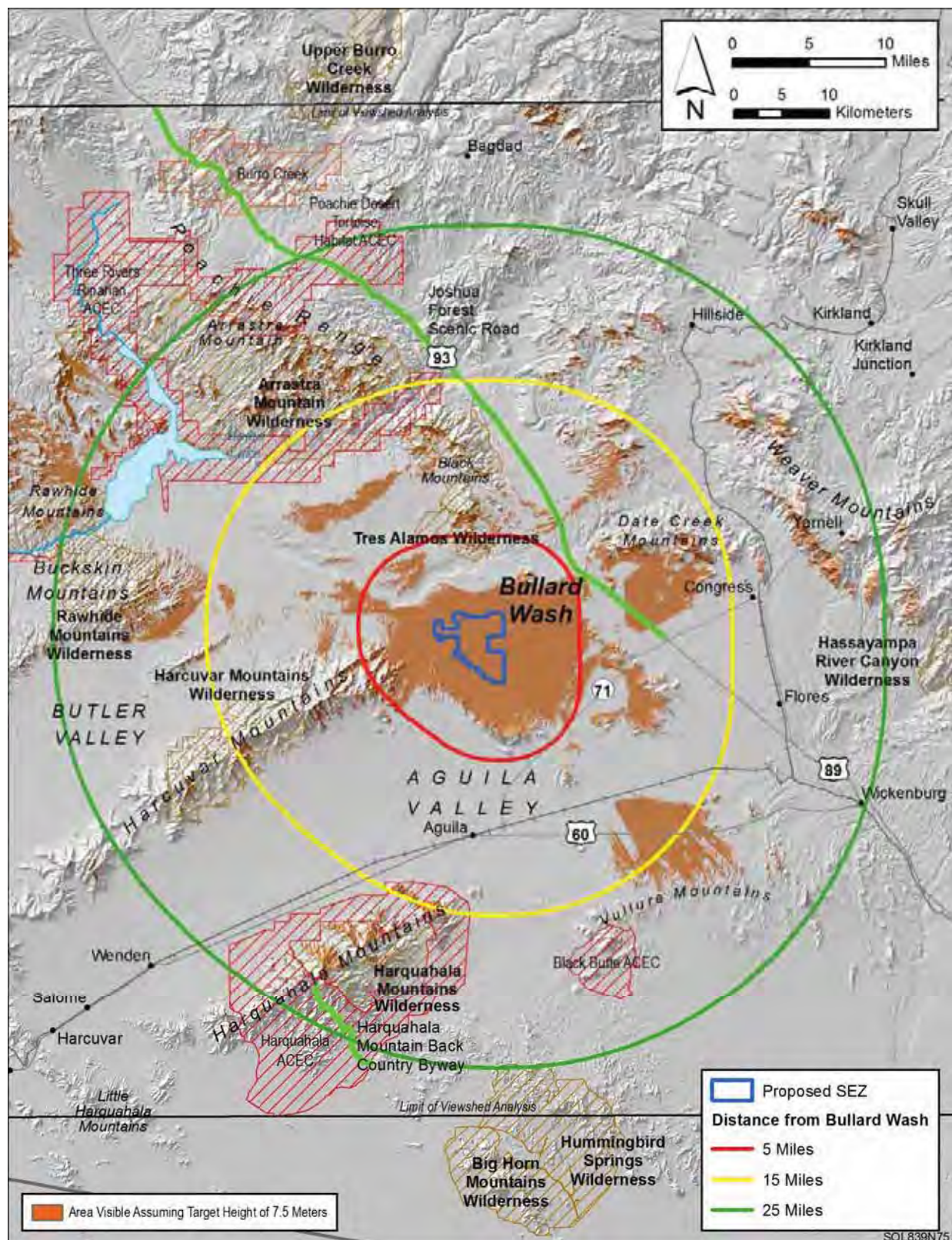


FIGURE N.2.1-4 Viewshed Analysis for the Proposed Brenda SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.2.2 Viewshed Maps for the Proposed Bullard Wash SEZ**
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1 **FIGURE N.2.2-1 Viewshed Analysis for the Proposed Bullard Wash SEZ and Sensitive Visual**
 2 **Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft (7.5 m)**

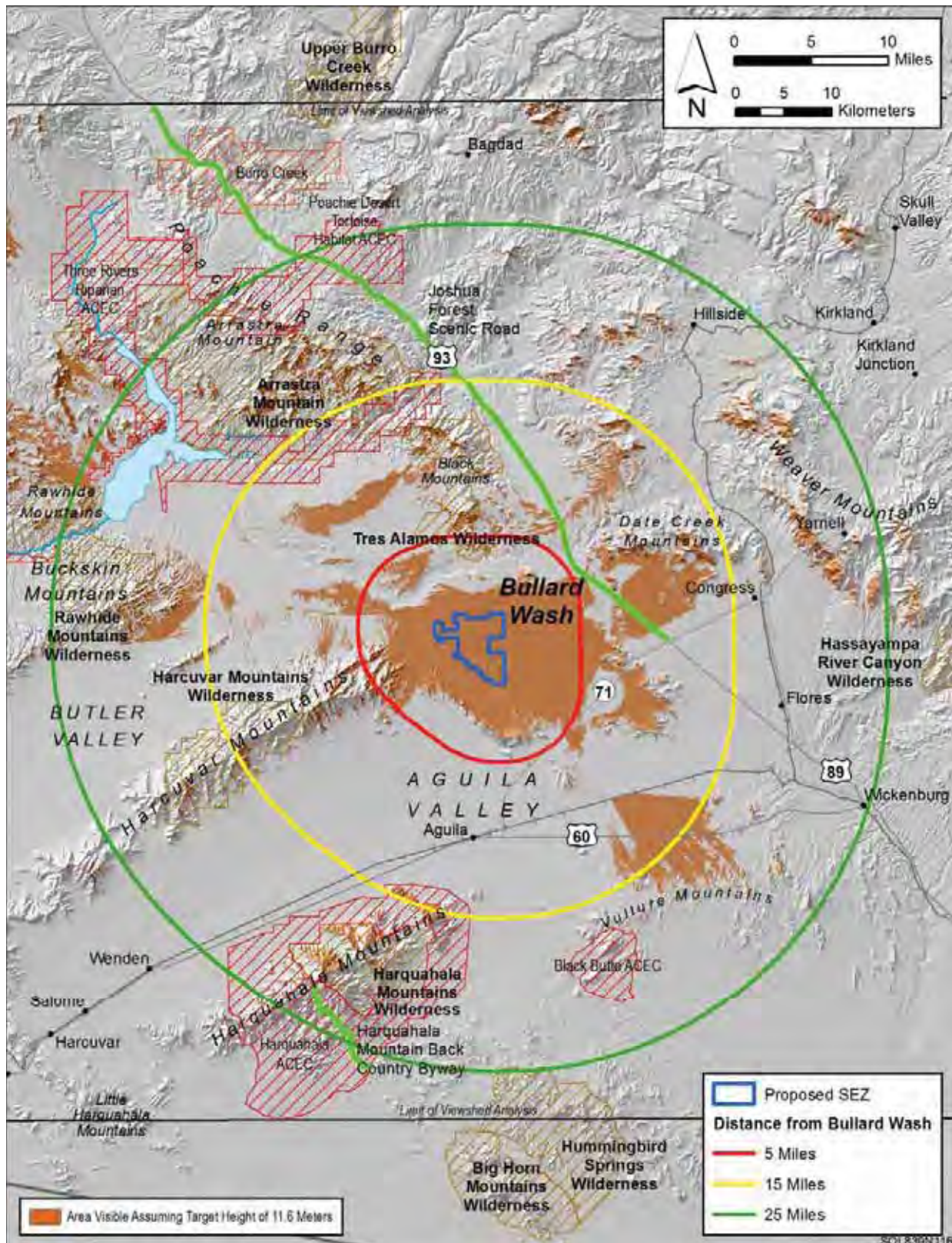


FIGURE N.2.2-2 Viewshed Analysis for the Proposed Bullard Wash SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

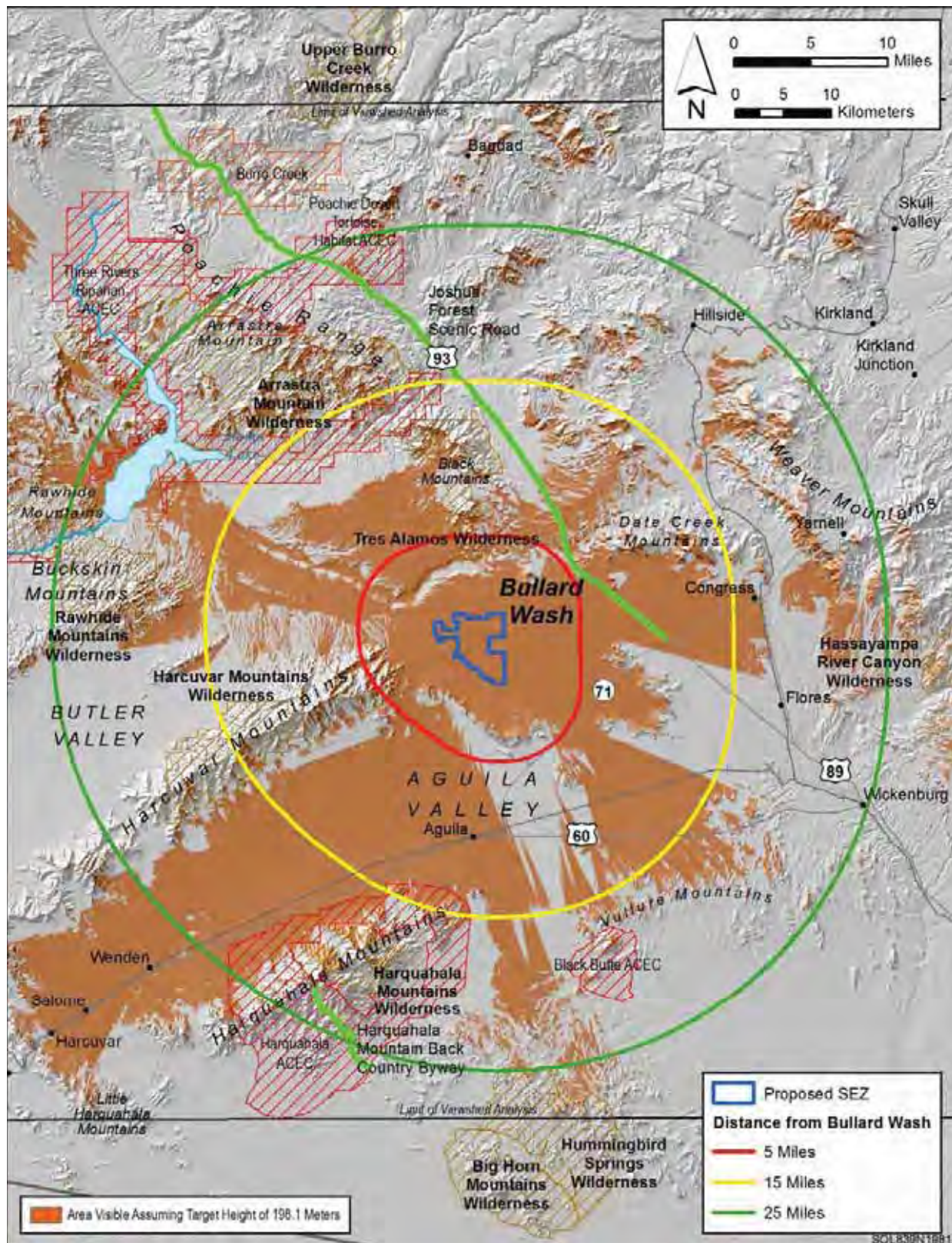


FIGURE N.2.2-4 Viewshed Analysis for the Proposed Bullard Wash SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.2.3 Viewshed Maps for the Proposed Gillespie SEZ**
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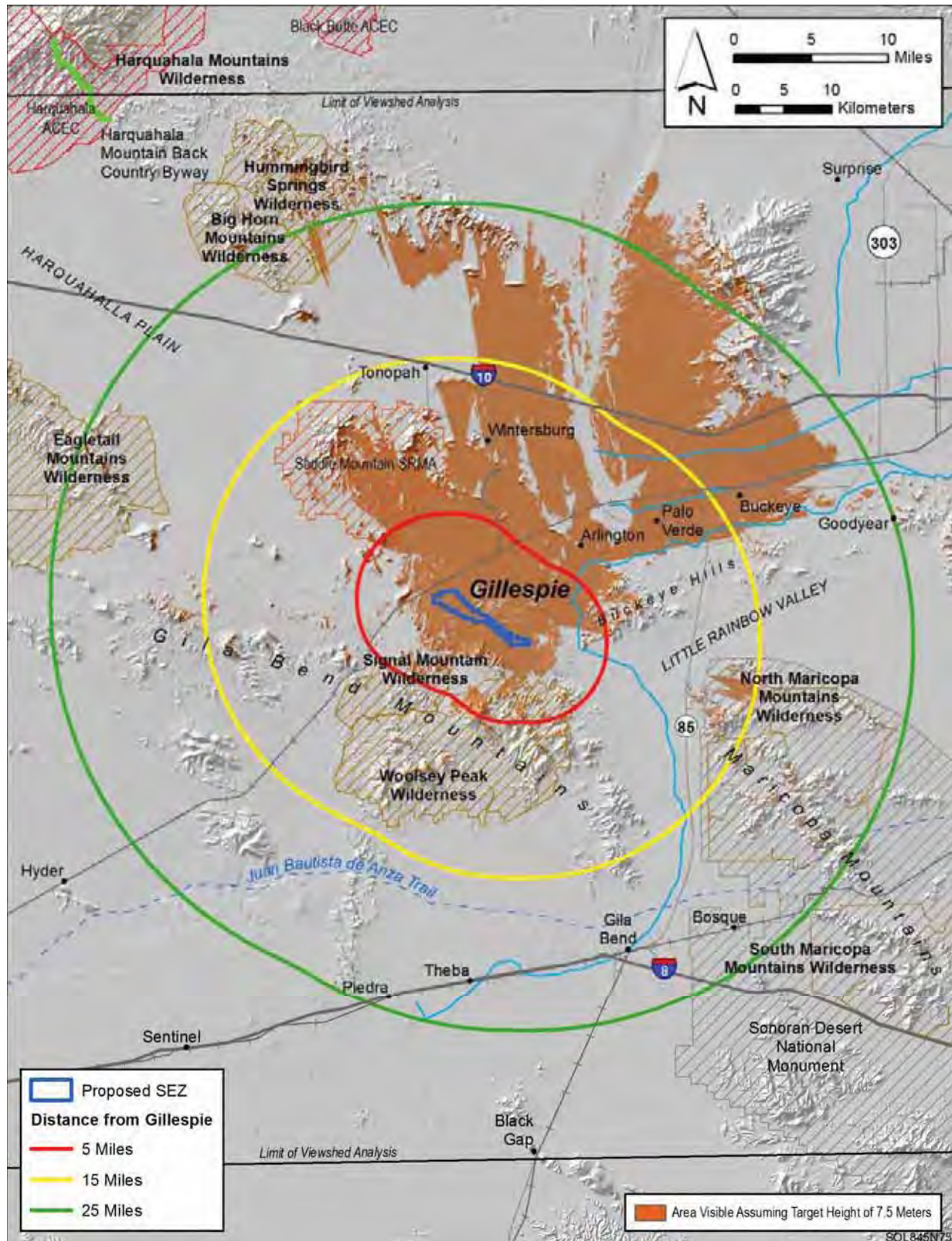


FIGURE N.2.3-1 Viewshed Analysis for the Proposed Gillespie SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

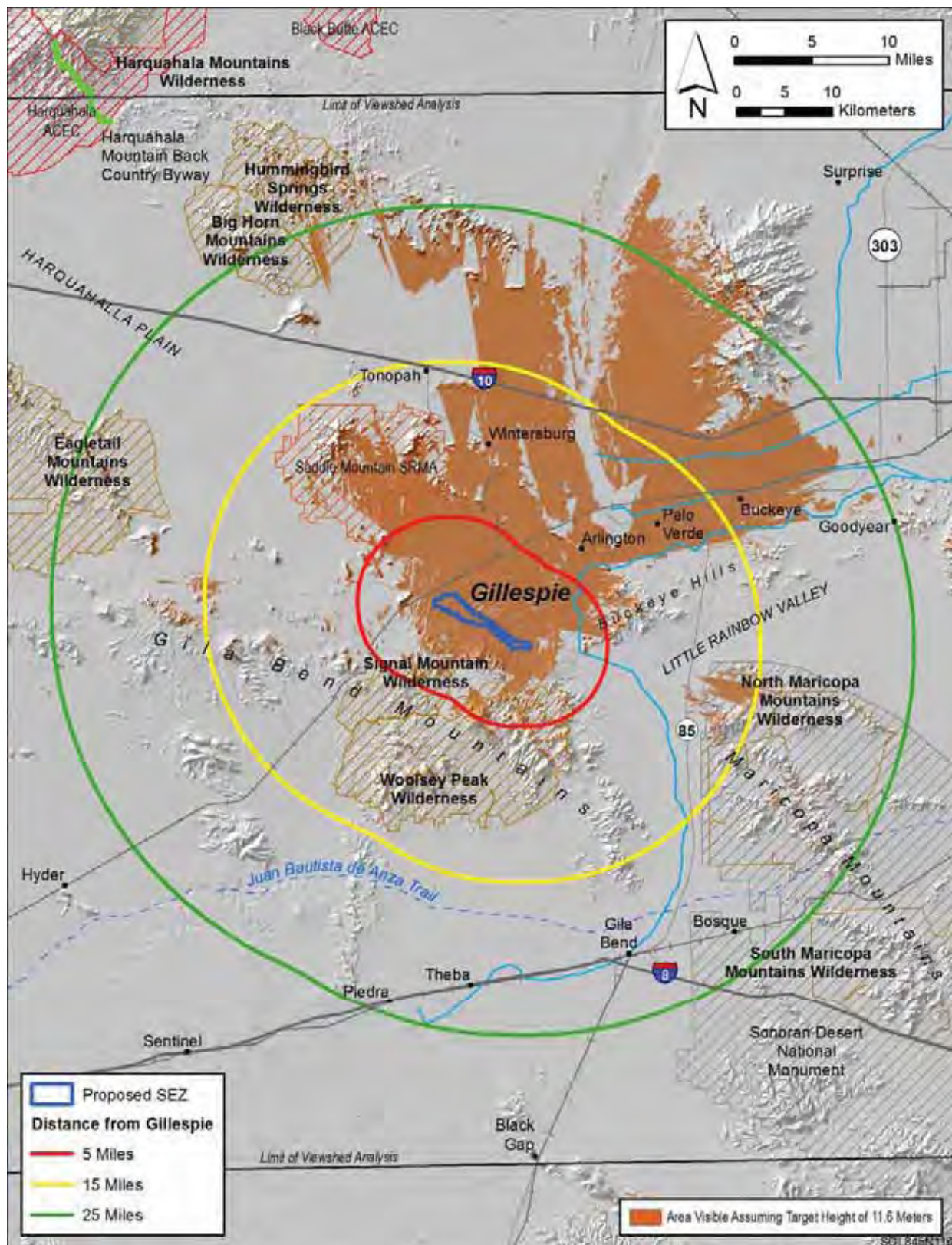


FIGURE N.2.3-2 Viewshed Analysis for the Proposed Gillespie SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

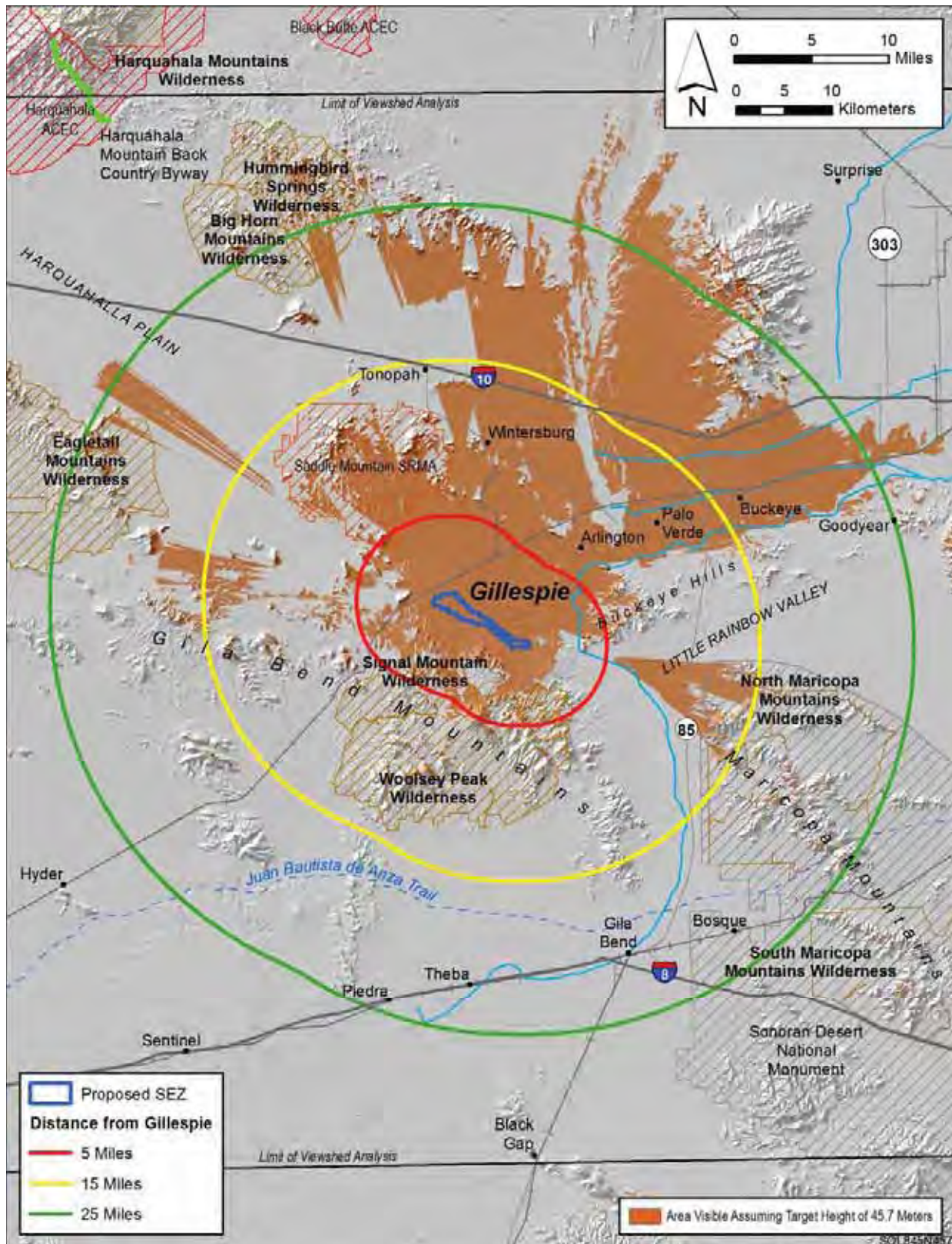


FIGURE N.2.3-3 Viewshed Analysis for the Proposed Gillespie SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

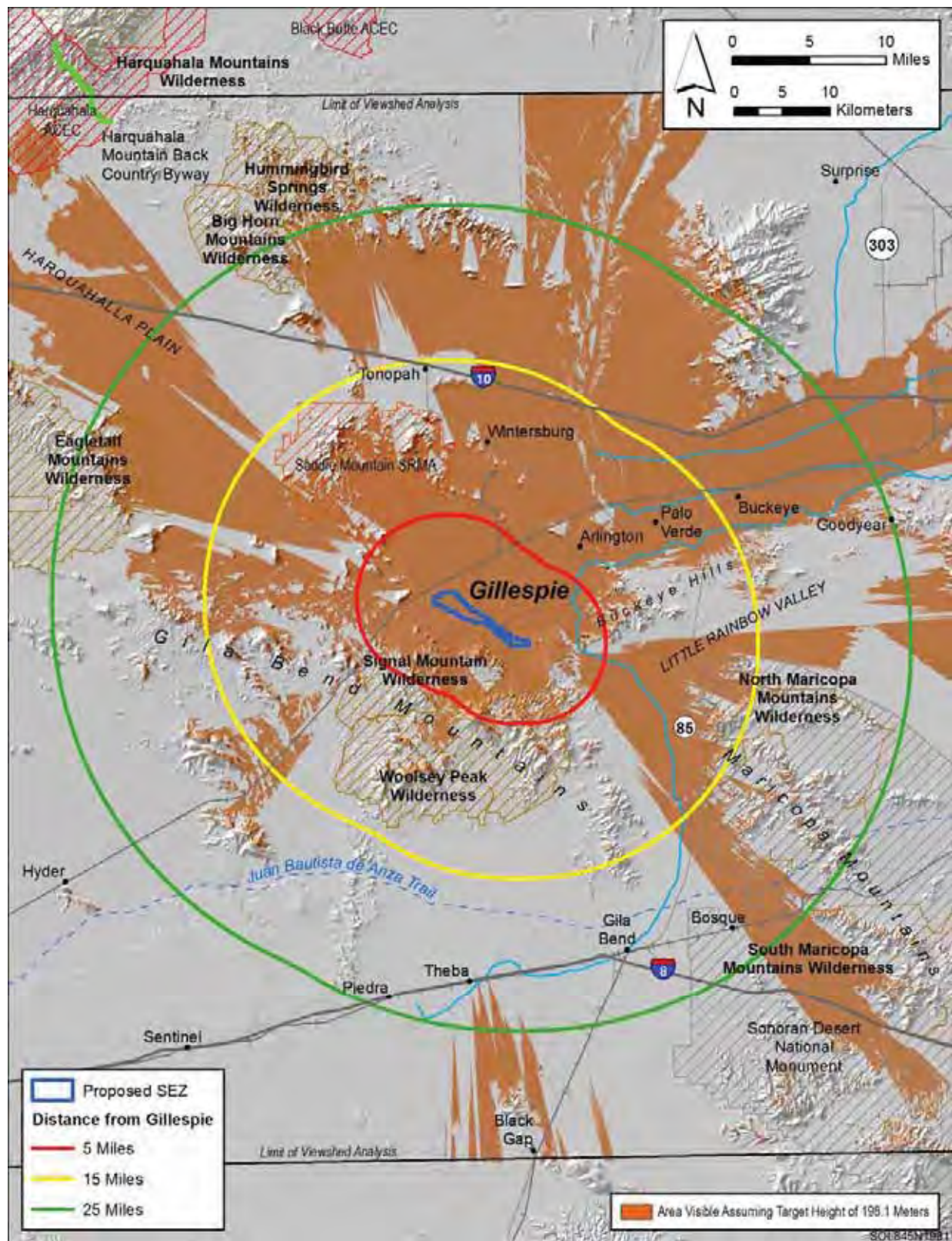


FIGURE N.2.3-4 Viewshed Analysis for the Proposed Gillespie SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.3 VIEWSHED MAPS FOR CALIFORNIA SEZS**

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4 **N.3.1 Viewshed Maps for the Proposed Imperial East SEZ**

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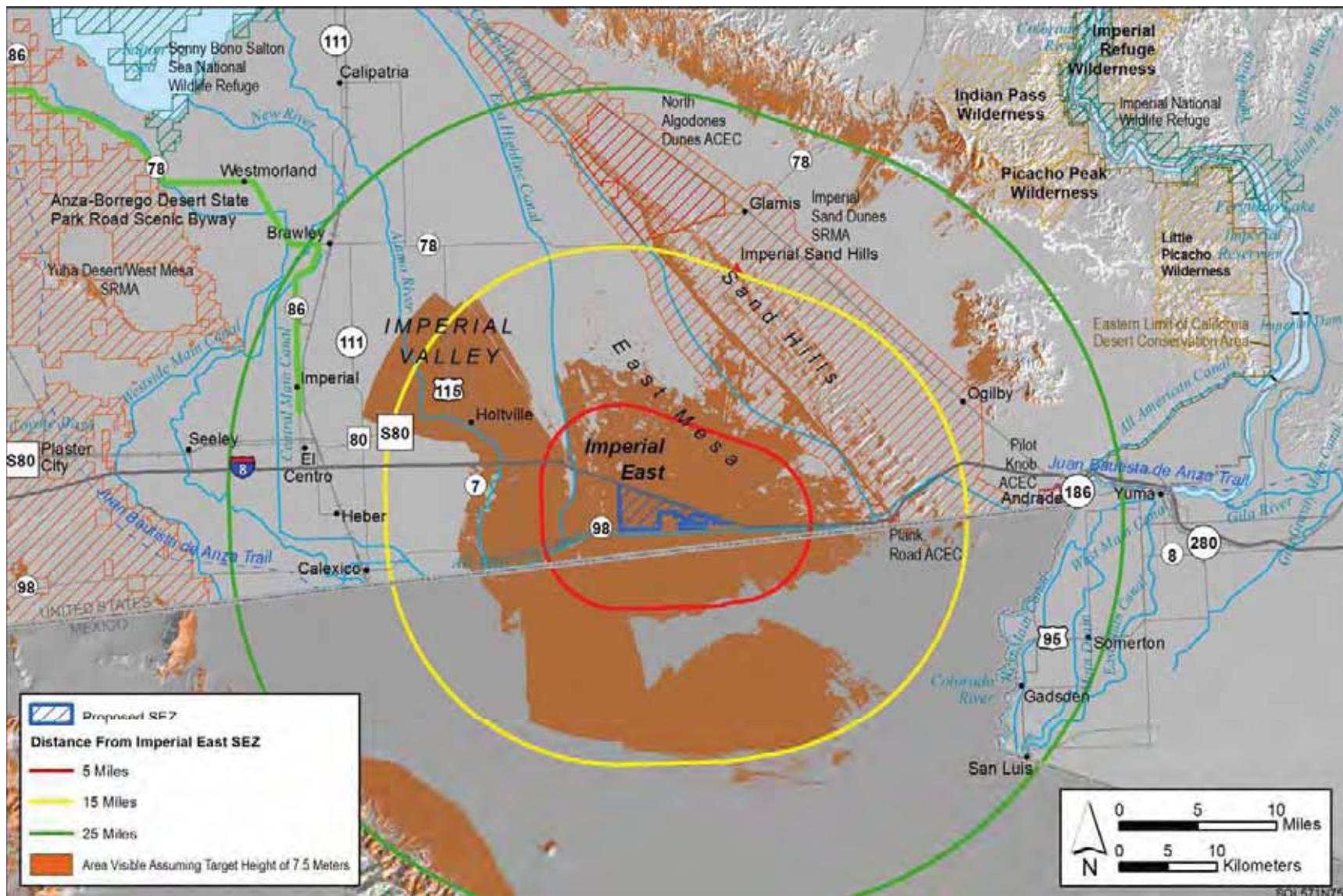


FIGURE N.3.1-1 Viewshed Analysis for the Proposed Imperial East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m





1 **N.3.2 Viewshed Maps for the Proposed Iron Mountain SEZ**
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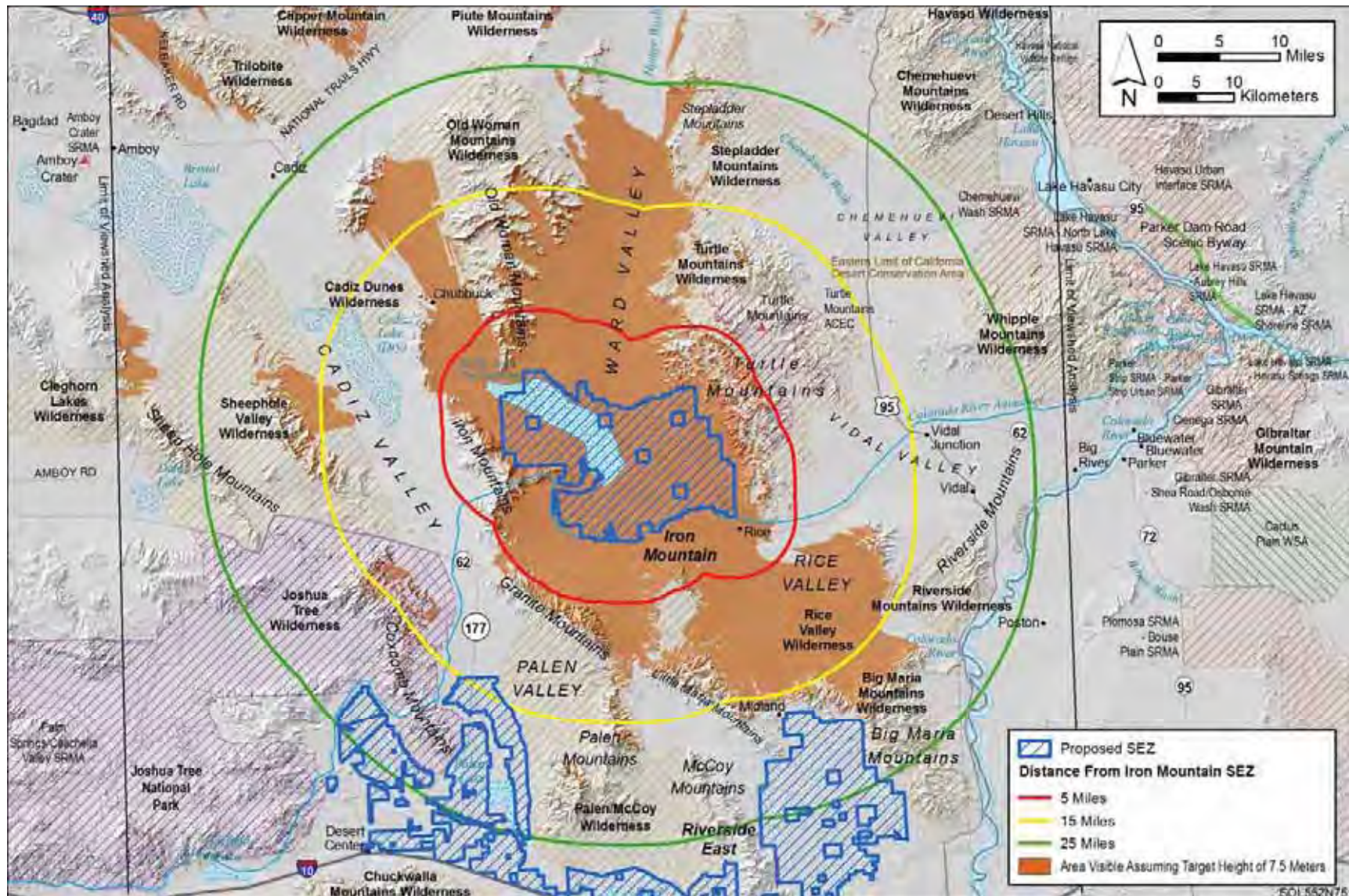


FIGURE N.3.2-1 Viewshed Analysis for the Proposed Iron Mountain SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

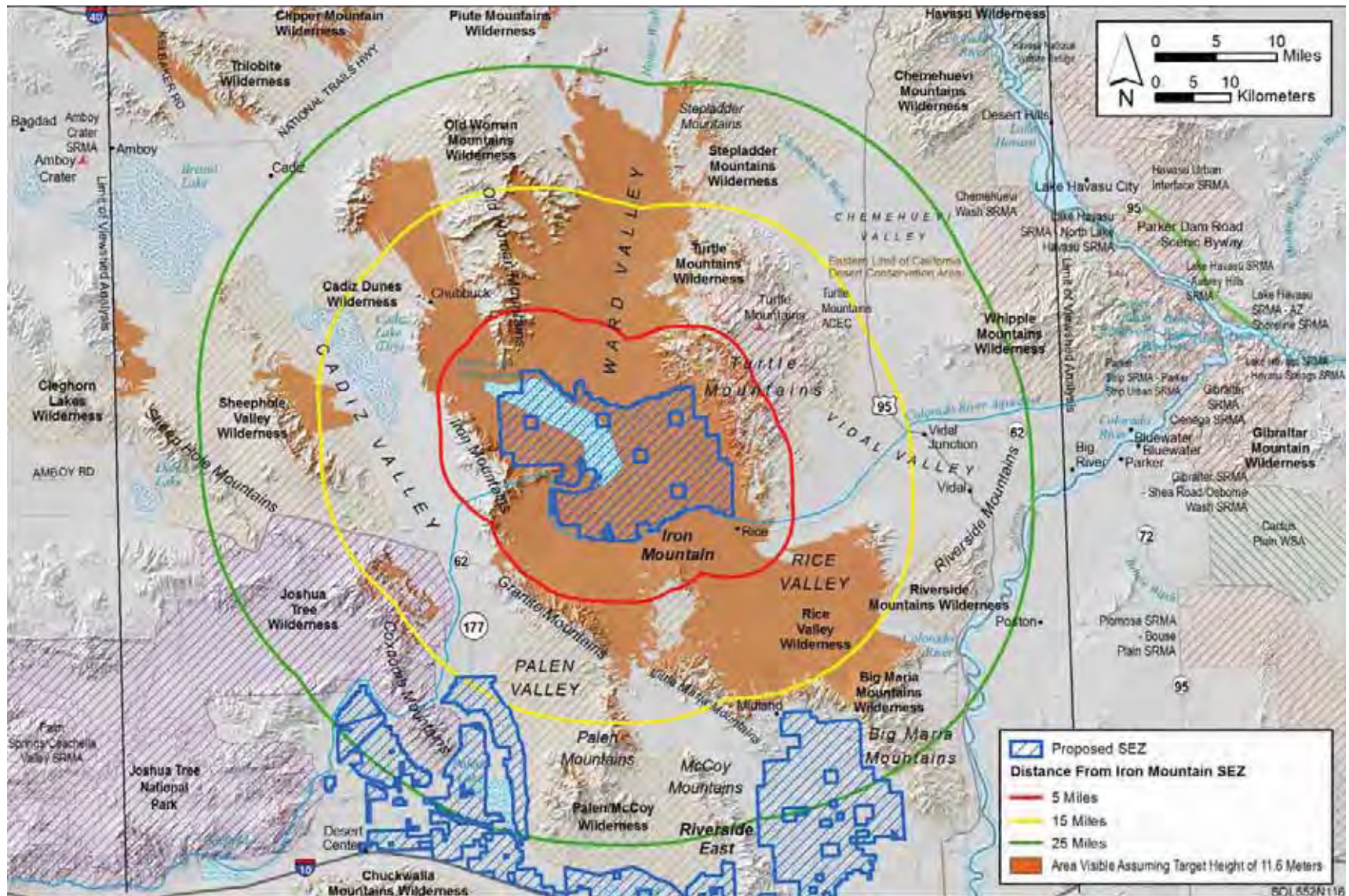
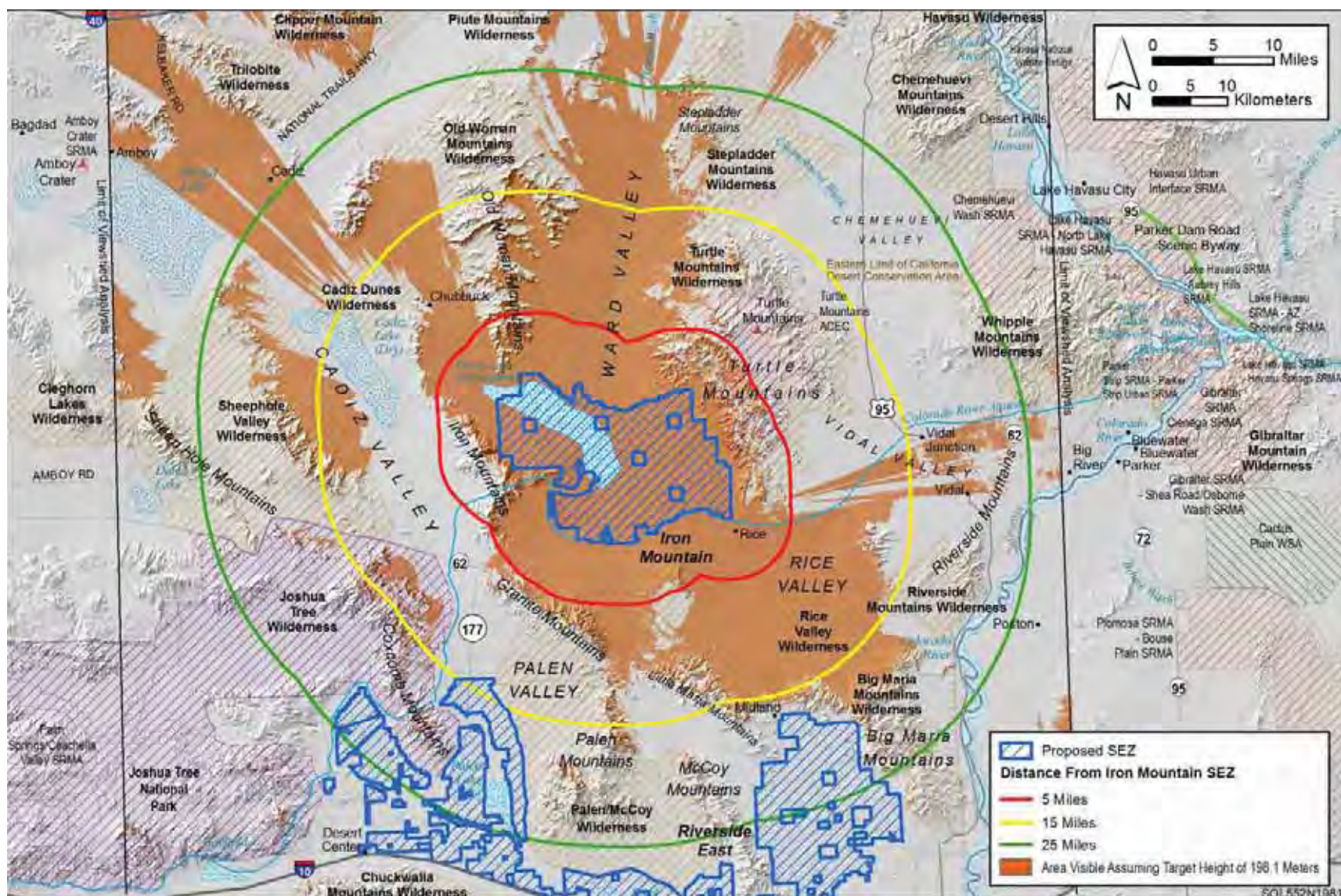


FIGURE N.3.2-2 Viewshed Analysis for the Proposed Iron Mountain SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m



1 **N.3.3 Viewshed Maps for the Proposed Pisgah SEZ**
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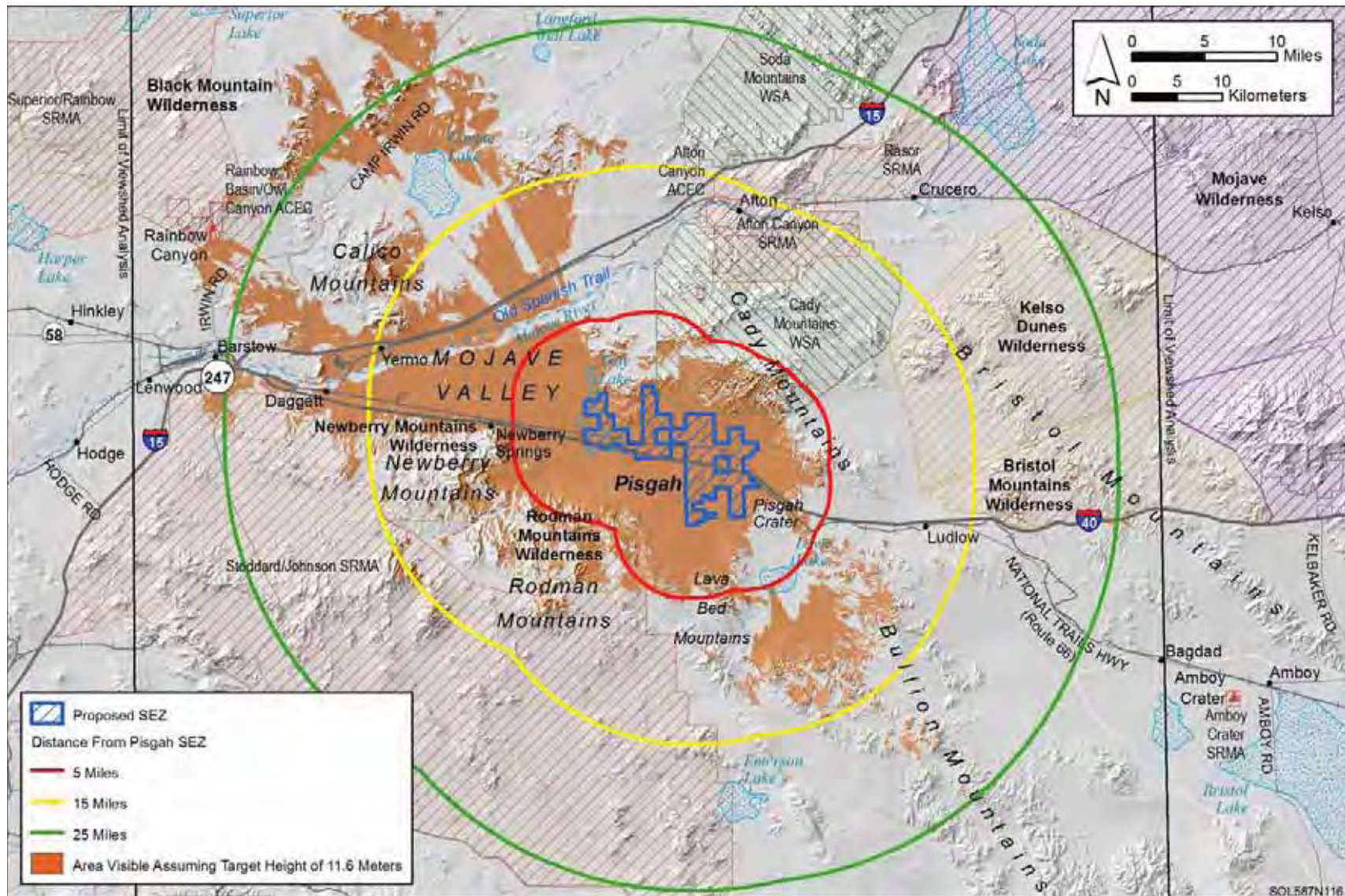


FIGURE N.3.3-2 Viewshed Analysis for the Proposed Pisgah SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m



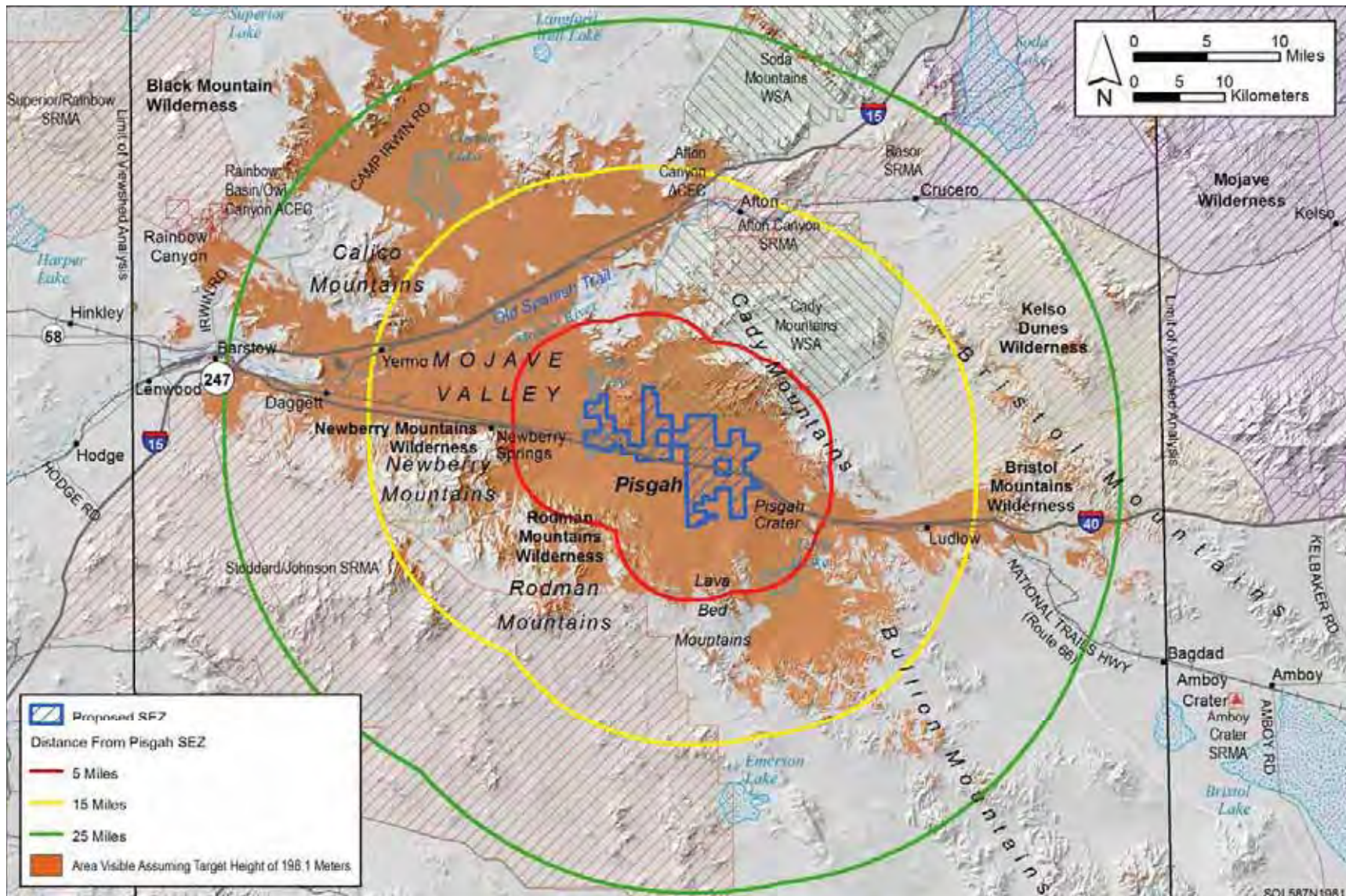


FIGURE N.3.3-4 Viewshed Analysis for the Proposed Pisgah SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft (19.8 m)

1 **N.3.4 Viewshed Maps for the Proposed Riverside East SEZ**
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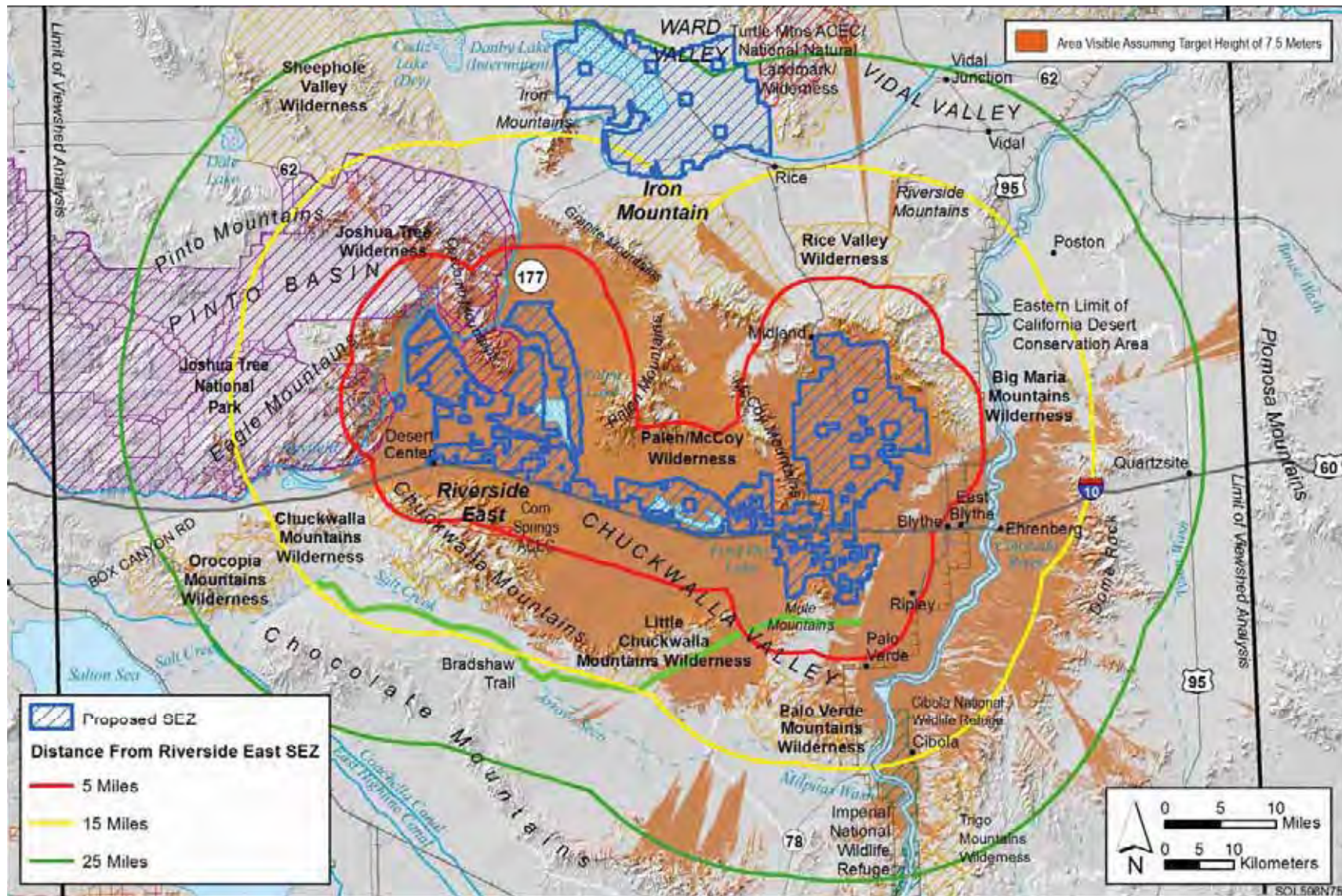


FIGURE N.3.4-1 Viewshed Analysis for the Proposed Riverside East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

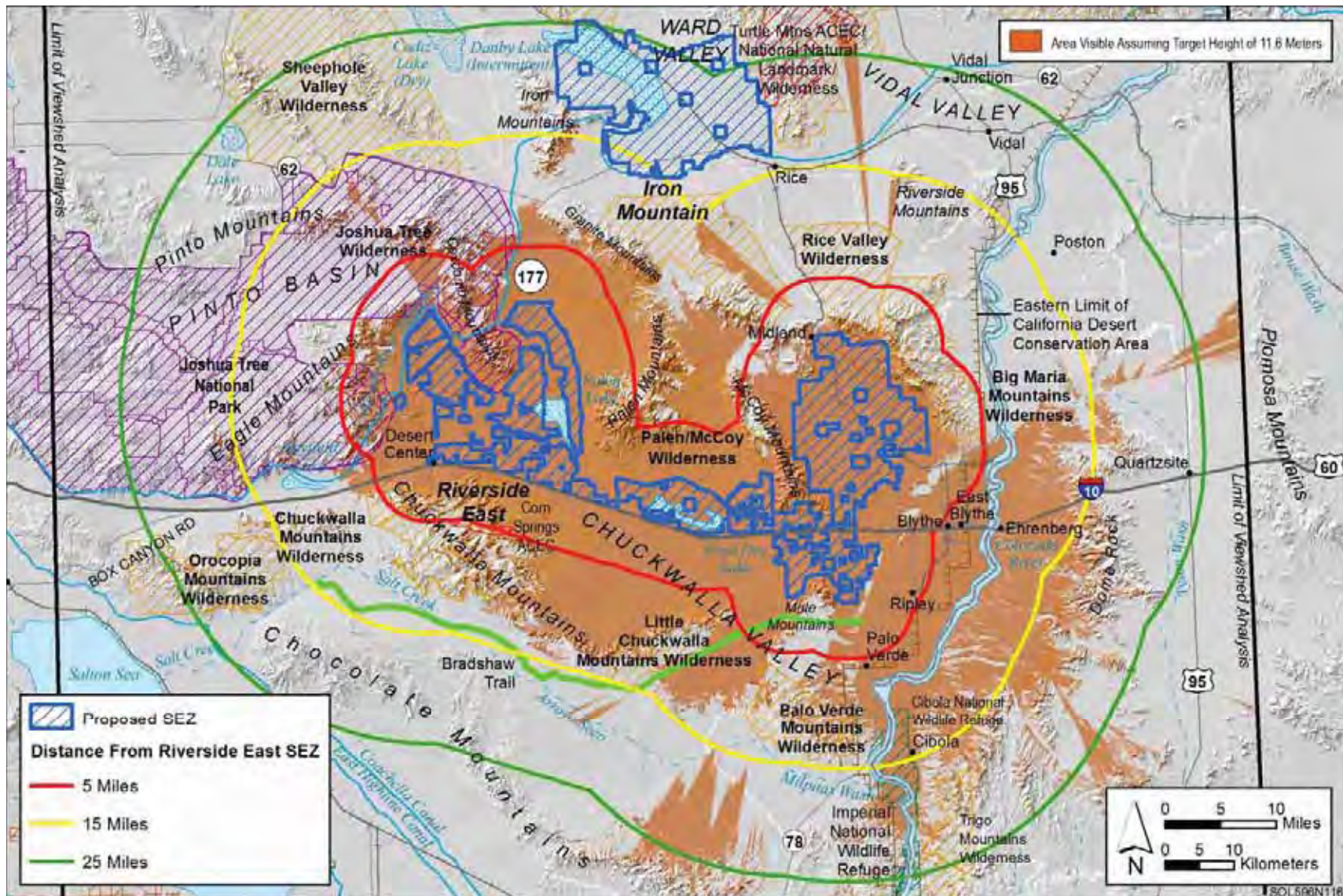


FIGURE N.3.4-2 Viewshed Analysis for the Proposed Riverside East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

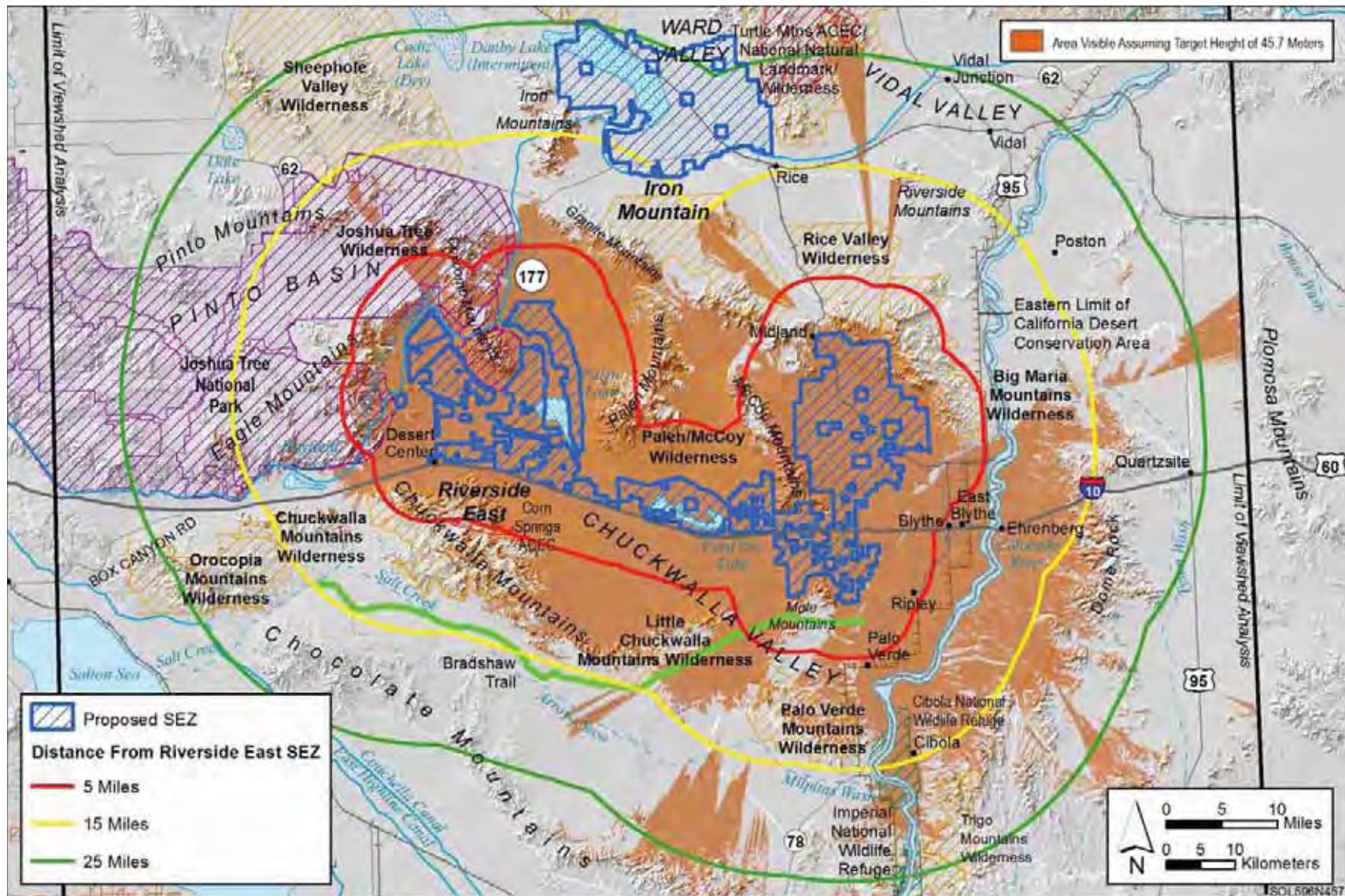


FIGURE N.3.4-3 Viewshed Analysis for the Proposed Riverside East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

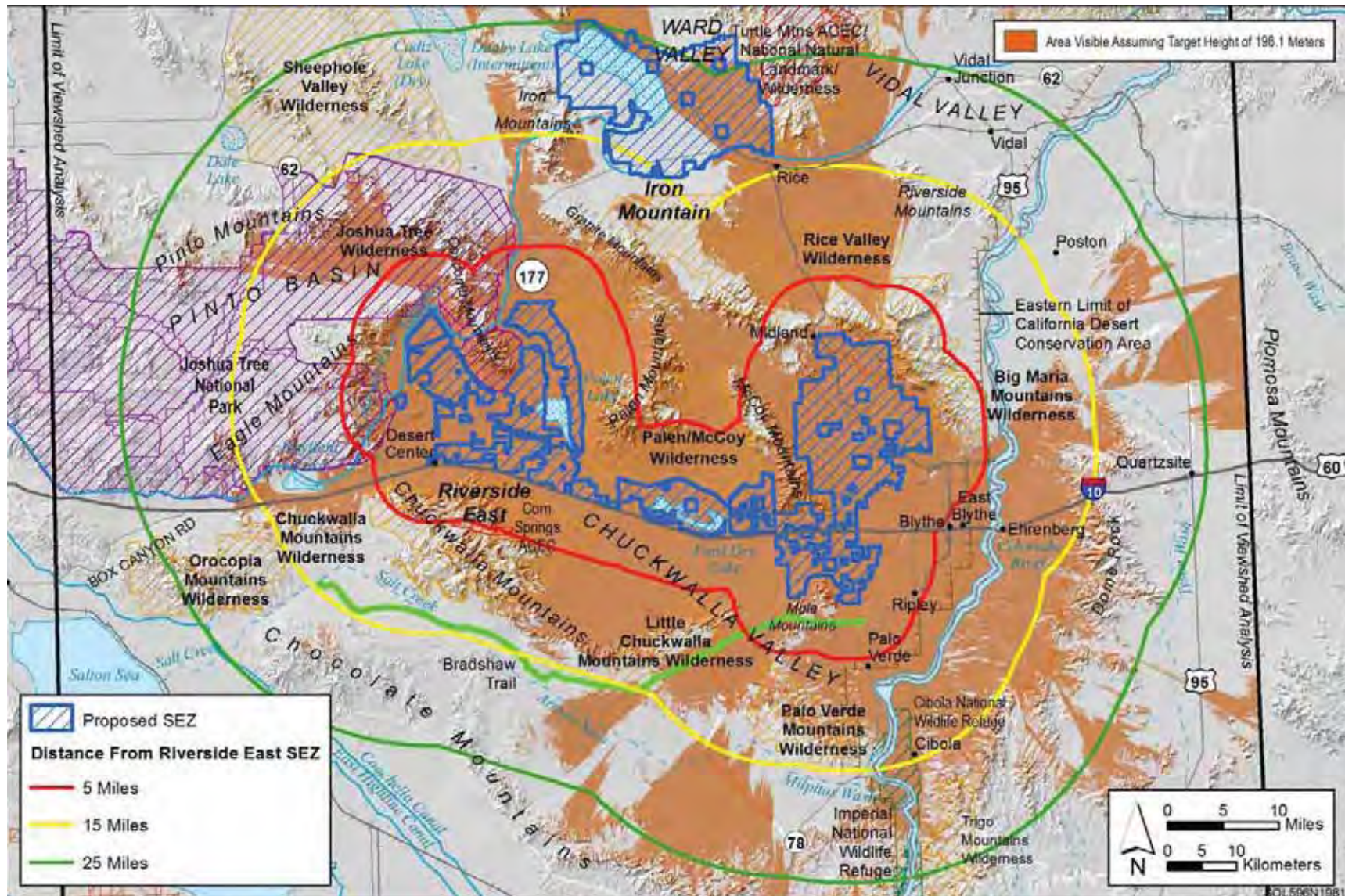


FIGURE N.3.4-4 Viewshed Analysis for the Proposed Riverside East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft (19.8 m)

1 **N.4 VIEWSHED MAPS FOR COLORADO SEZS**

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4 **N.4.1 Viewshed Maps for the Proposed Antonito Southeast SEZ**

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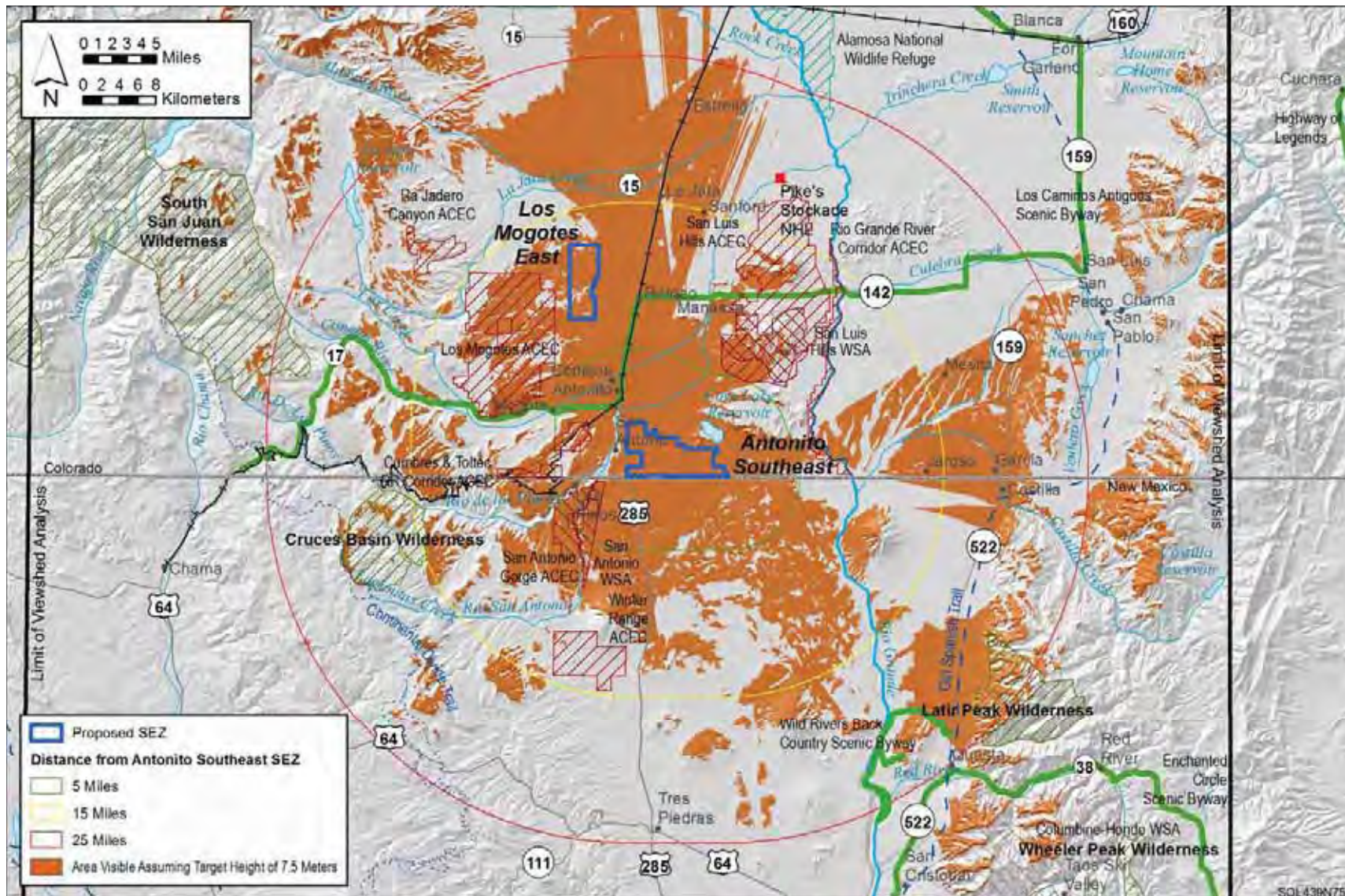


FIGURE N.4.1-1 Viewshed Analysis for the Proposed Antonito Southeast SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft (7.5 m)

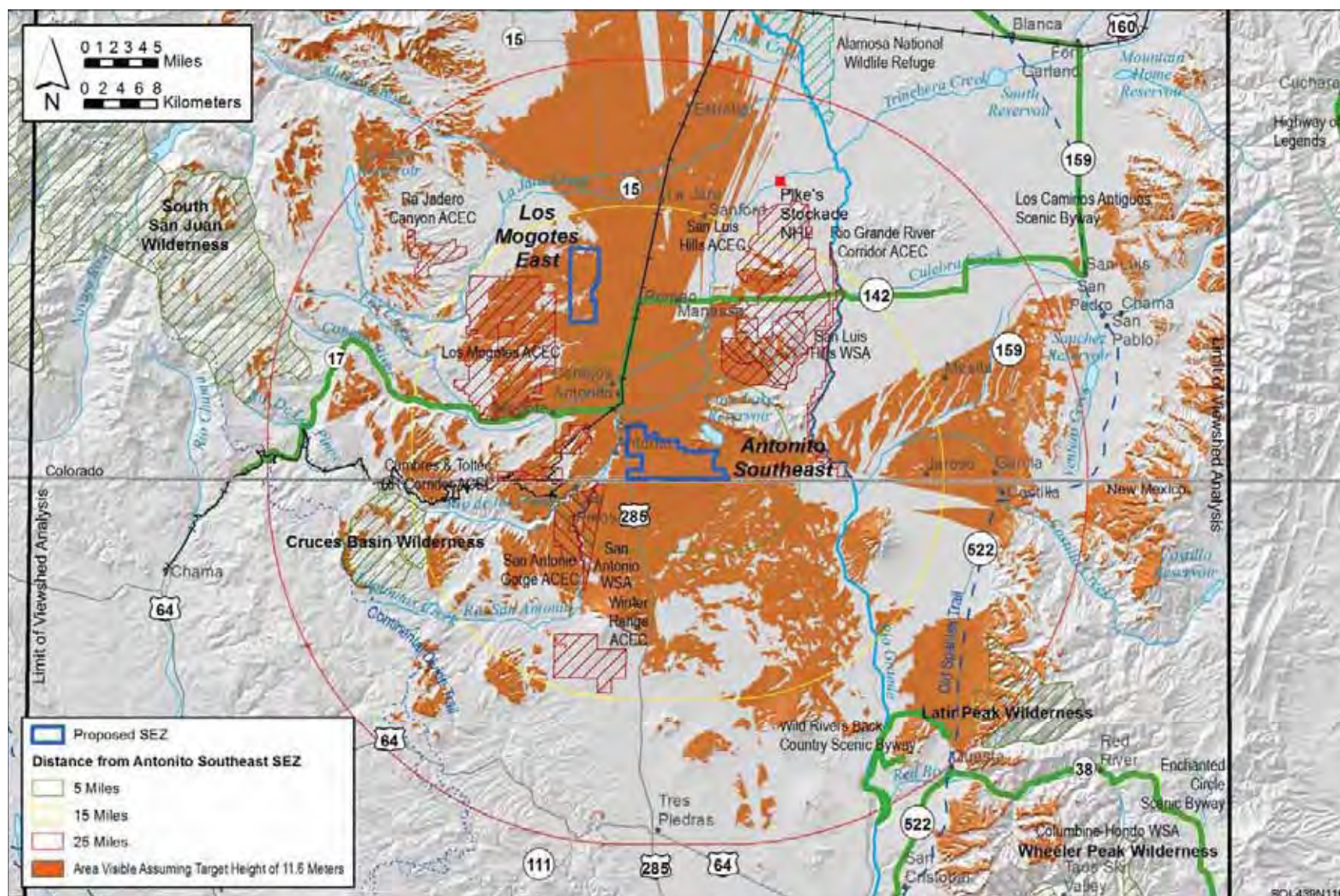


FIGURE N.4.1-2 Viewshed Analysis for the Proposed Antonito Southeast SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

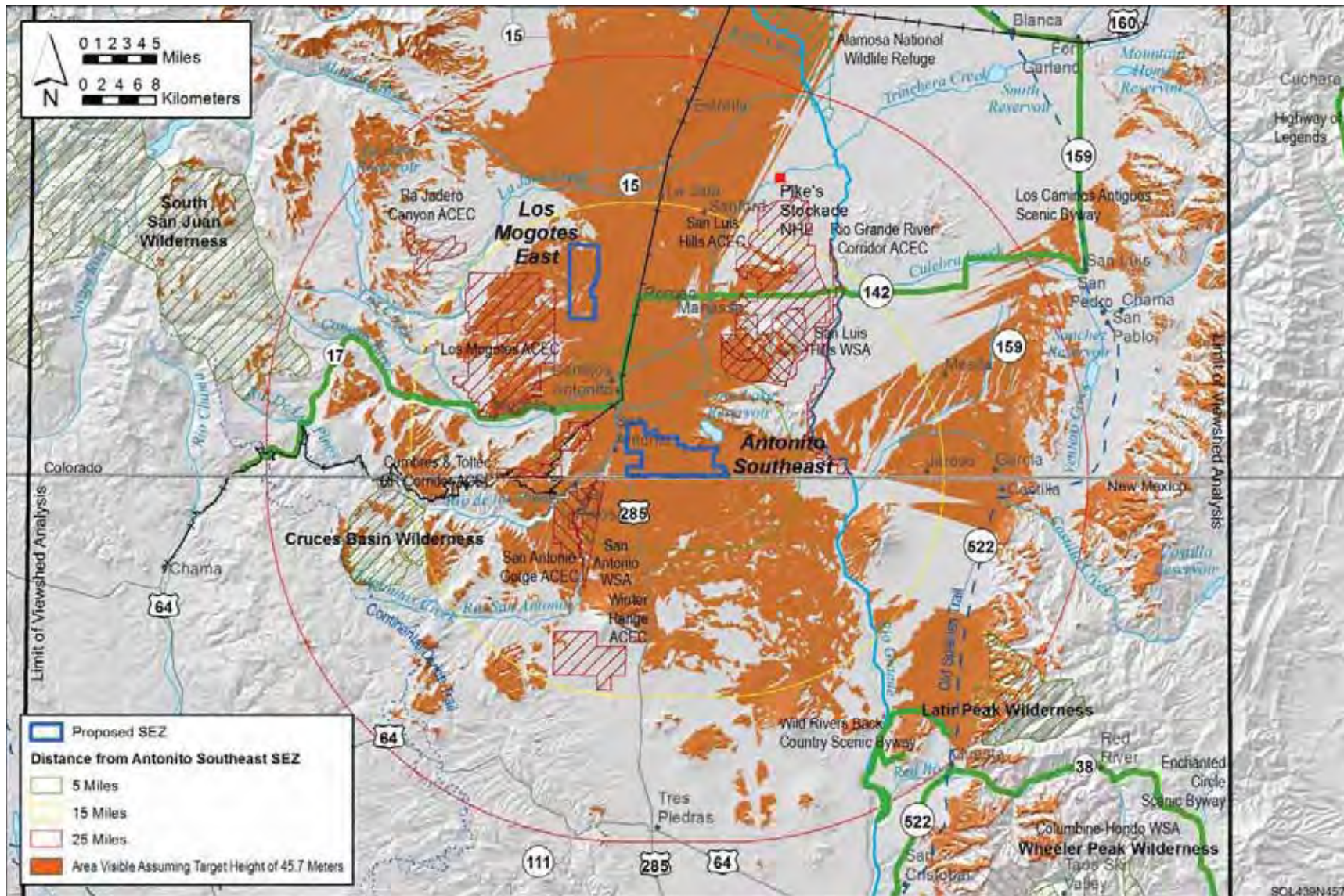


FIGURE N.4.1-3 Viewshed Analysis for the Proposed Antonito Southeast SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

1 **N.4.2 Viewshed Maps for the Proposed De Tilla Gulch SEZ**
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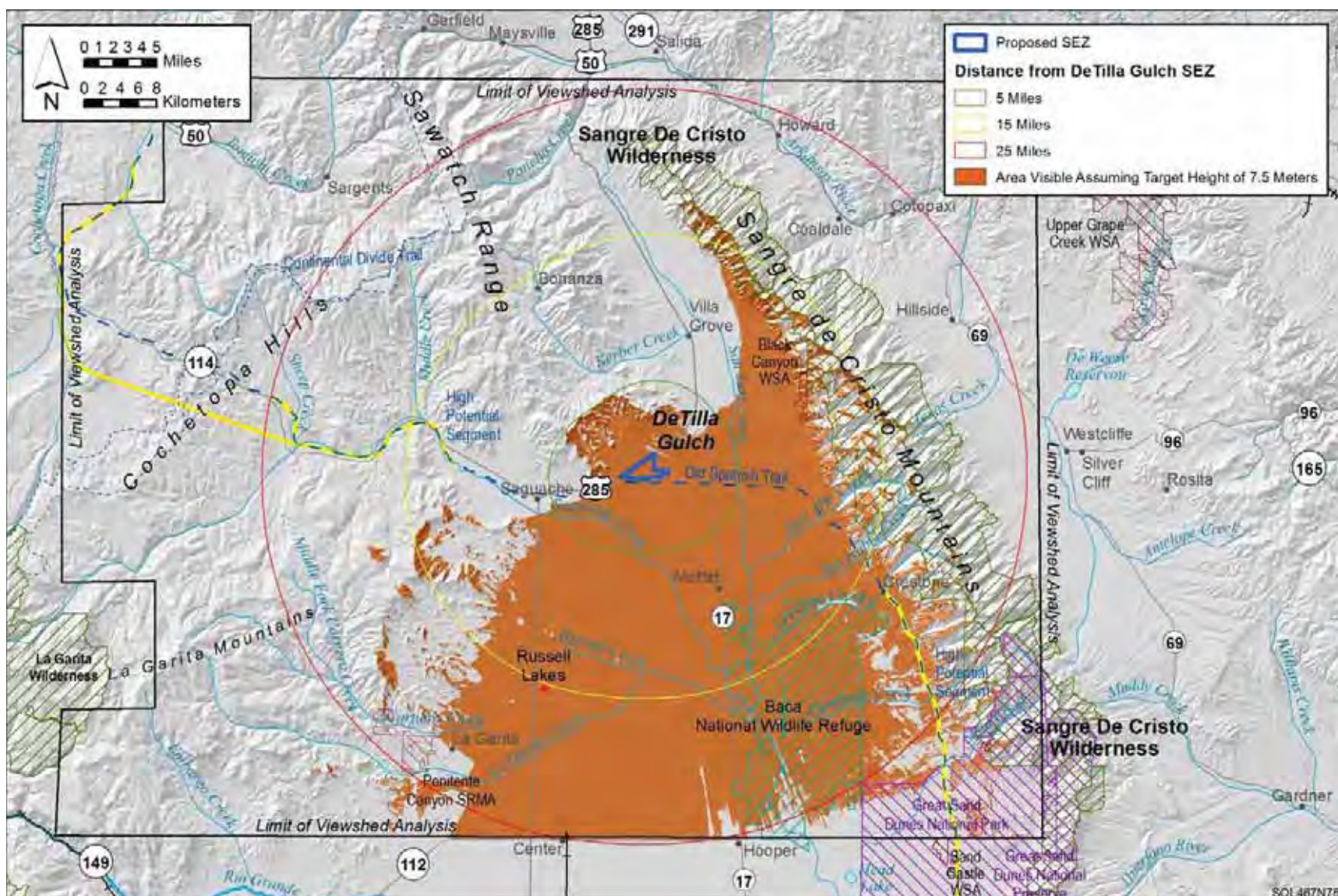


FIGURE N.4.2-1 Viewshed Analysis for the Proposed De Tilla Gulch SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

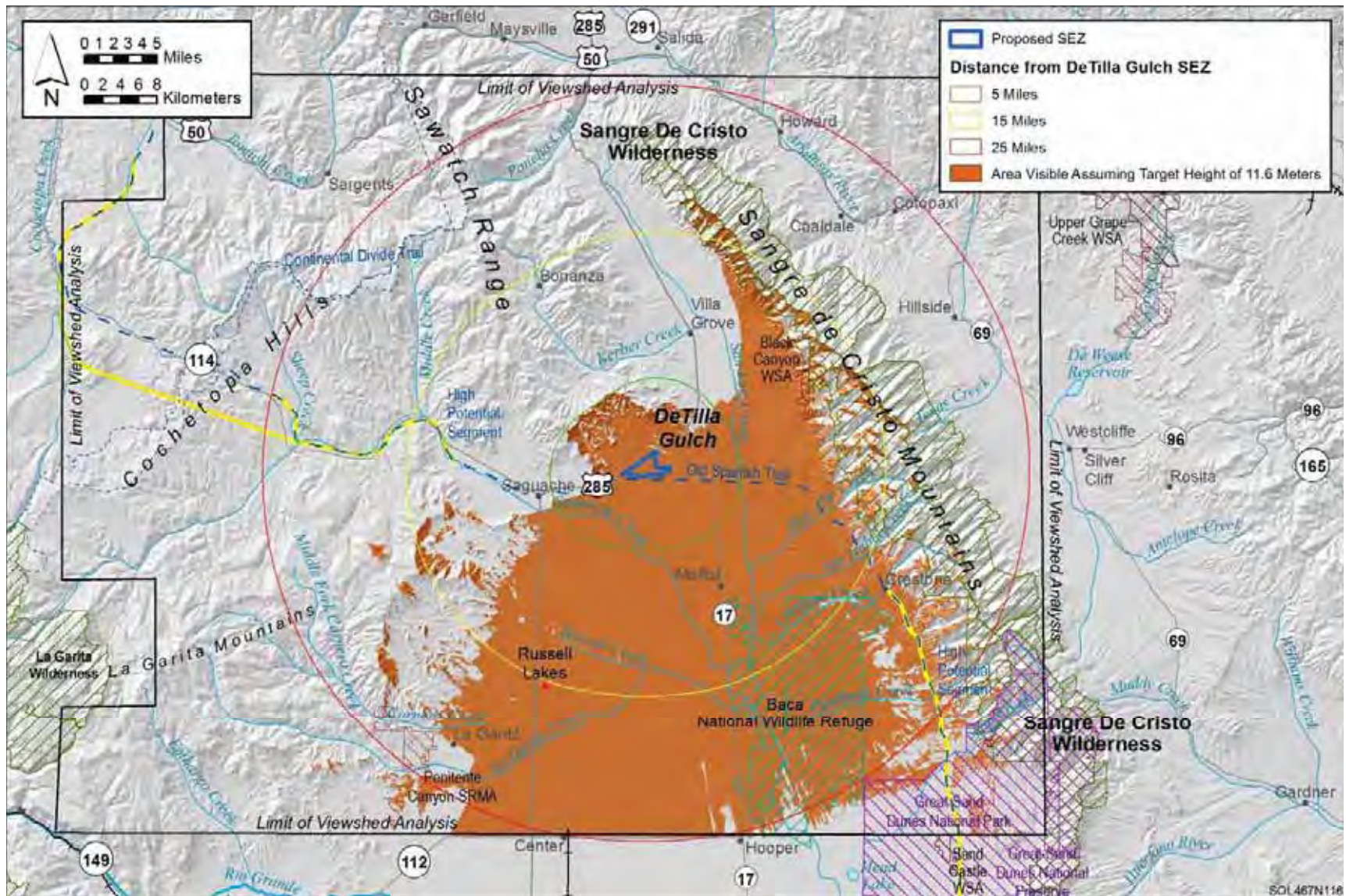


FIGURE N.4.2-2 Viewshed Analysis for the Proposed De Tilla Gulch SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

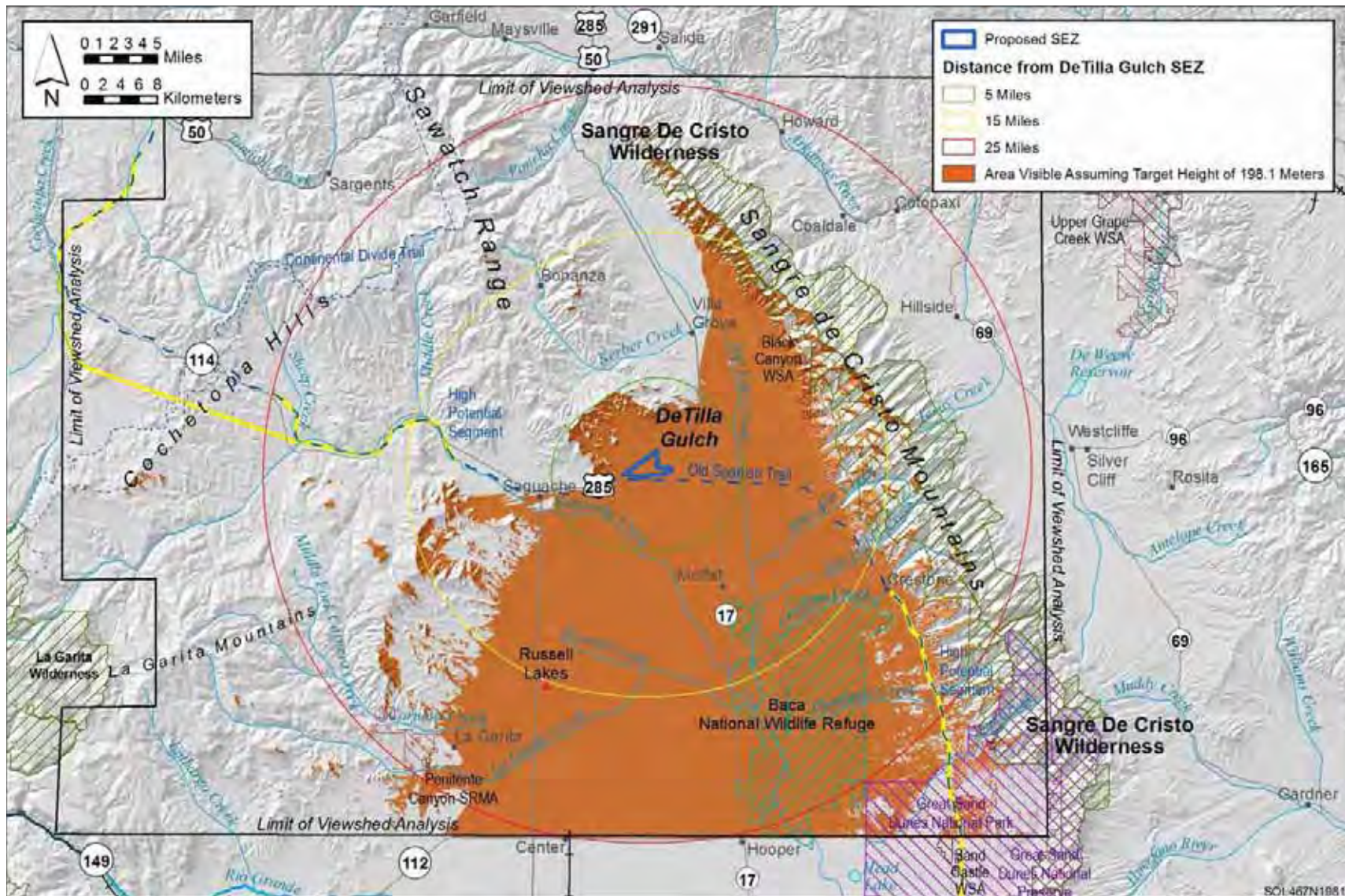


FIGURE N.4.2-4 Viewshed Analysis for the Proposed De Tilla Gulch SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.4.3 Viewshed Maps for the Proposed Fourmile East SEZ**
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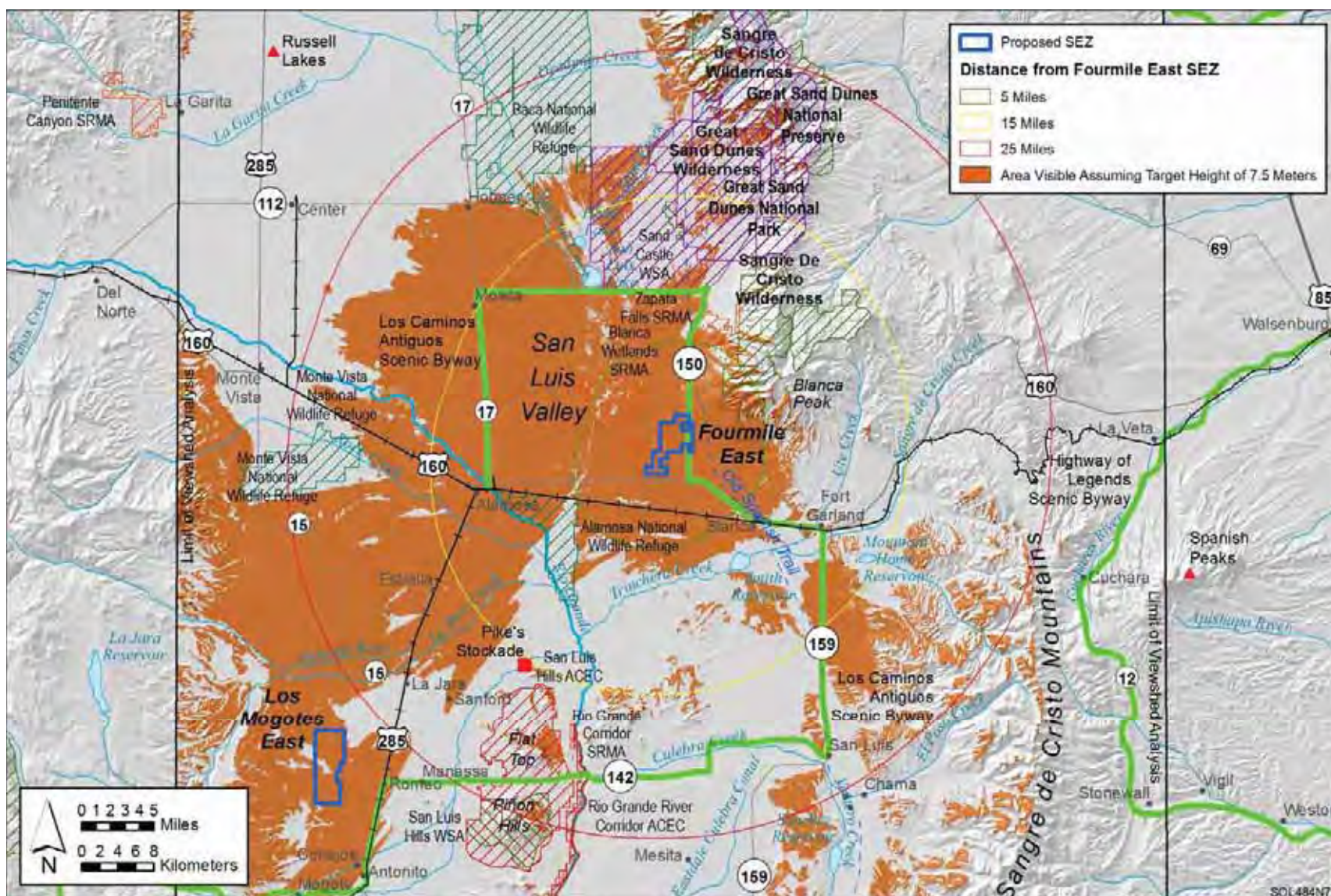


FIGURE N.4.3-1 Viewshed Analysis for the Proposed Fourmile East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

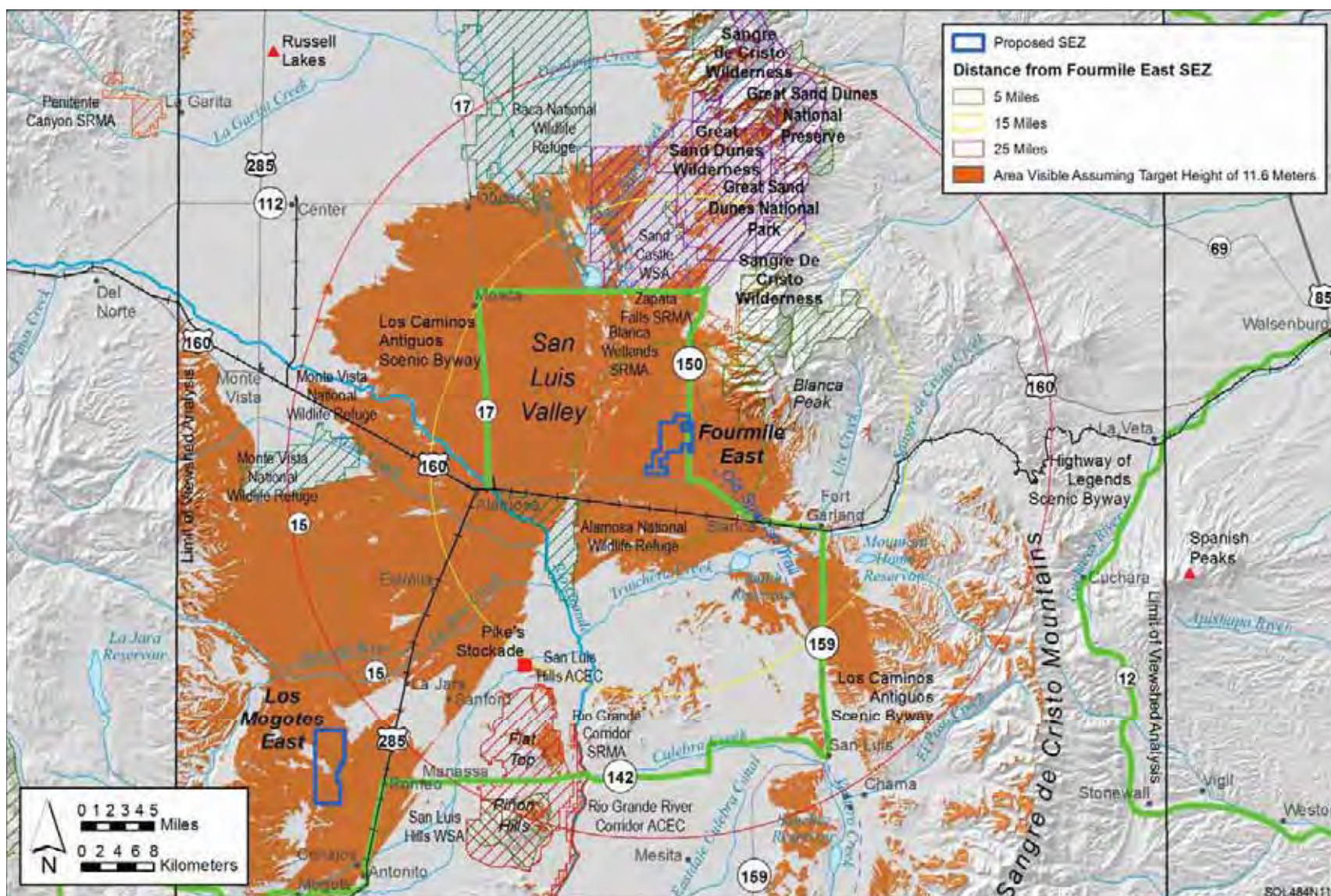


FIGURE N.4.3-2 Viewshed Analysis for the Proposed Fourmile East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

1 **N.4.4 Viewshed Maps for the Proposed Los Mogotes East SEZ**
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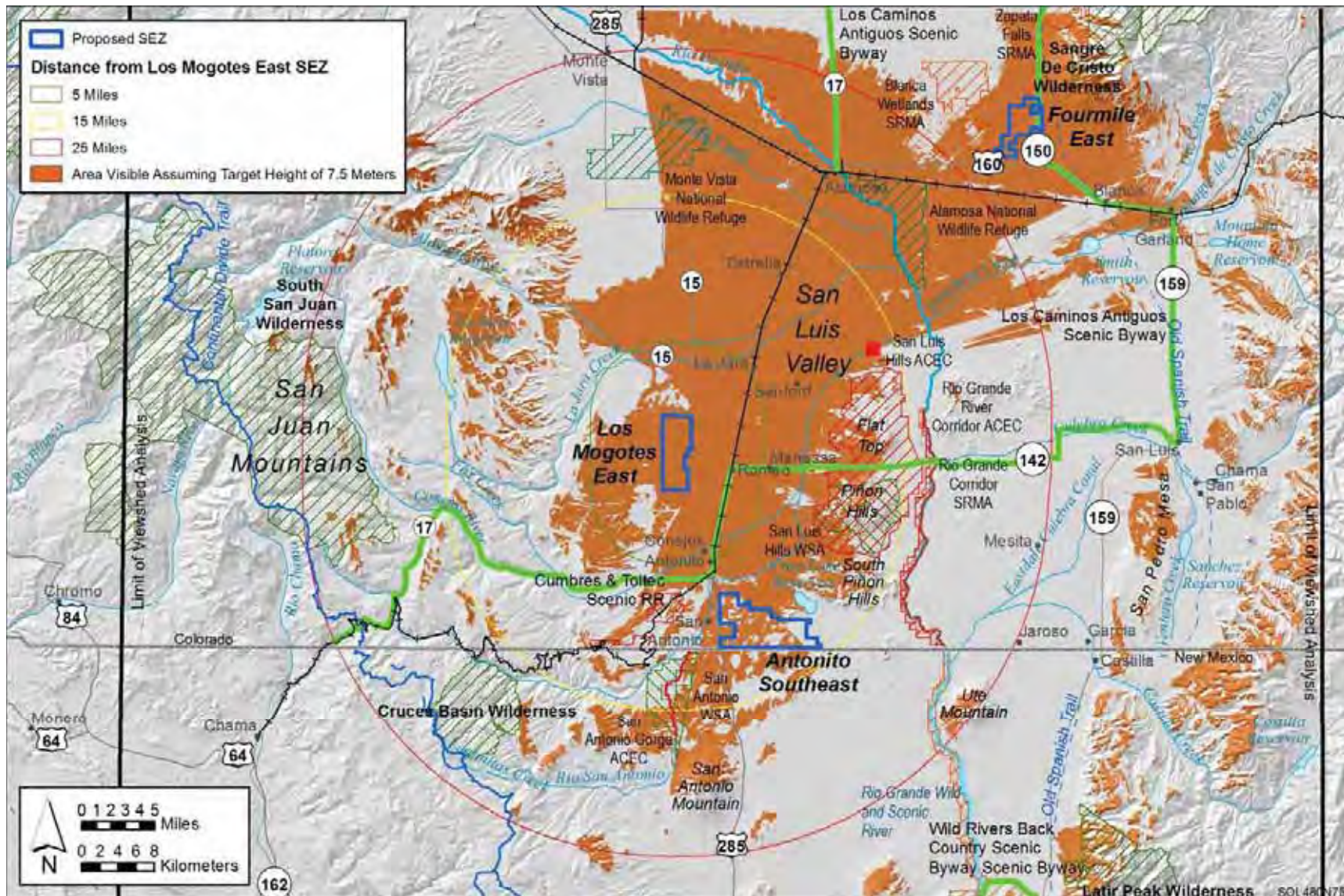


FIGURE N.4.4-1 Viewshed Analysis for the Proposed Los Mogotes East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft (7.5 m)

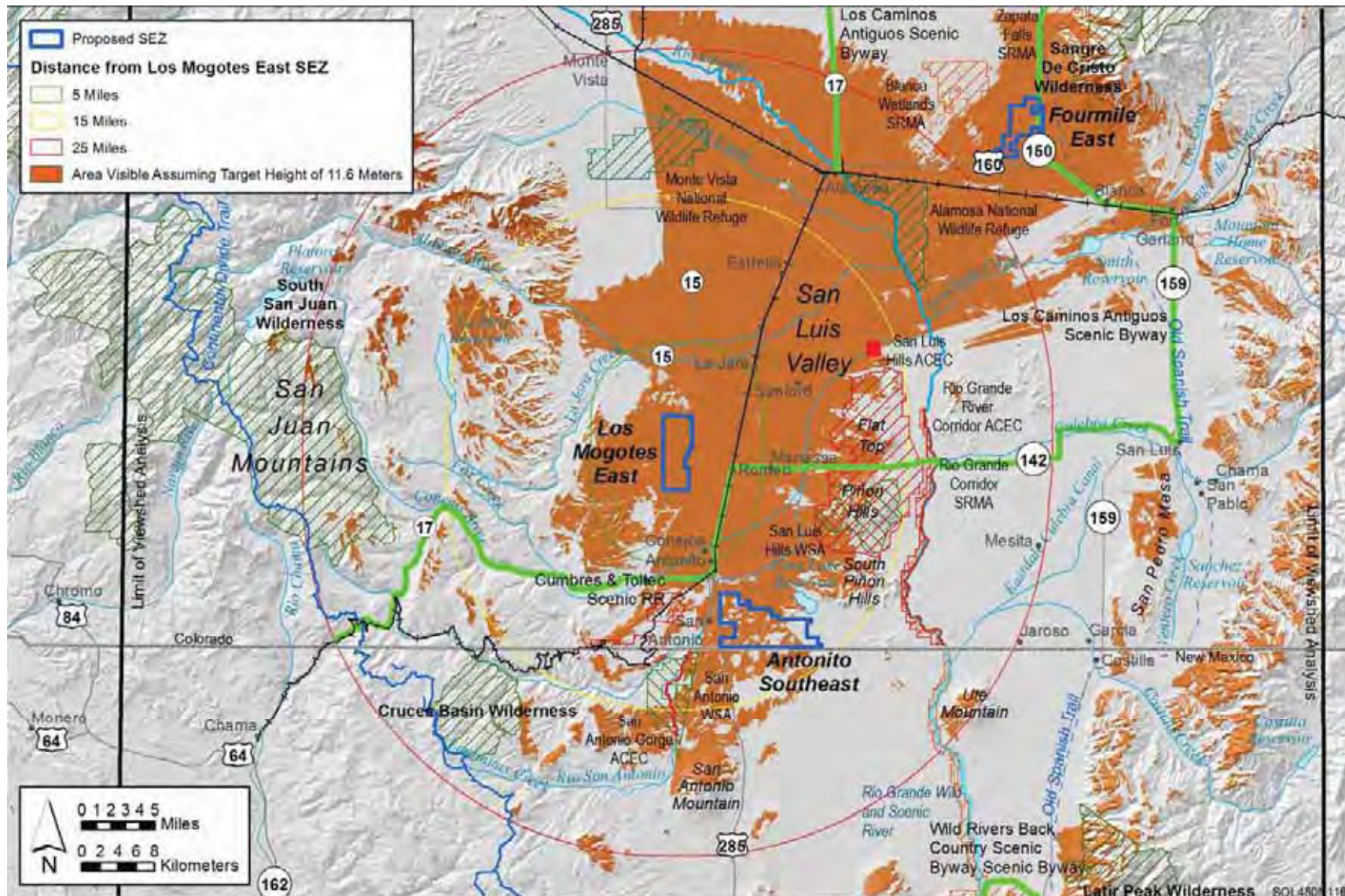


FIGURE N.4.4-2 Viewshed Analysis for the Proposed Los Mogotes East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

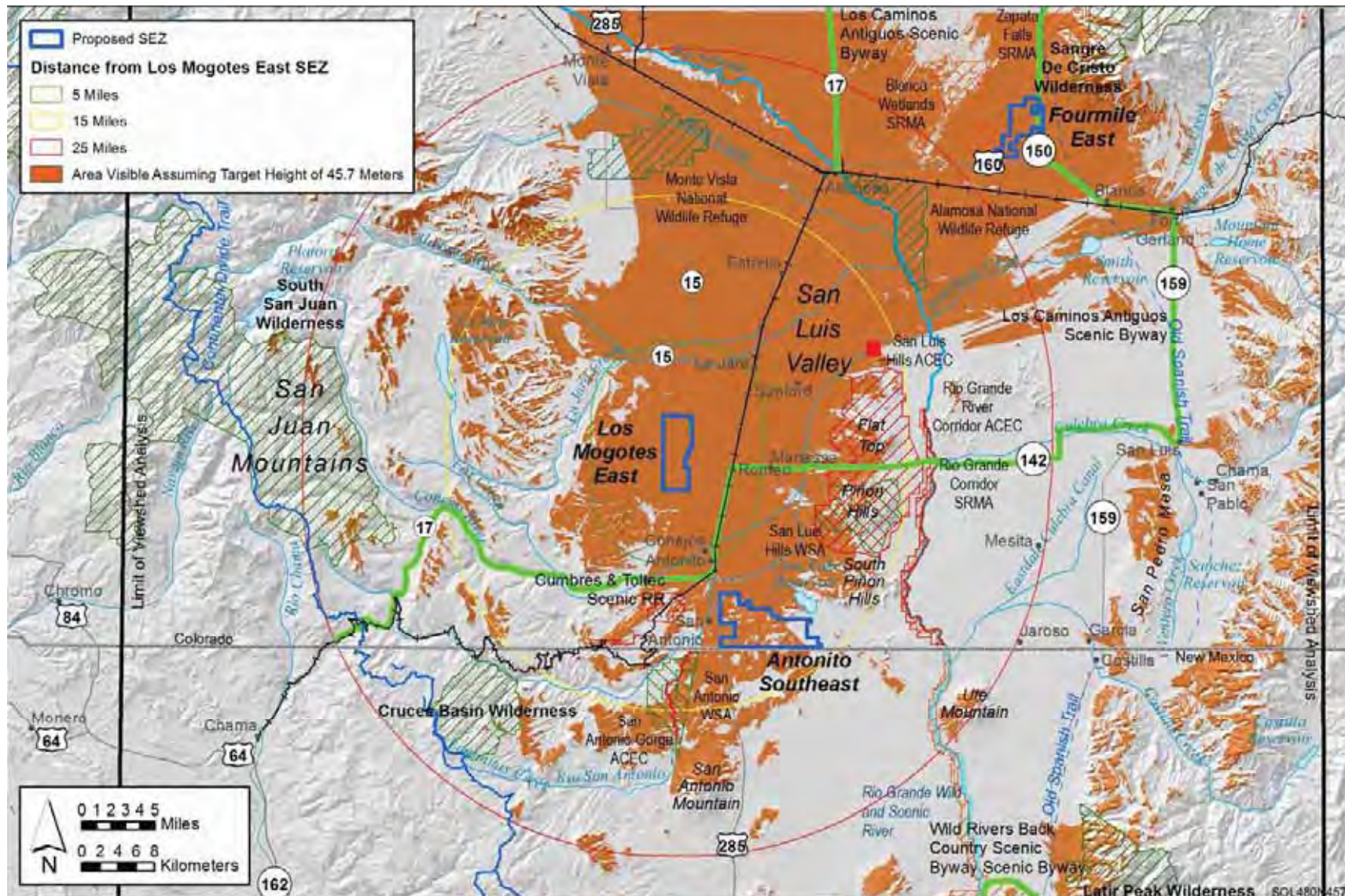


FIGURE N.4.4-3 Viewshed Analysis for the Proposed Los Mogotes East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

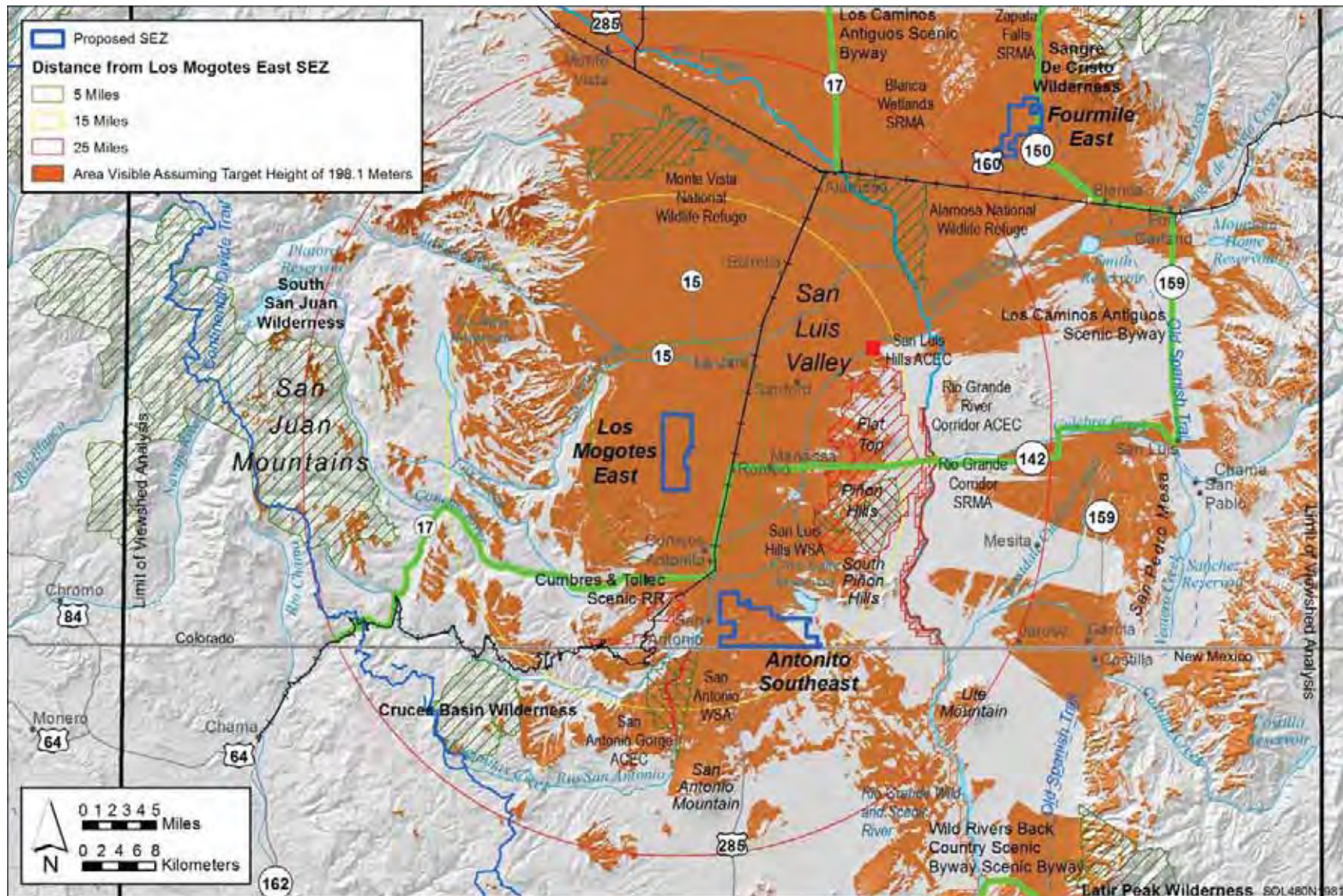


FIGURE N.4.4-4 Viewshed Analysis for the Proposed Los Mogotes East SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft (19.81 m)

1 **N.5 VIEWSHED MAPS FOR NEVADA SEZS**

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4 **N.5.1 Viewshed Maps for the Proposed Amargosa Valley SEZ**

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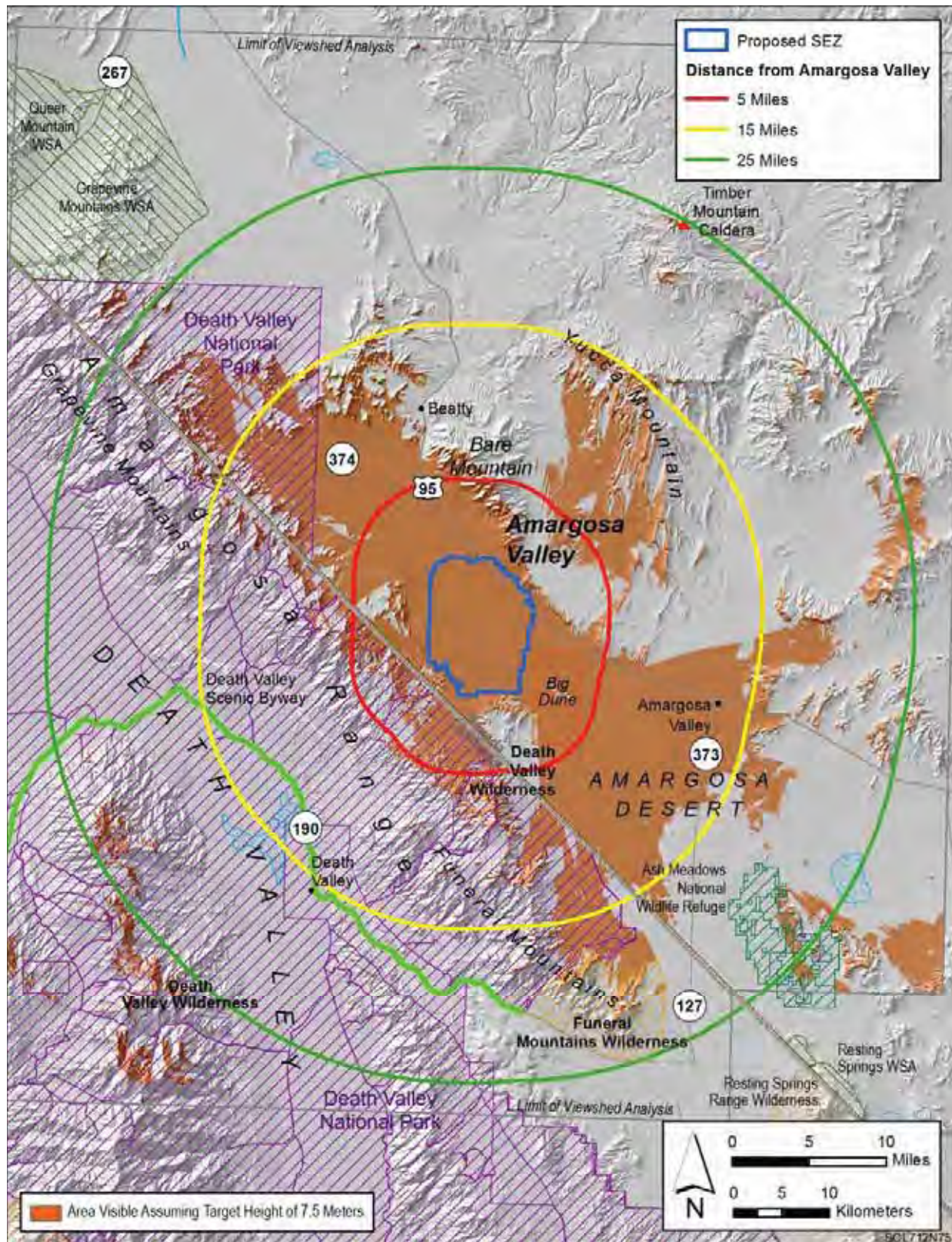


FIGURE N.5.1-1 Viewshed Analysis for the Proposed Amargosa Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

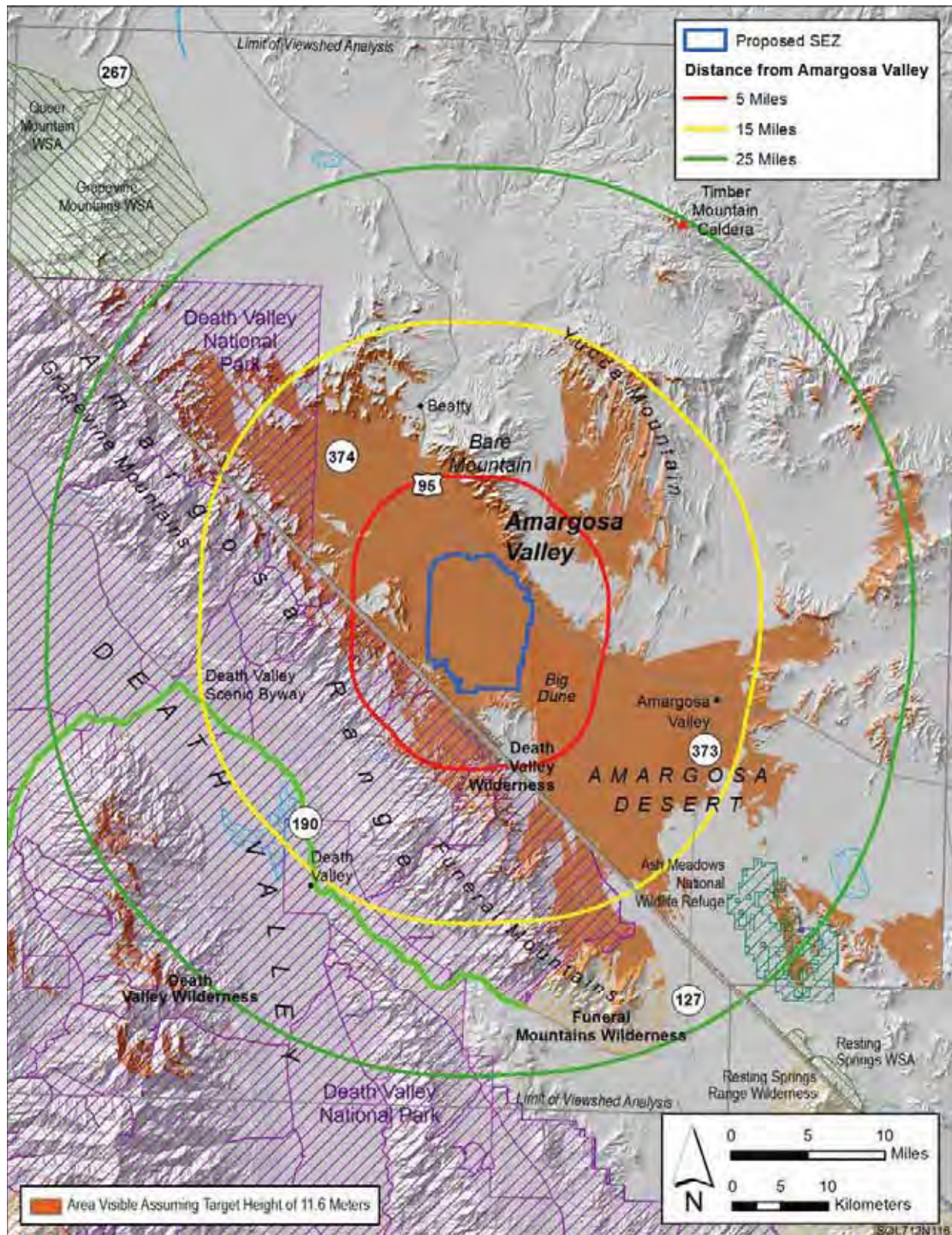


FIGURE N.5.1-2 Viewshed Analysis for the Proposed Amargosa Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

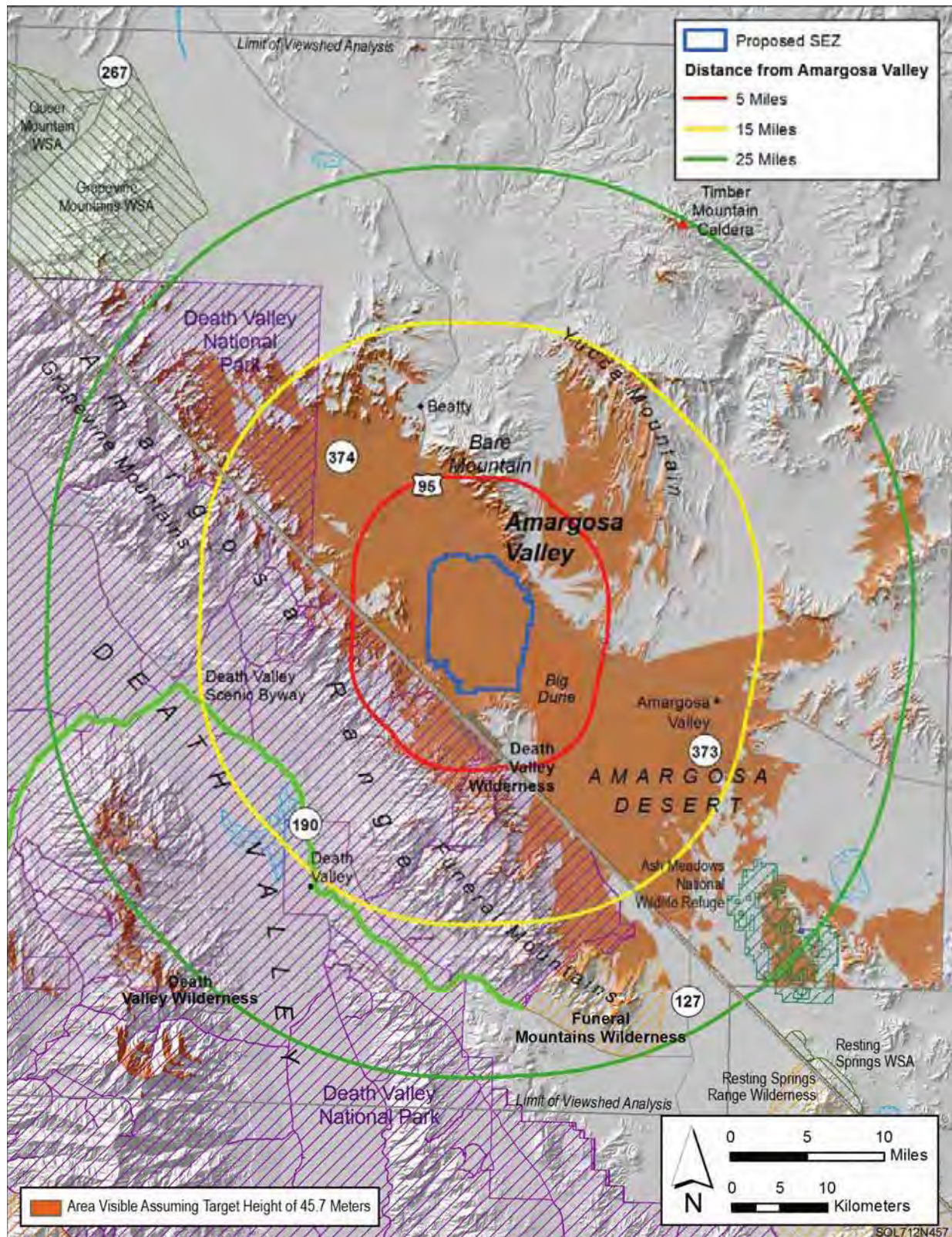


FIGURE N.5.1-3 Viewshed Analysis for the Proposed Amargosa Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

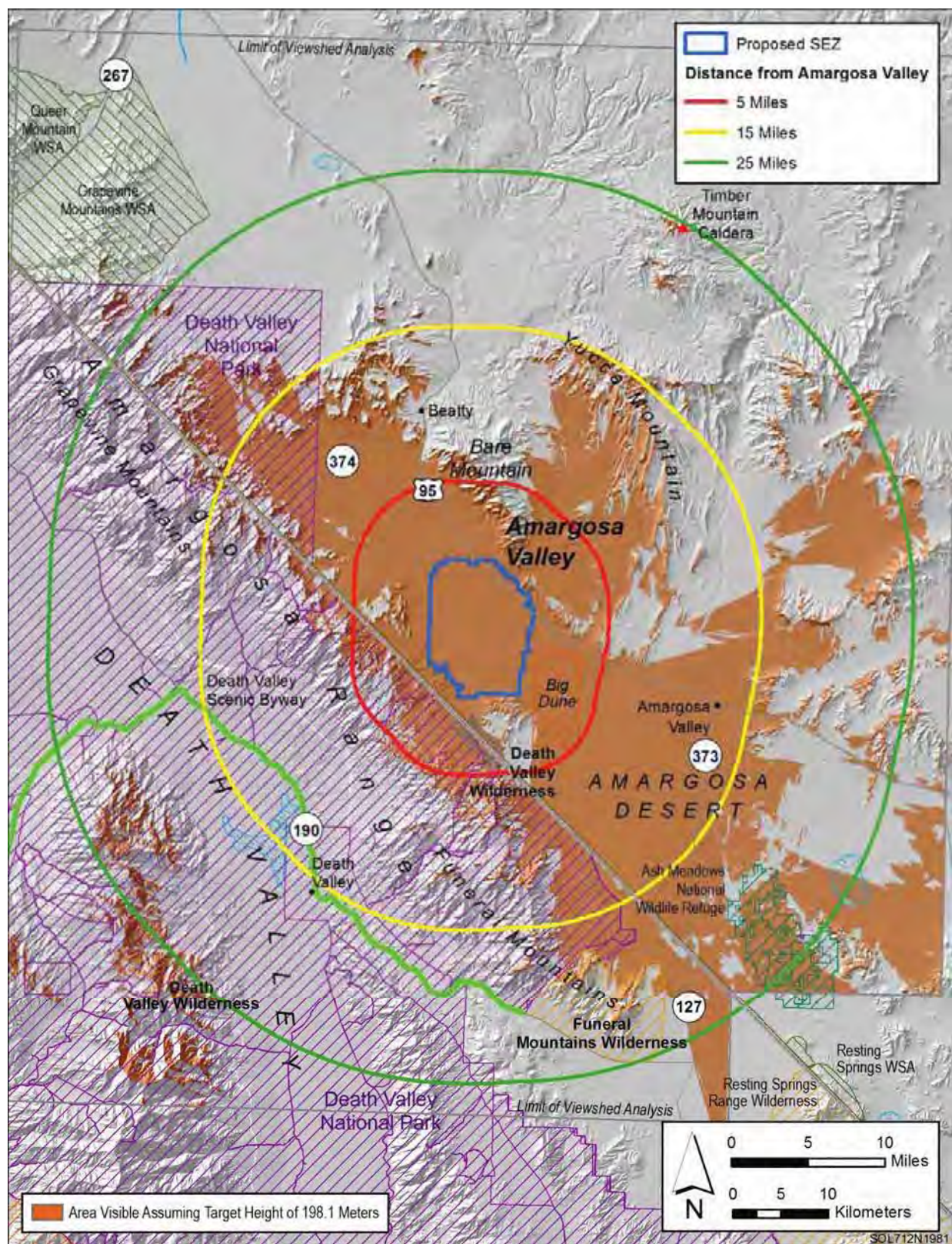
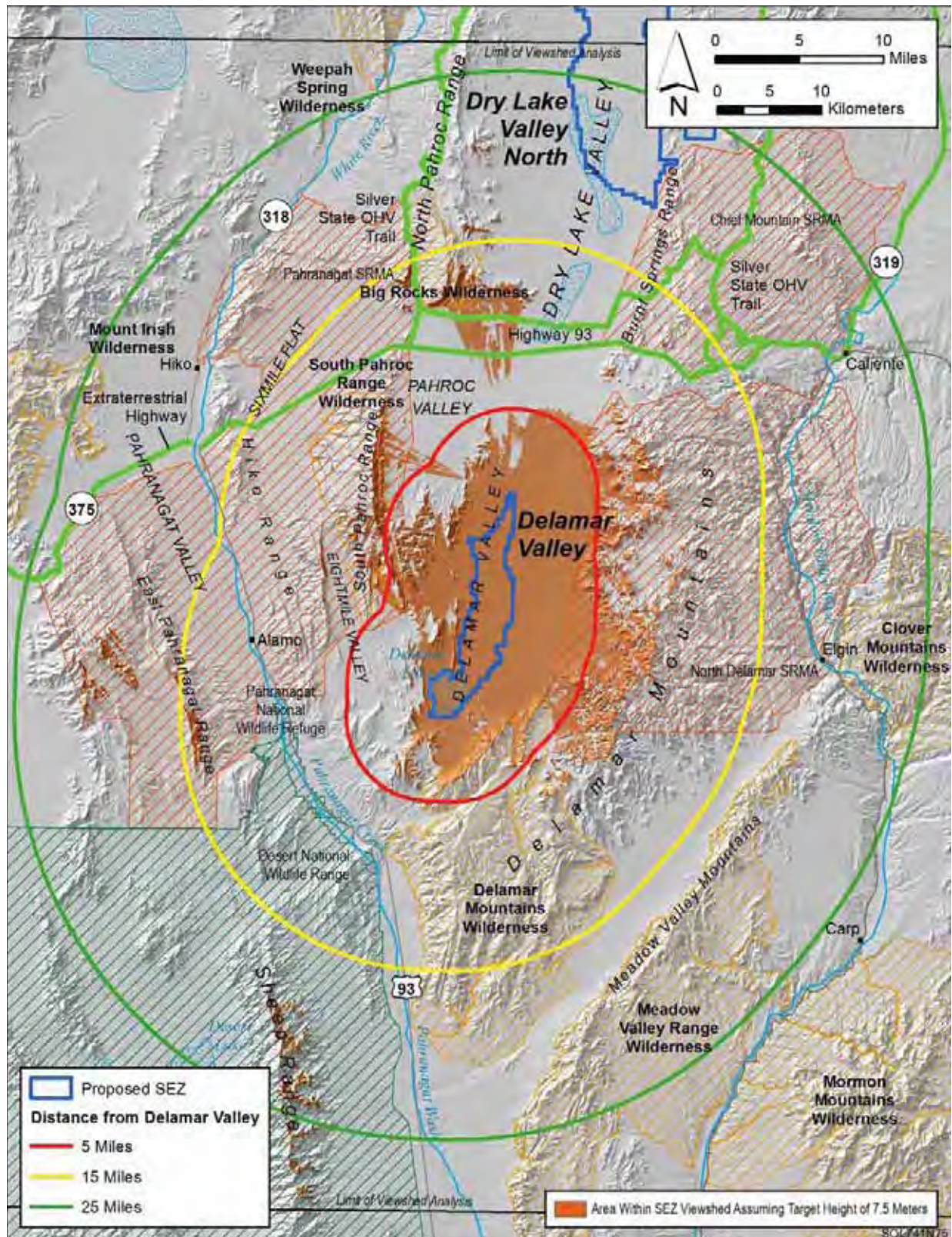


FIGURE N.5.1-4 Viewshed Analysis for the Proposed Amargosa Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.5.2 Viewshed Maps for the Proposed Delamar Valley SEZ**
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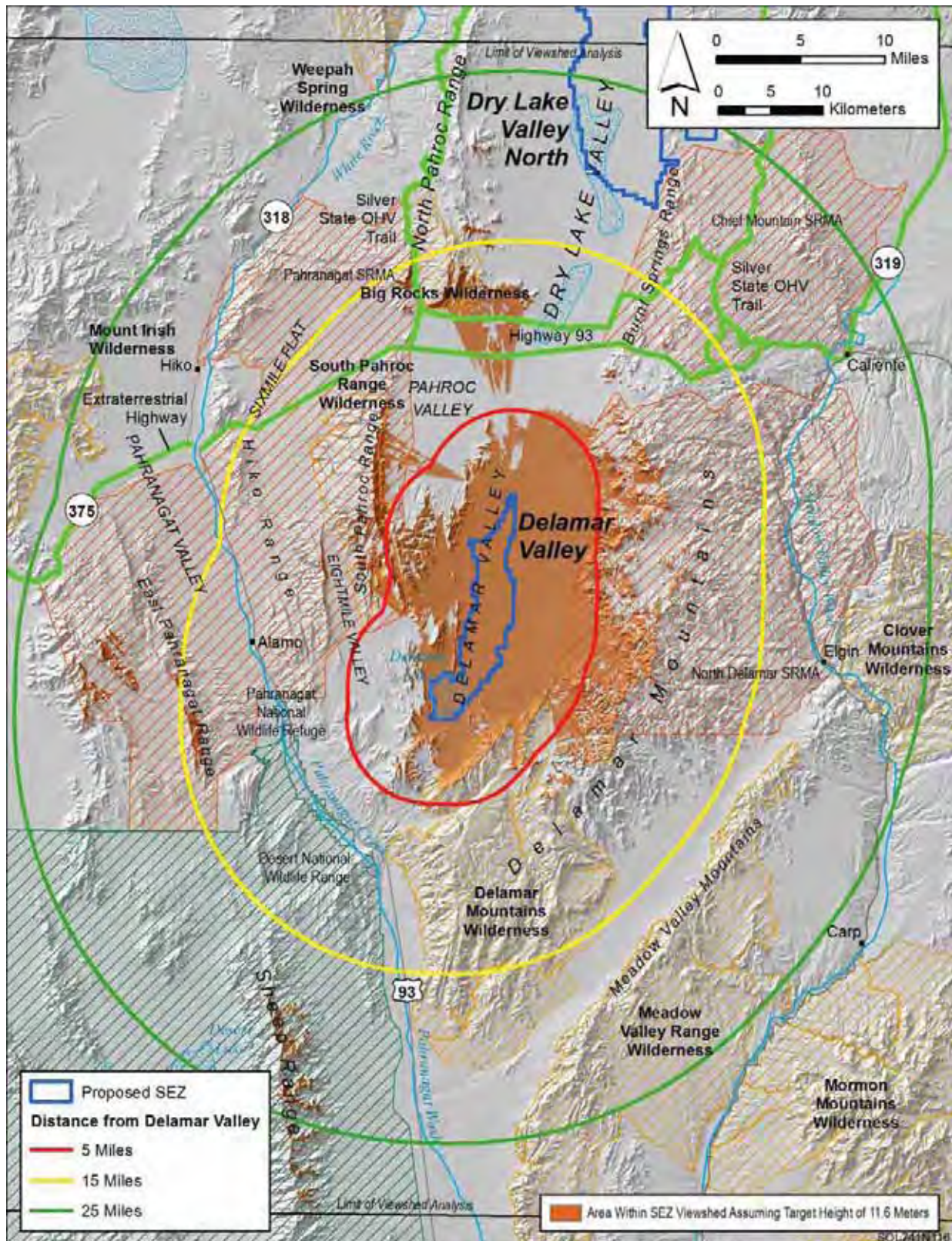


FIGURE N.5.2-2 Viewshed Analysis for the Proposed Delamar Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

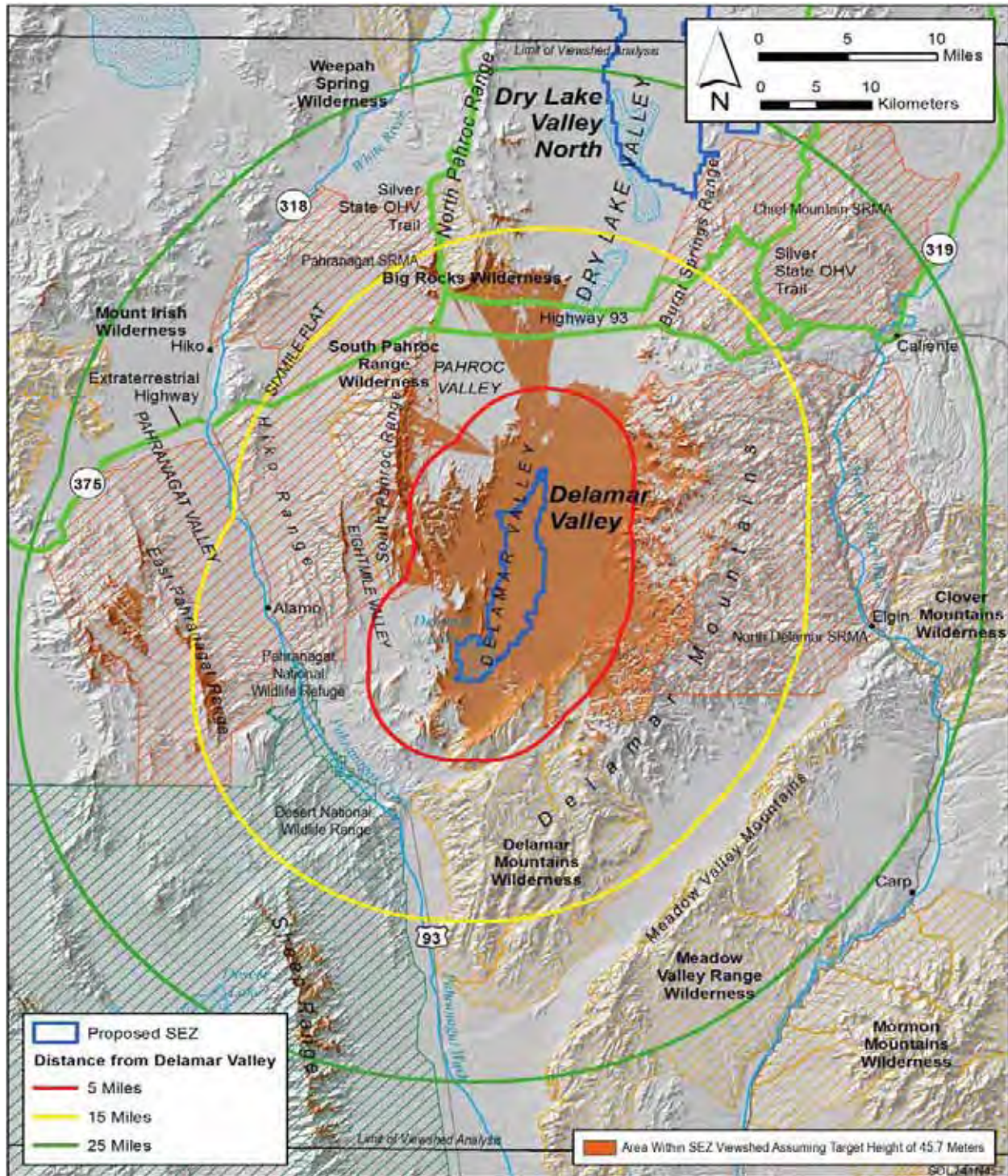


FIGURE N.5.2-3 Viewshed Analysis for the Proposed Delamar Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

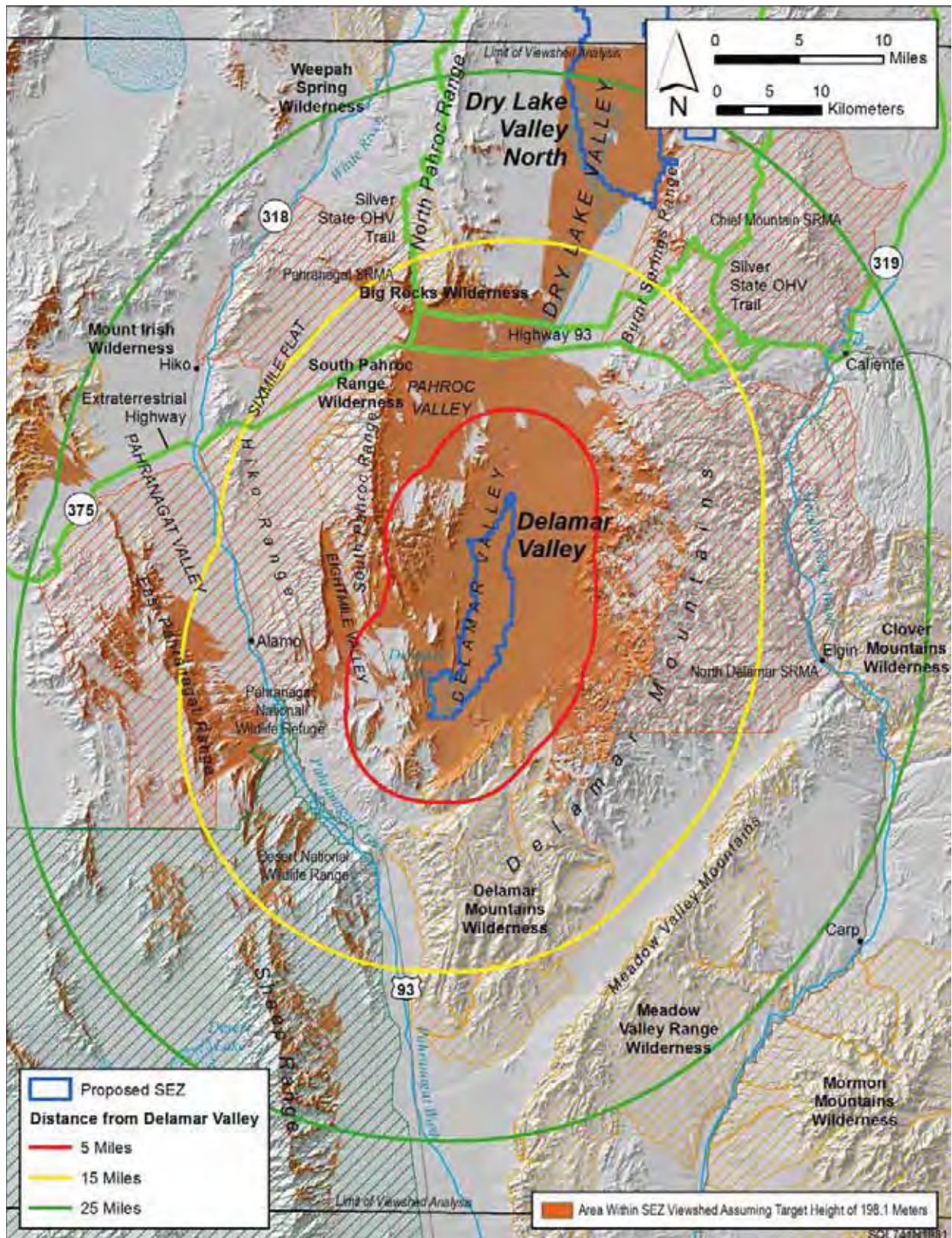


FIGURE N.5.2-4 Viewshed Analysis for the Proposed Delamar Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.5.3 Viewshed Maps for the Proposed Dry Lake SEZ**
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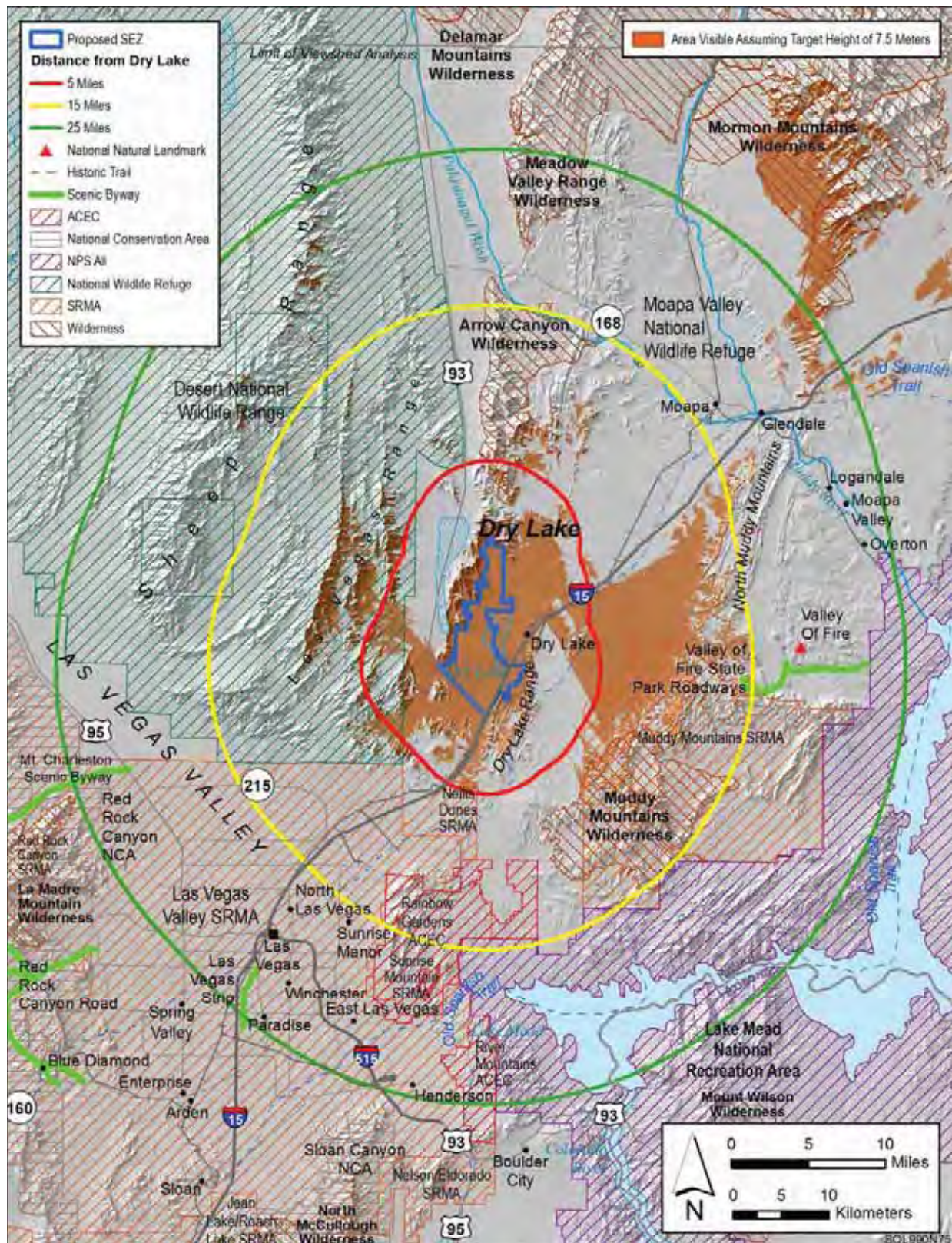


FIGURE N.5.3-1 Viewshed Analysis for the Proposed Dry Lake SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft (7.5 m)

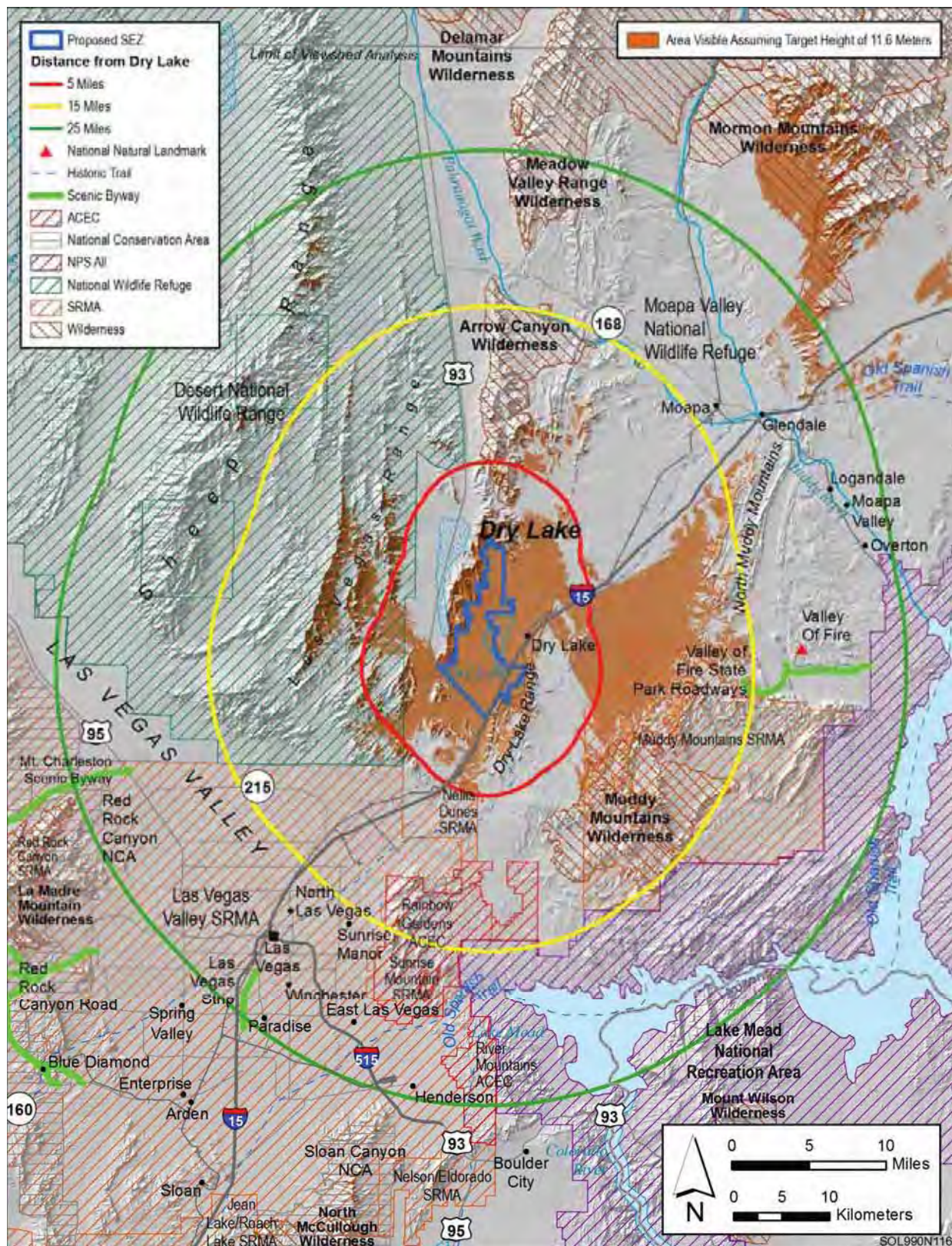


FIGURE N.5.3-2 Viewshed Analysis for the Proposed Dry Lake SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

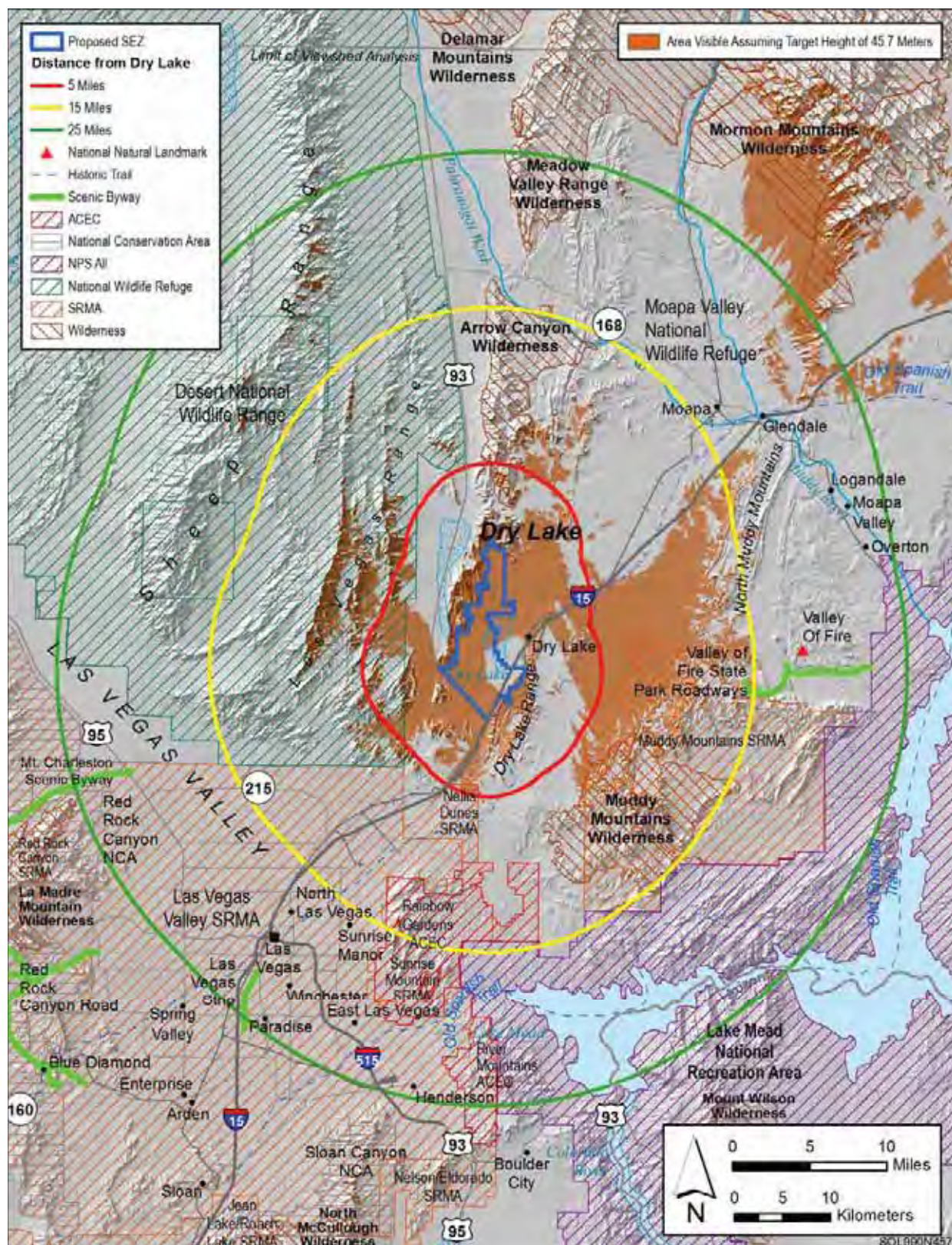


FIGURE N.5.3-3 Viewshed Analysis for the Proposed Dry Lake SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

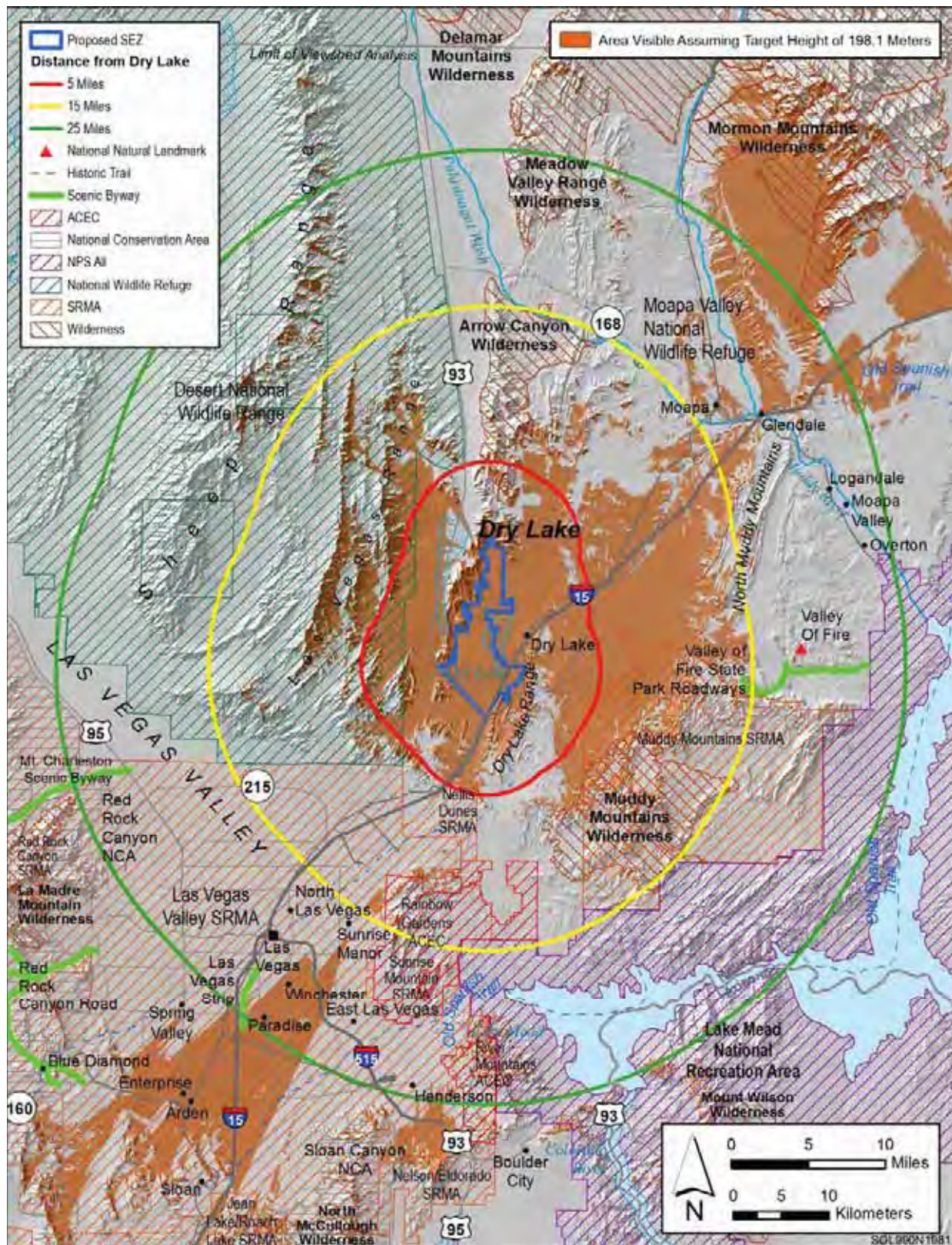


FIGURE N.5.3-4 Viewshed Analysis for the Proposed Dry Lake SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft (19.8 m)

1 **N.5.4 Viewshed Maps for the Proposed Dry Lake Valley North SEZ**
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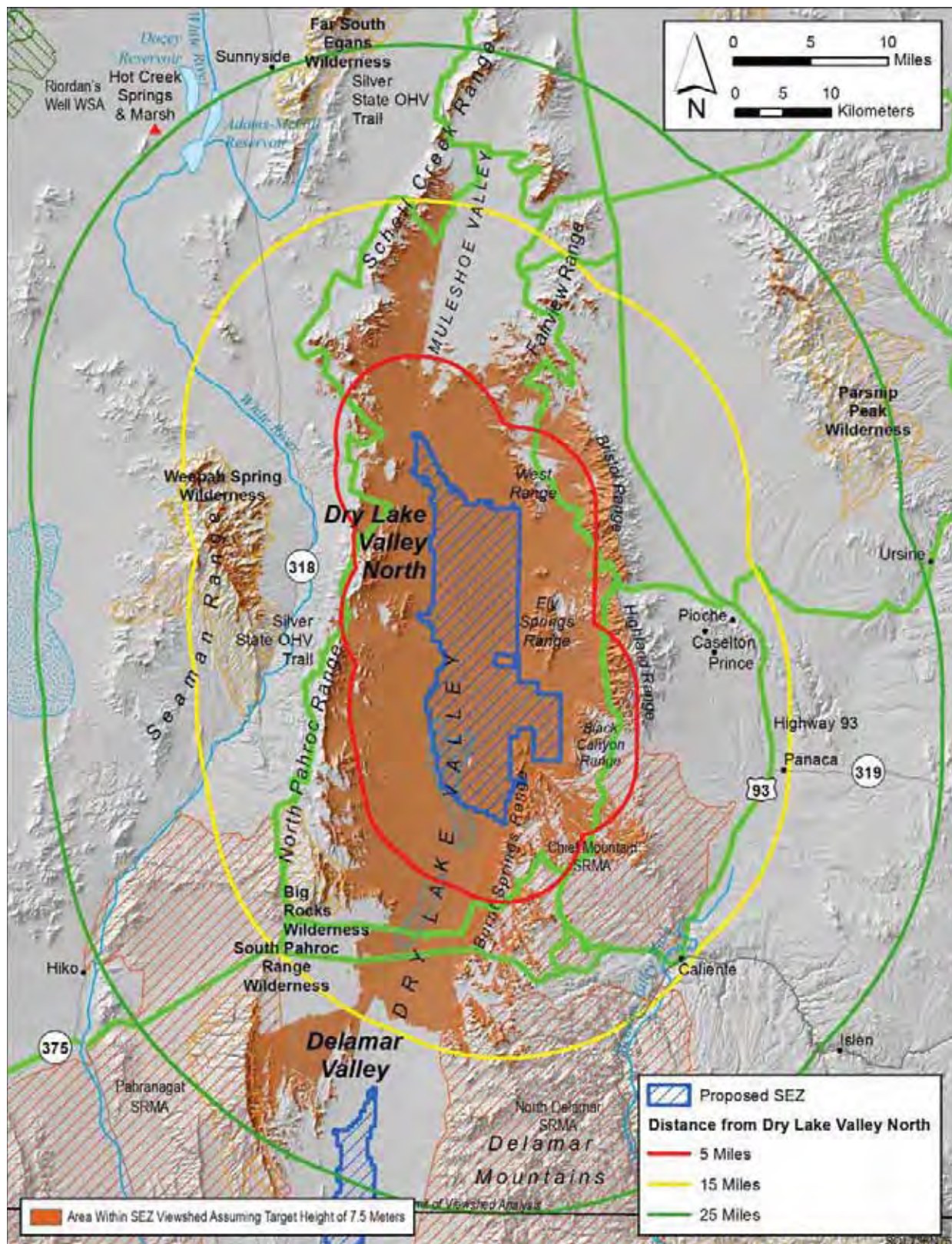


FIGURE N.5.4-1 Viewshed Analysis for the Proposed Dry Lake Valley North SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

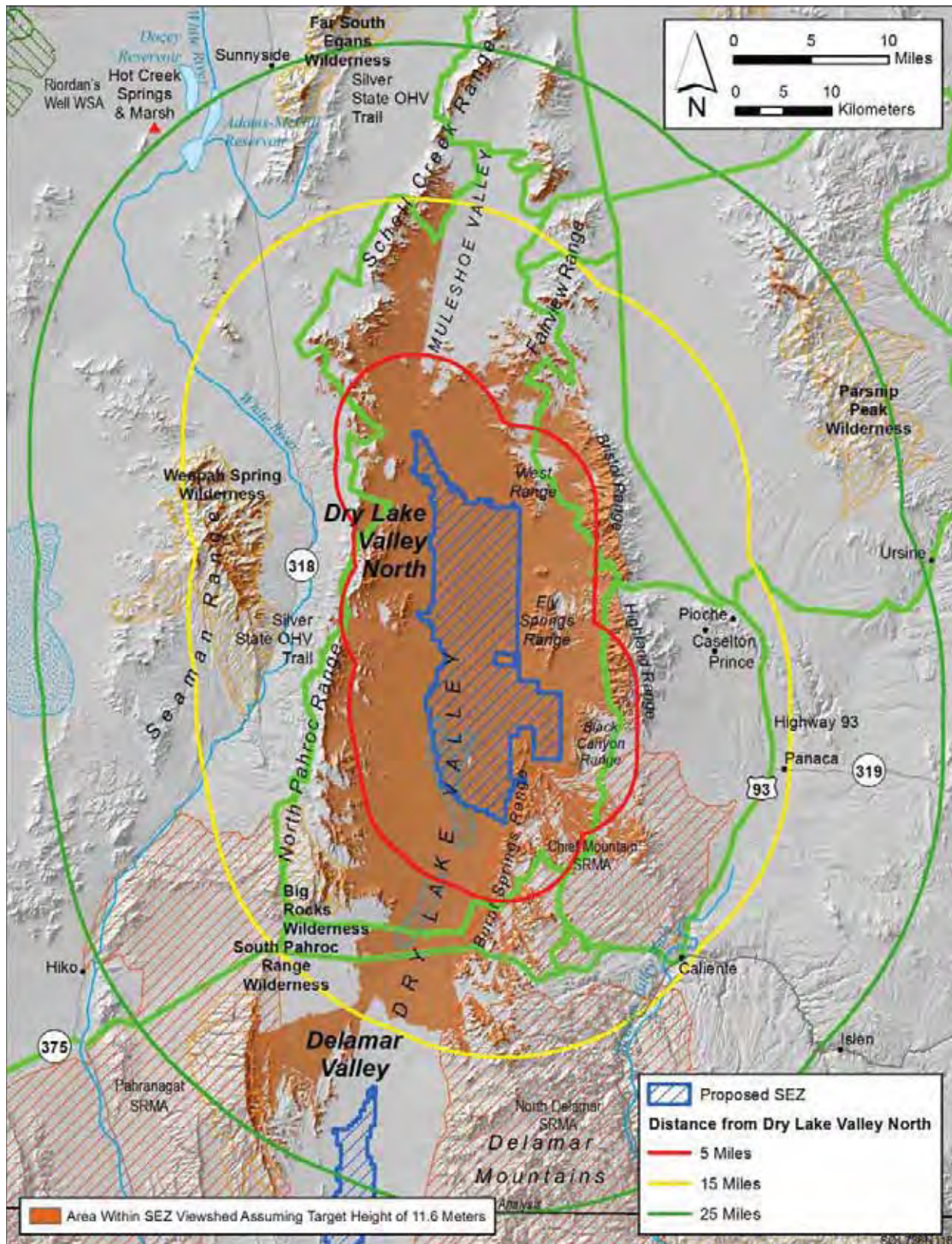


FIGURE N.5.4-2 Viewshed Analysis for the Proposed Dry Lake Valley North SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

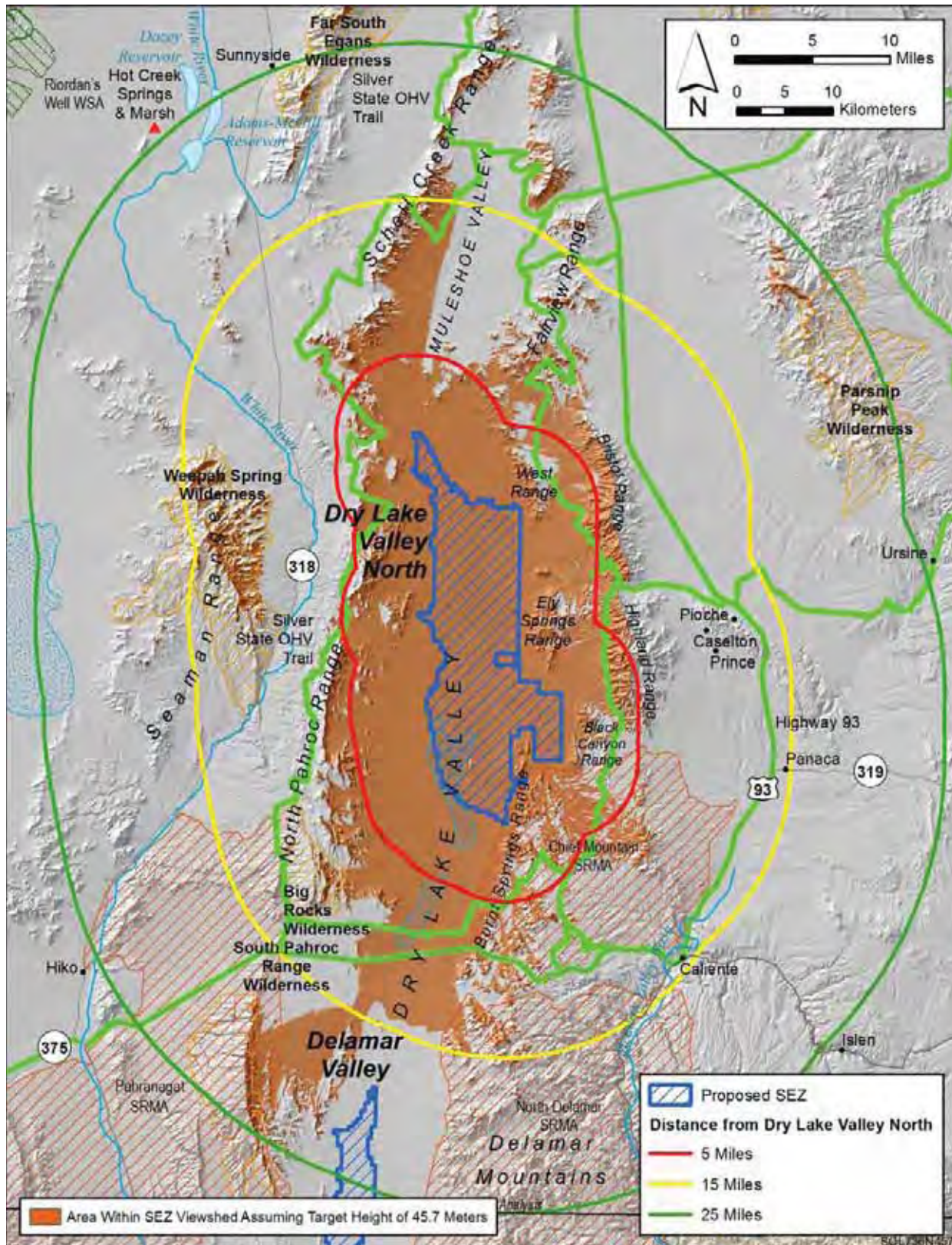


FIGURE N.5.4-3 Viewshed Analysis for the Proposed Dry Lake Valley North SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

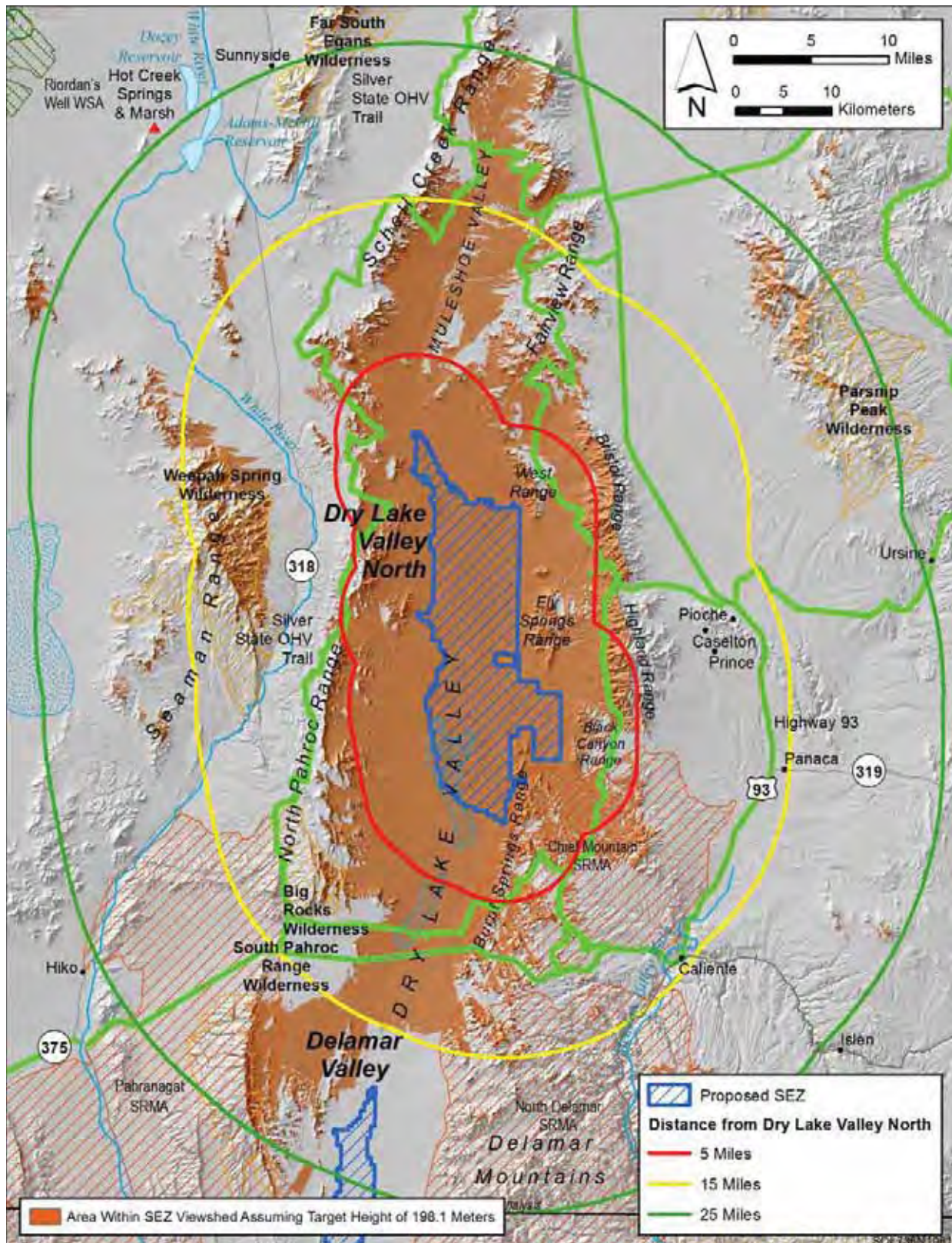


FIGURE N.5.4-4 Viewshed Analysis for the Proposed Dry Lake Valley North SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.5.5 Viewshed Maps for the Proposed East Mormon Mountain SEZ**
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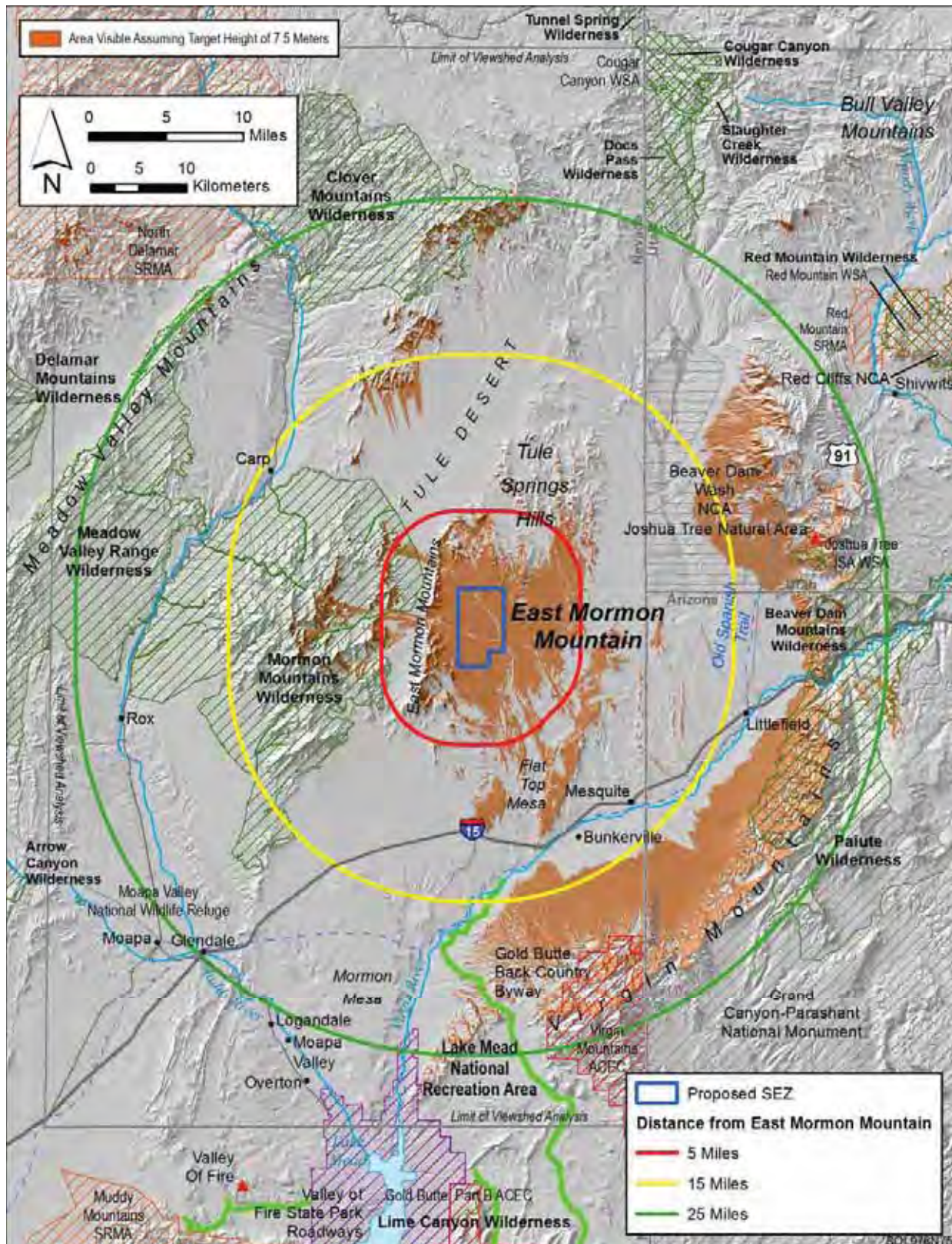
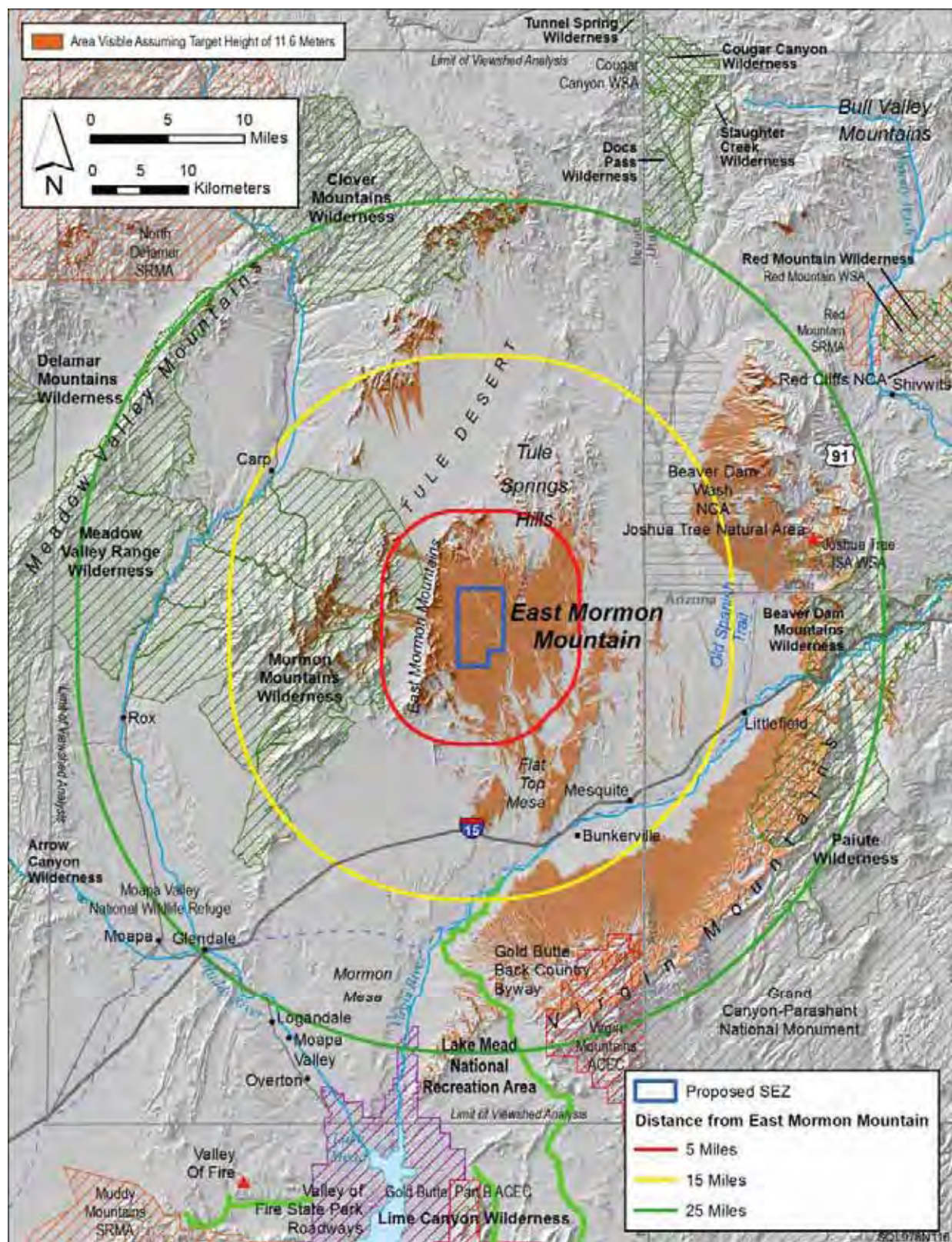


FIGURE N.5.5-1 Viewshed Analysis for the Proposed East Mormon Mountain SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m



2 **FIGURE N.5.5-2 Viewshed Analysis for the Proposed East Mormon Mountain SEZ and Sensitive**
 3 **Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m**

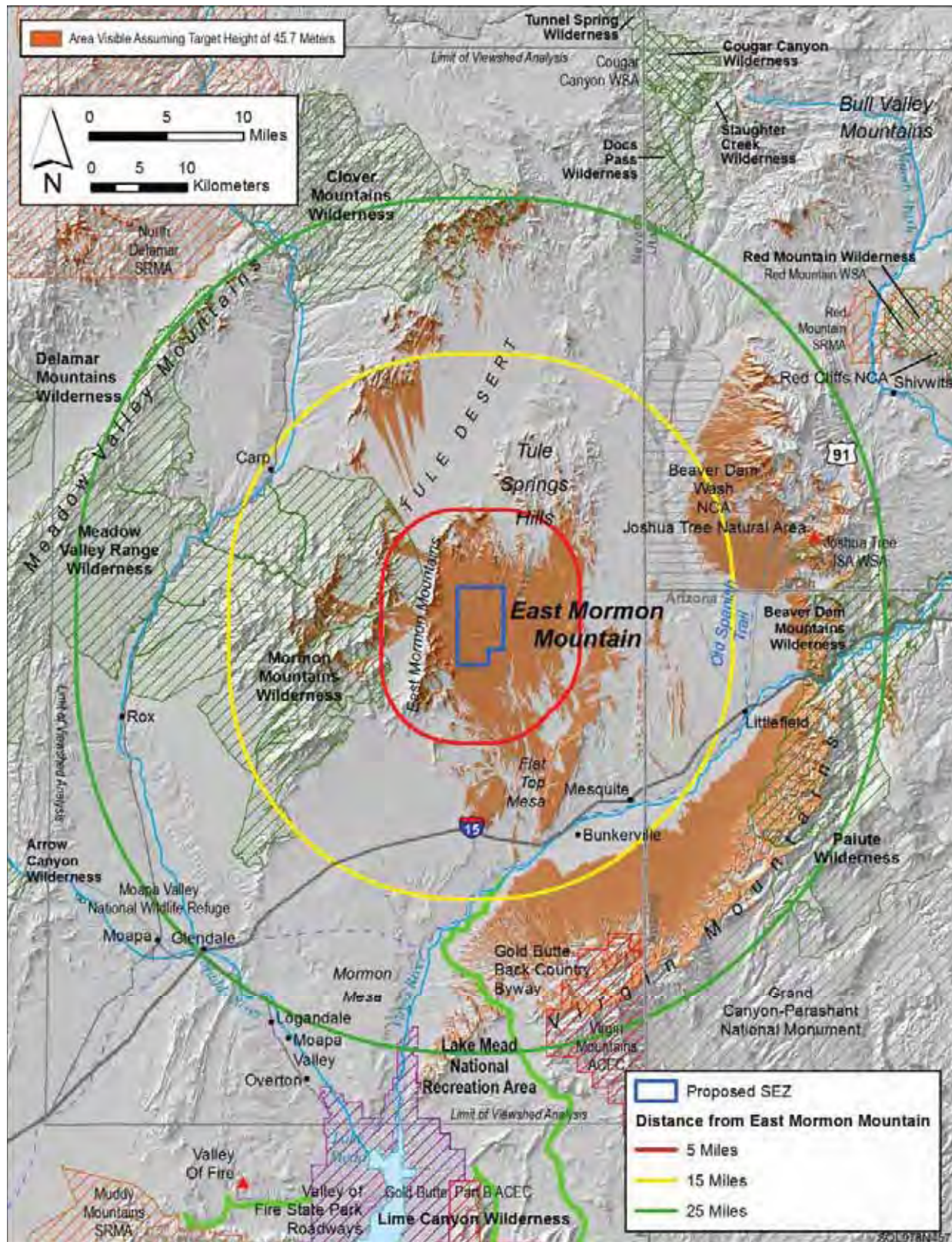


FIGURE N.5.5-3 Viewshed Analysis for the Proposed East Mormon Mountain SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

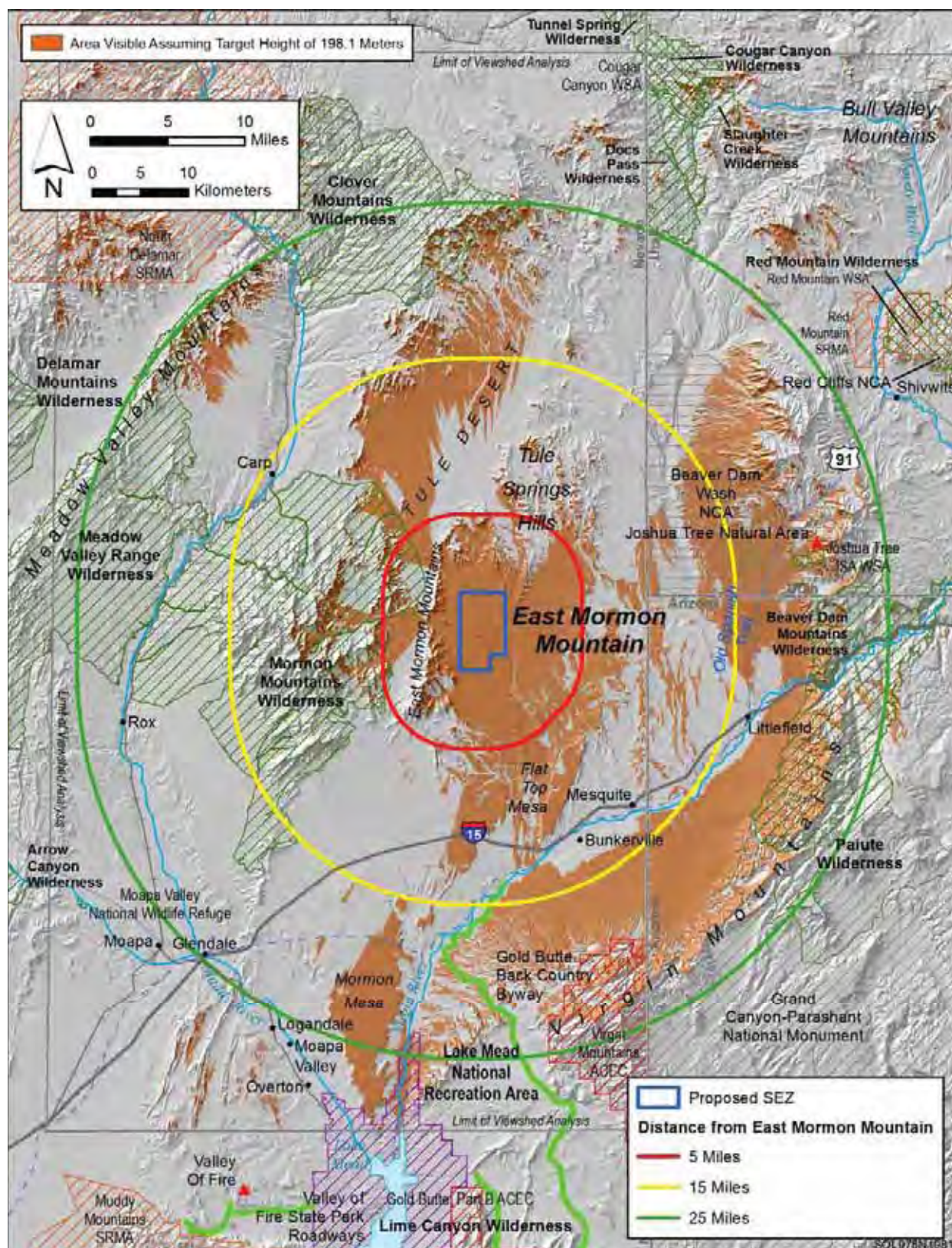


FIGURE N.5.5-4 Viewshed Analysis for the Proposed East Mormon Mountain SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.5.6 Viewshed Maps for the Proposed Gold Point SEZ**
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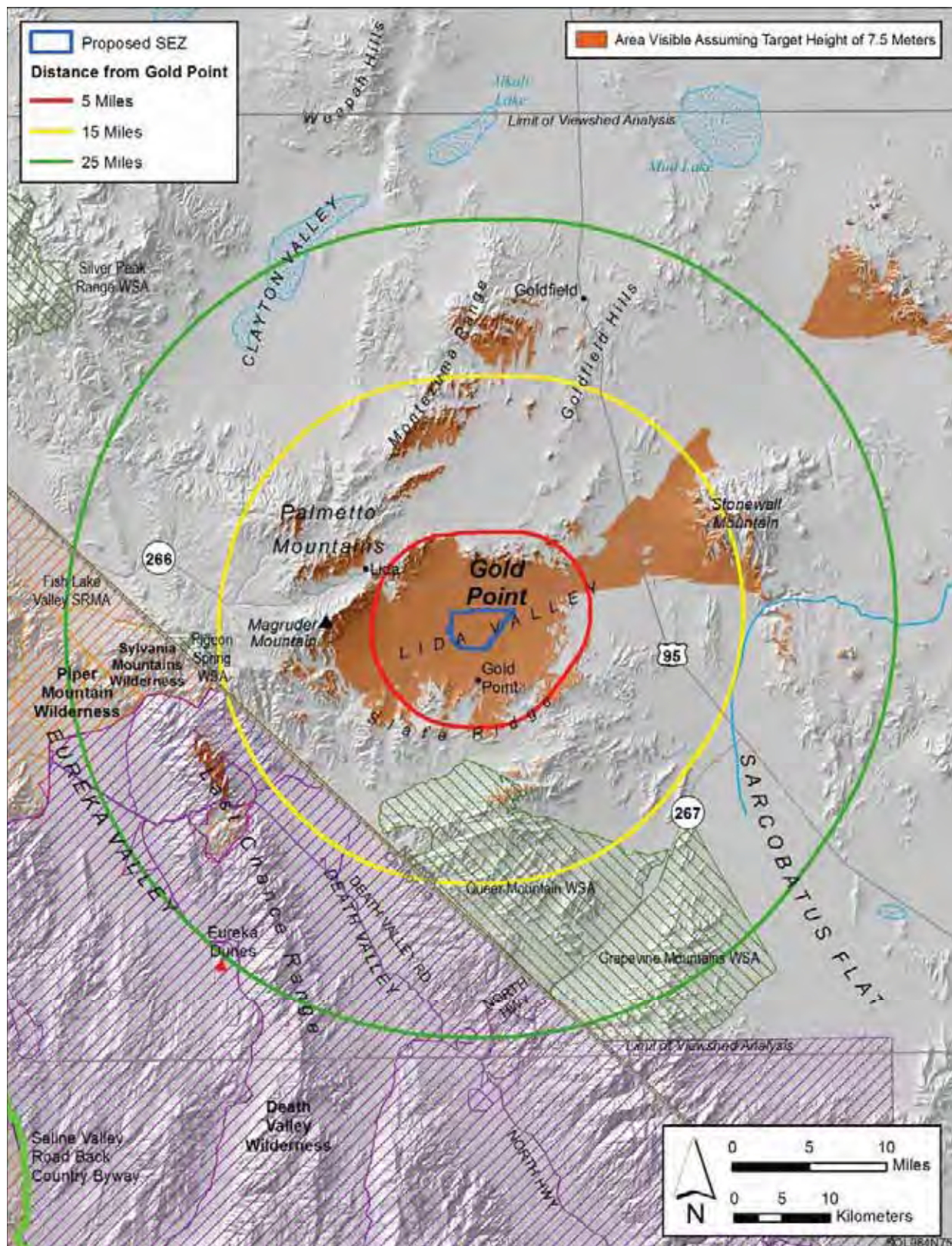


FIGURE N.5.6-1 Viewshed Analysis for the Proposed Gold Point SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

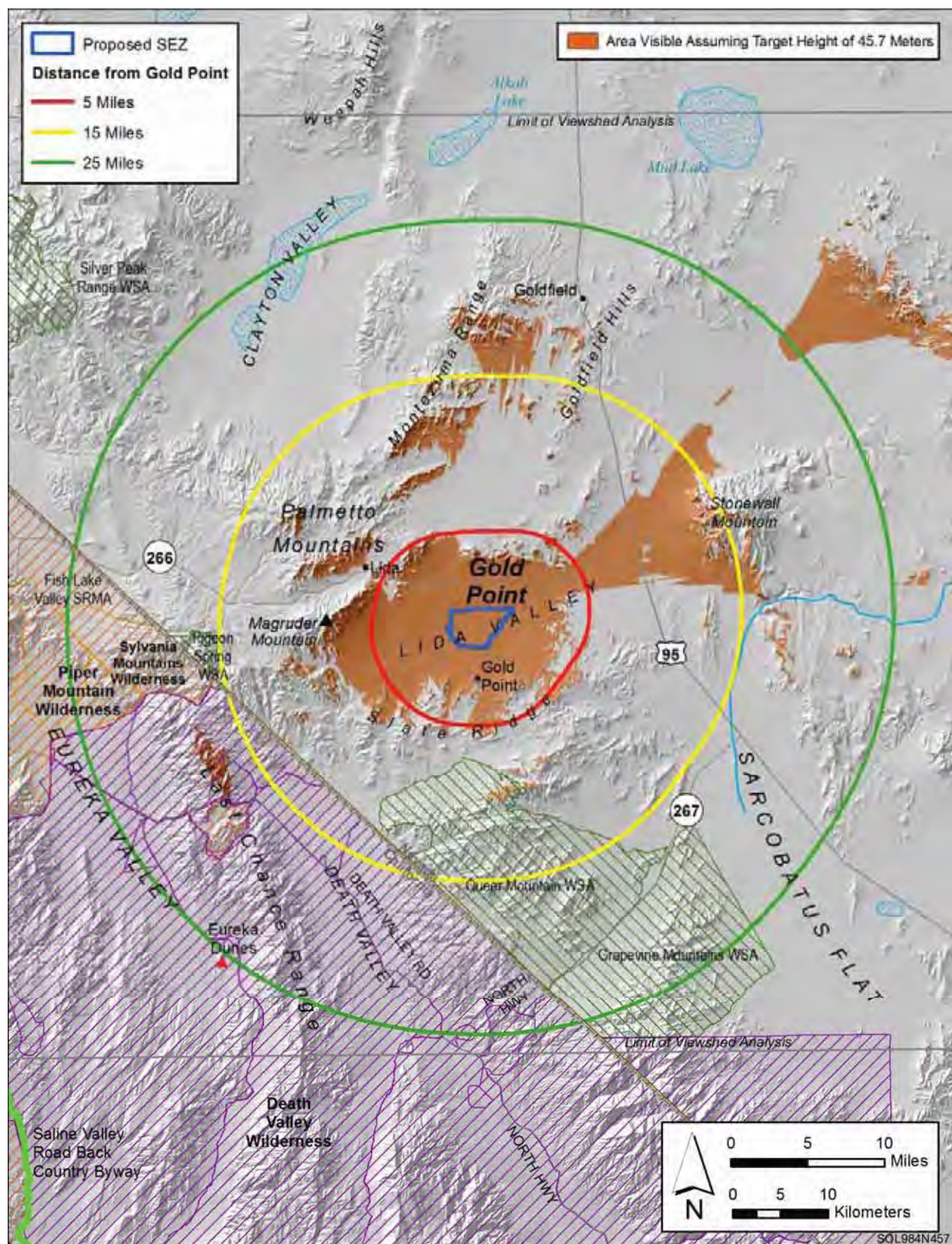
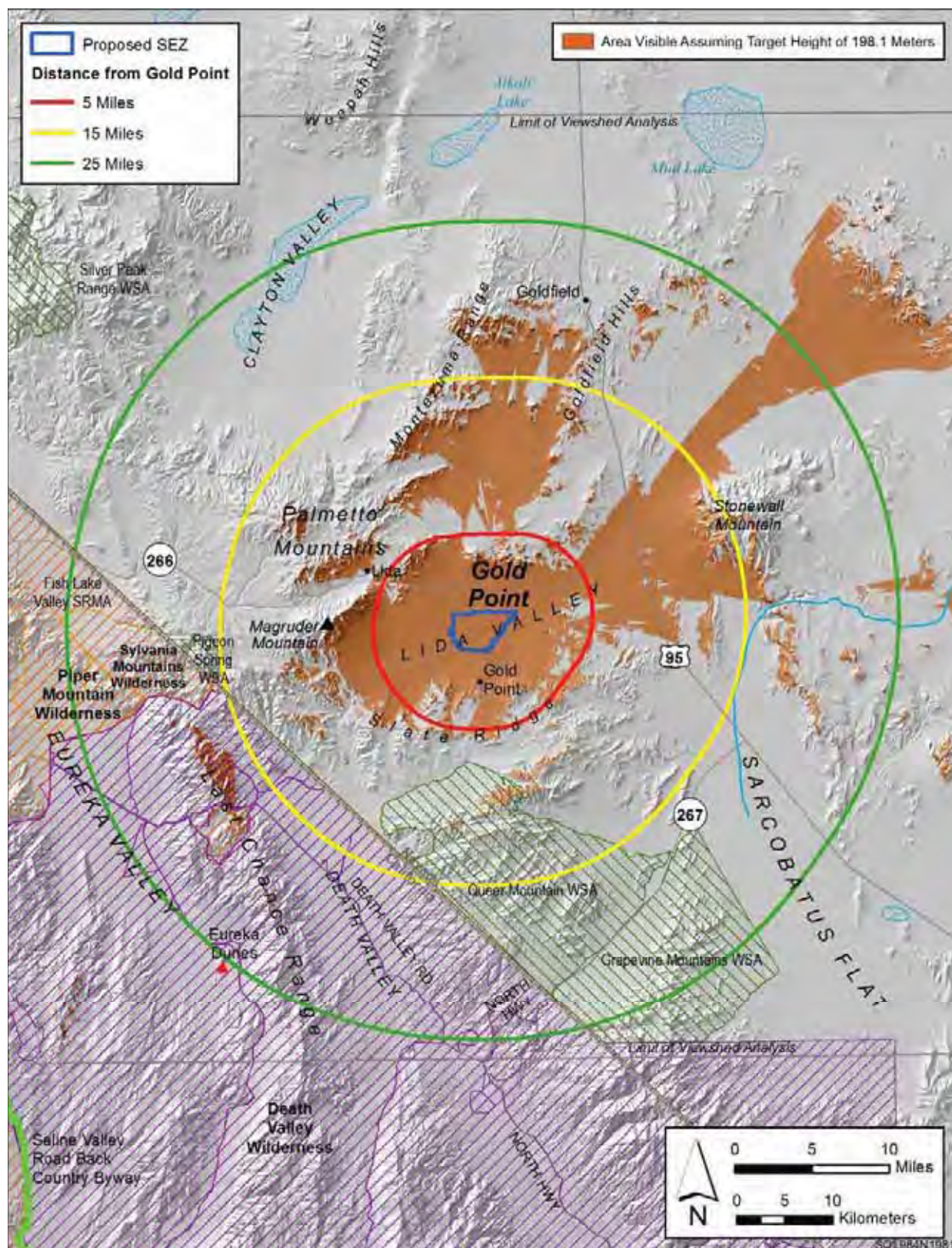


FIGURE N.5.6-3 Viewshed Analysis for the Proposed Gold Point SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m



1 **N.5. Viewshed Maps for the Proposed Millers SEZ**
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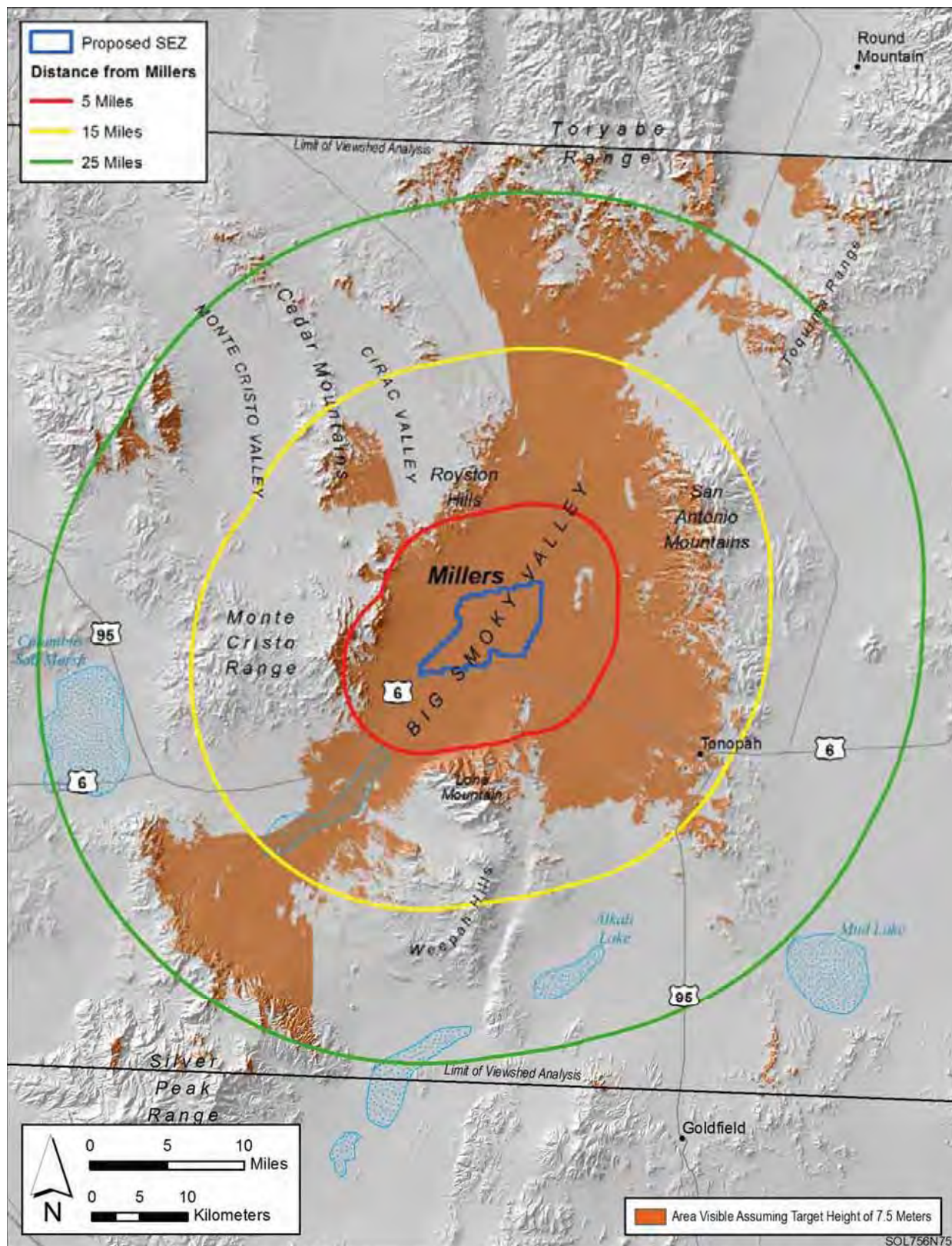


FIGURE N.5. -1 Viewshed Analysis for the Proposed Millers SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

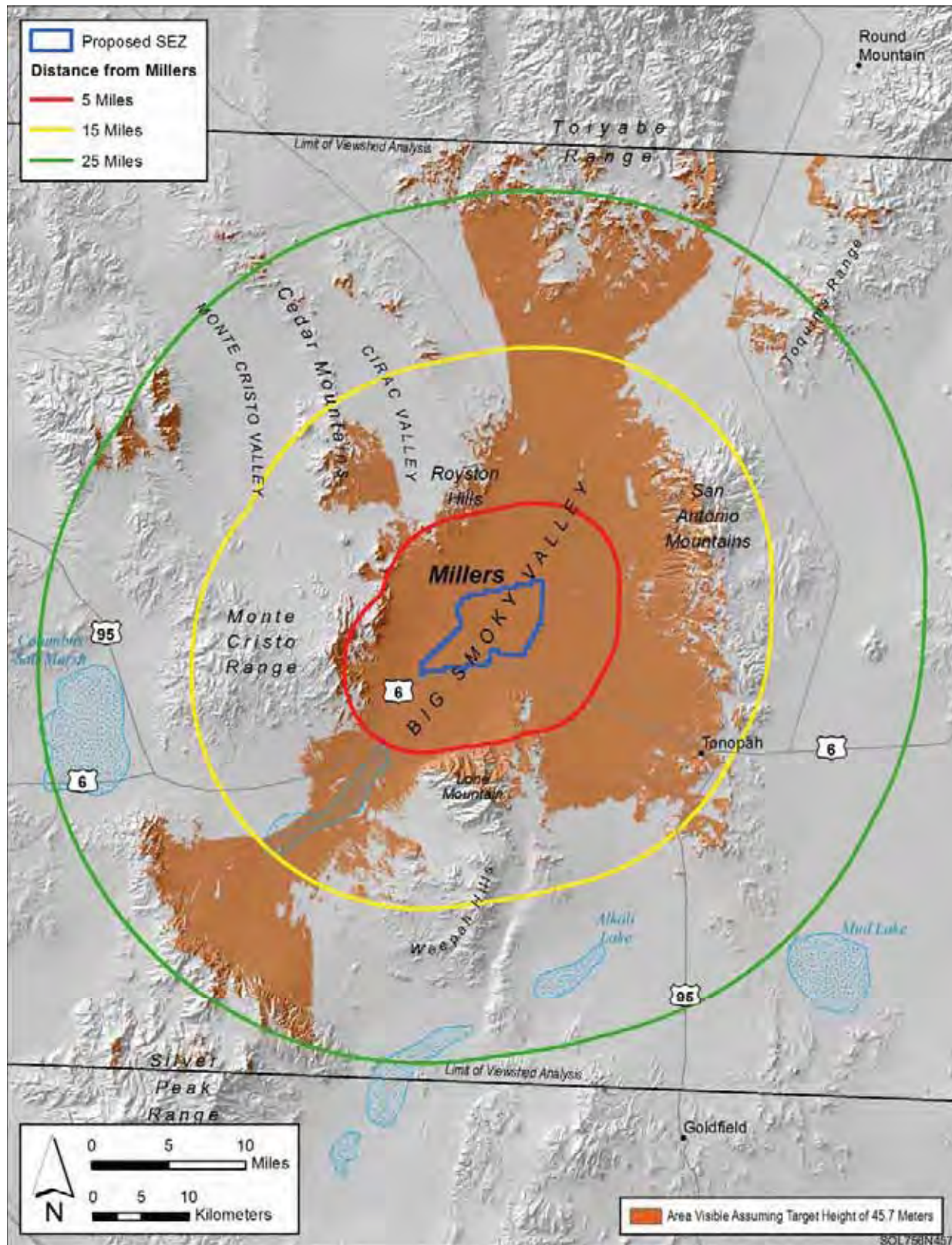


FIGURE N.5. -3 Viewshed Analysis for the Proposed Millers SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

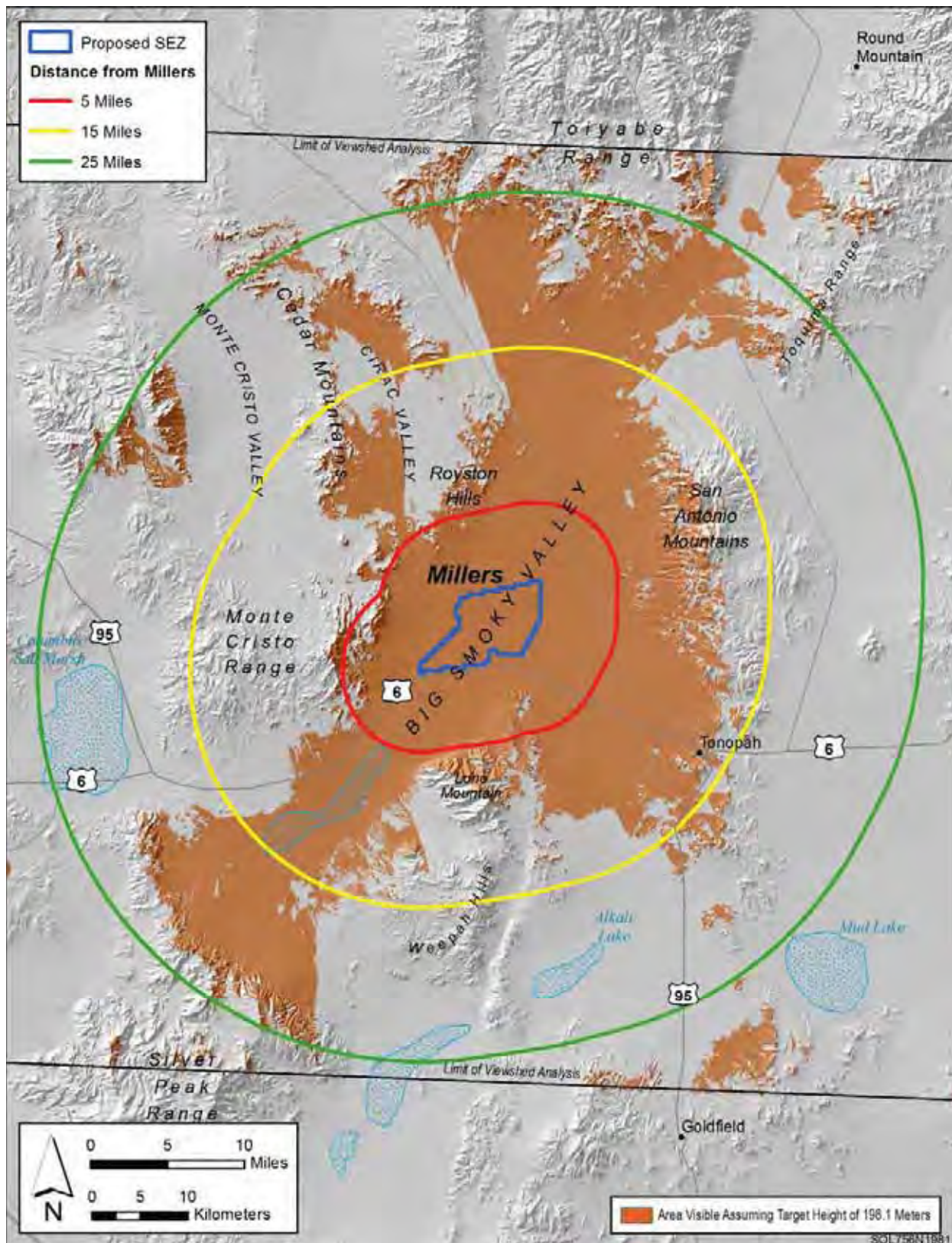


FIGURE N.5. -4 Viewshed Analysis for the Proposed Millers SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.6 VIEWSHED MAPS FOR NEW MEXICO SEZS**

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4 **N.6.1 Viewshed Maps for the Proposed Afton SEZ**

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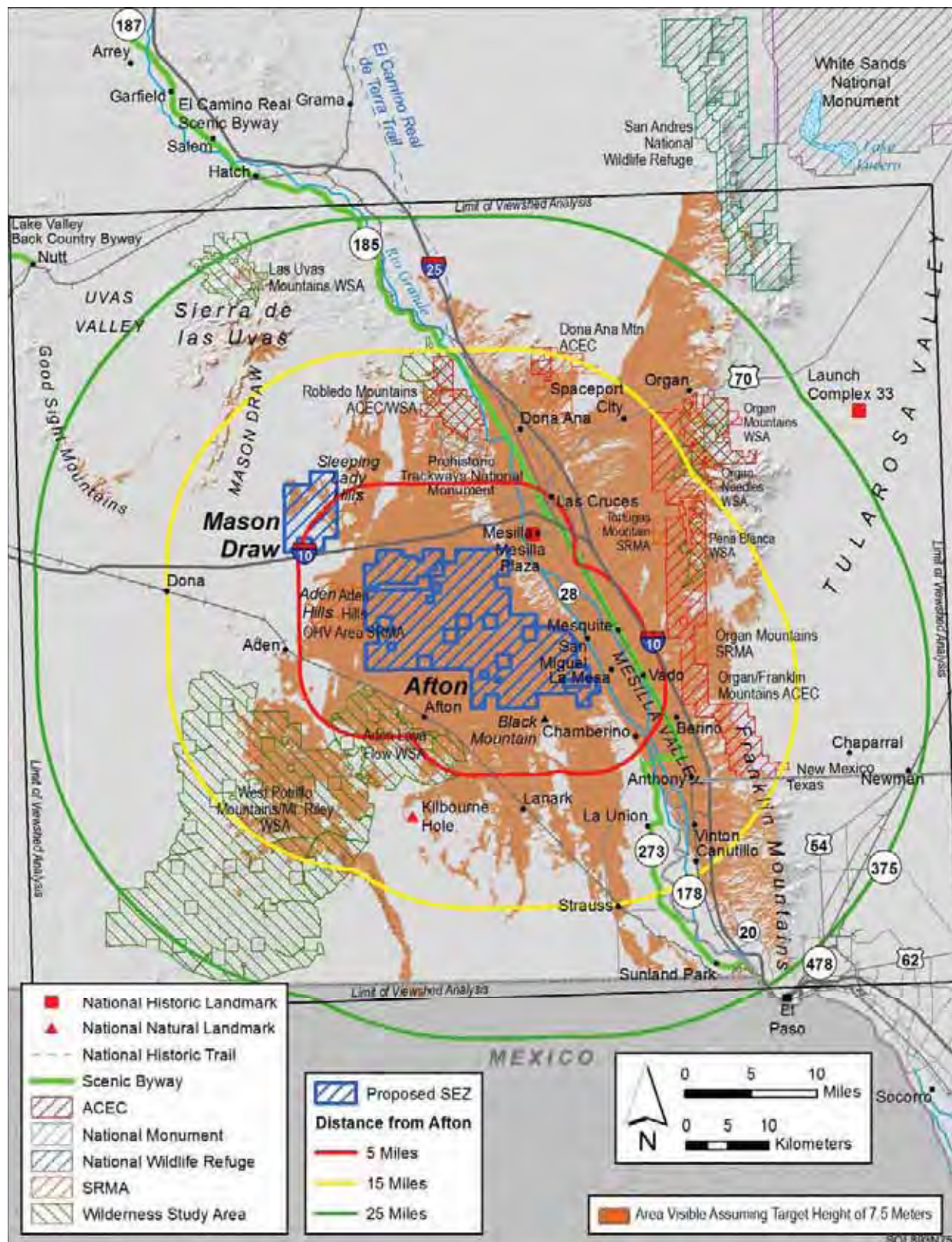


FIGURE N.6.1-1 Viewshed Analysis for the Proposed Afton SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

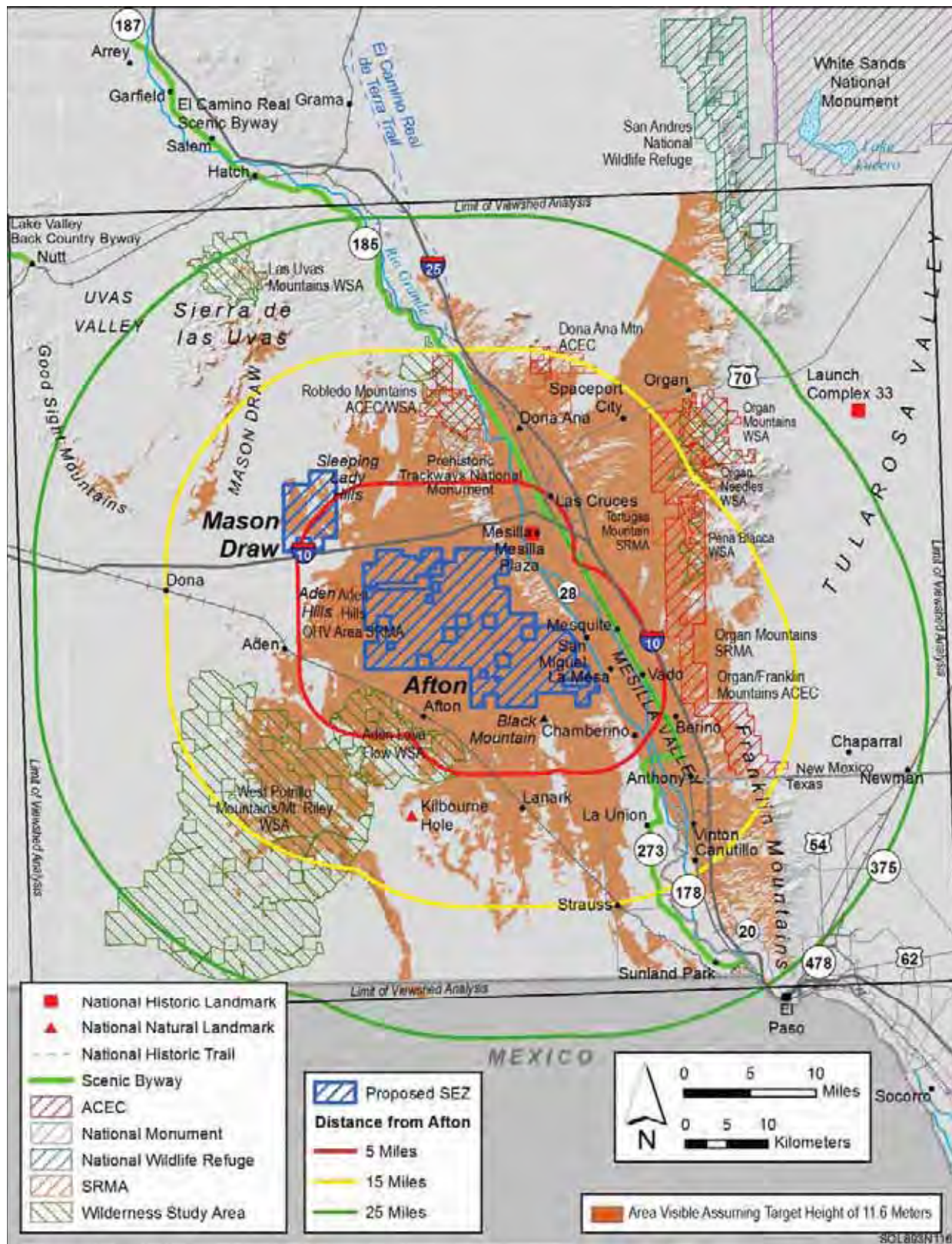


FIGURE N.6.1-2 Viewshed Analysis for the Proposed Afton SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

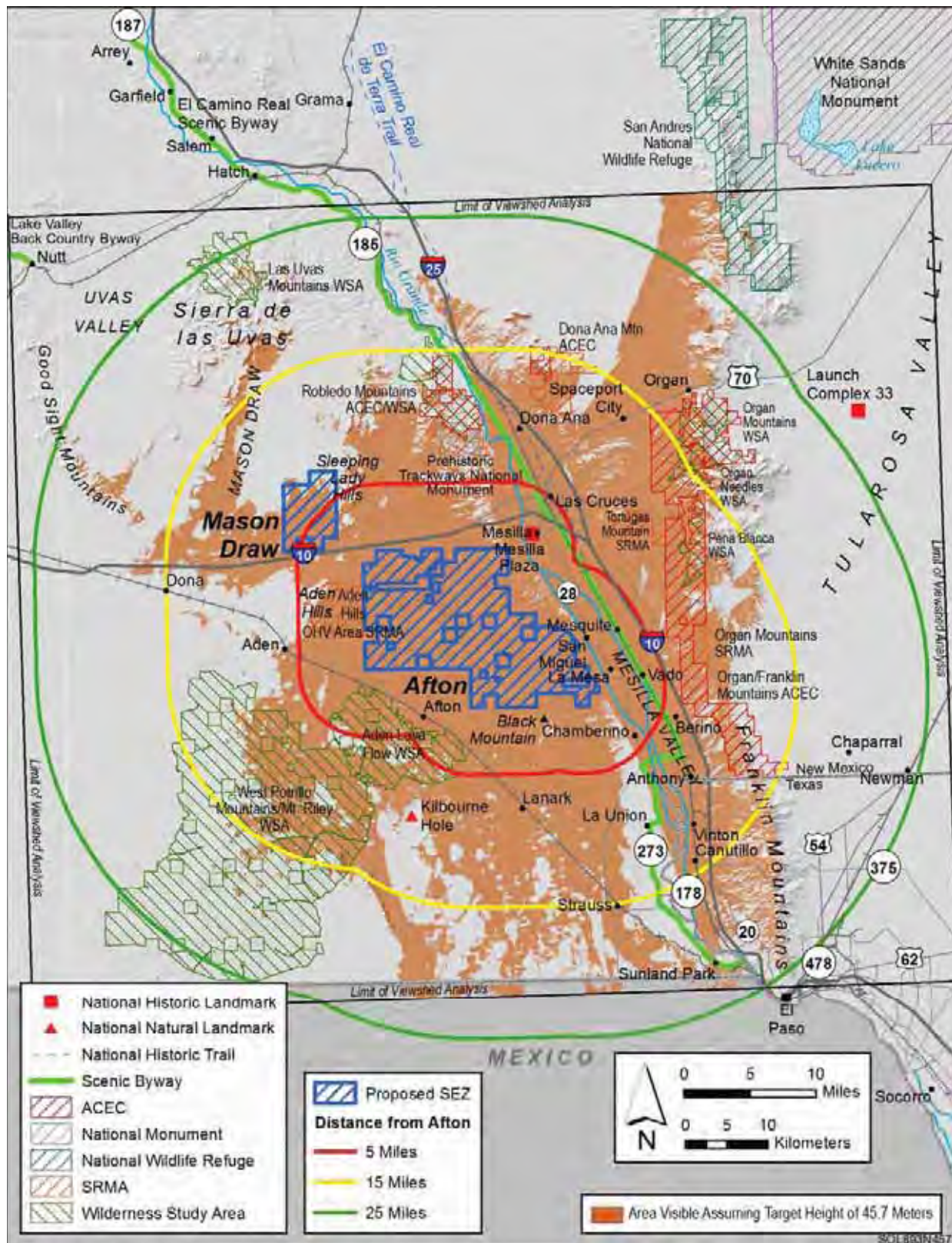


FIGURE N.6.1-3 Viewshed Analysis for the Proposed Afton SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

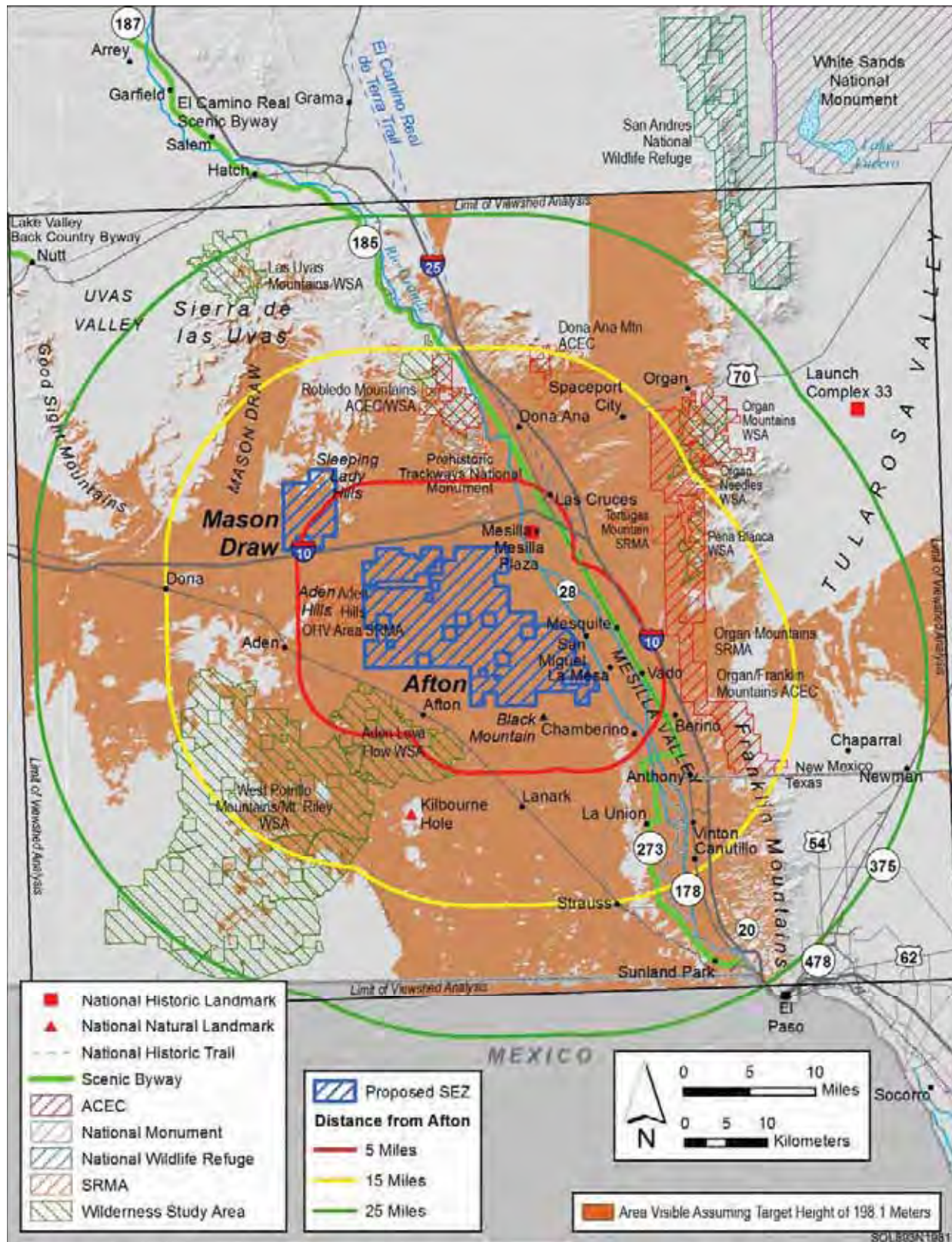


FIGURE N.6.1-4 Viewshed Analysis for the Proposed Afton SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N.6.2 Viewshed Maps for the Proposed Mason Draw SEZ**
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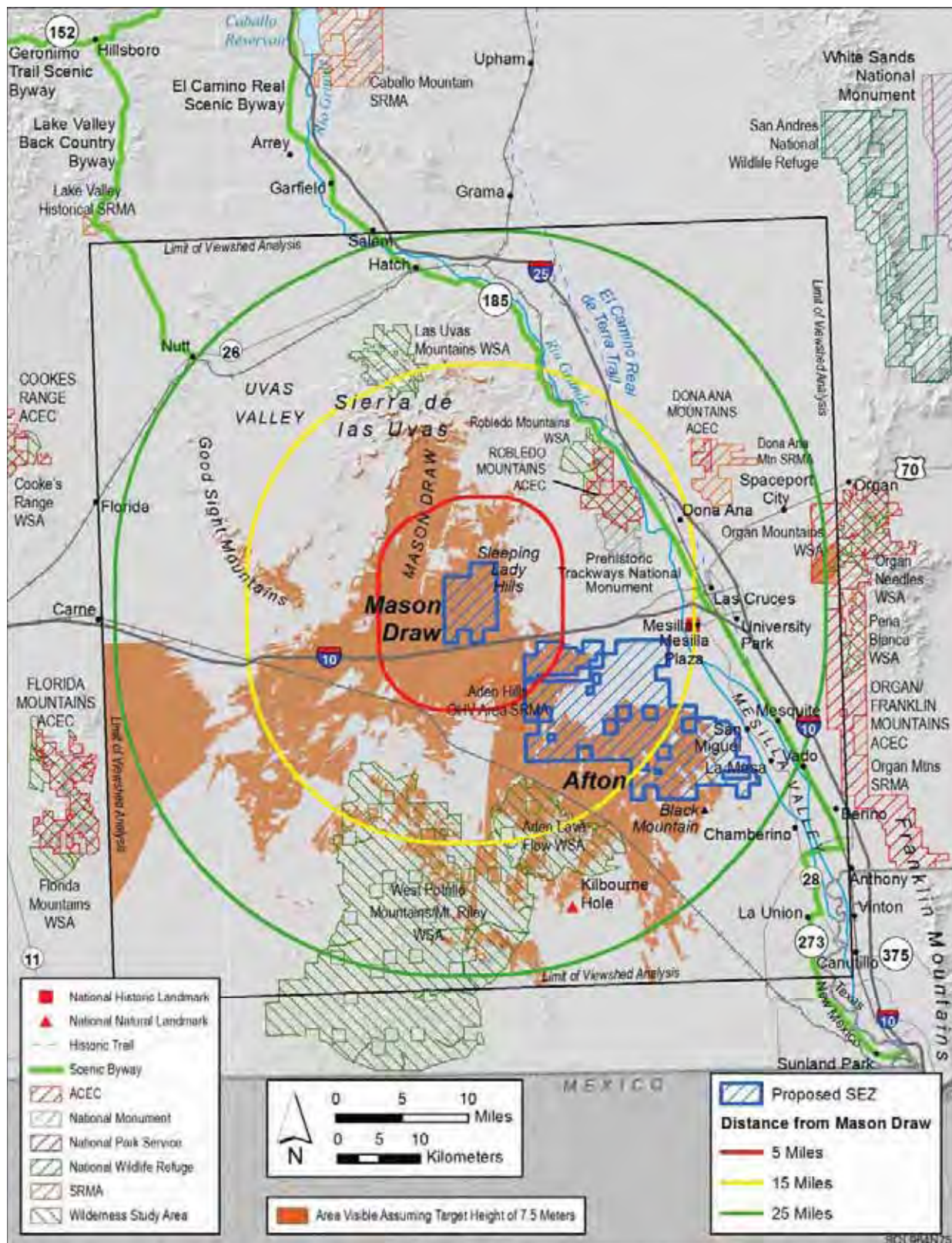


FIGURE N.6.2-1 Viewshed Analysis for the Proposed Mason Draw SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

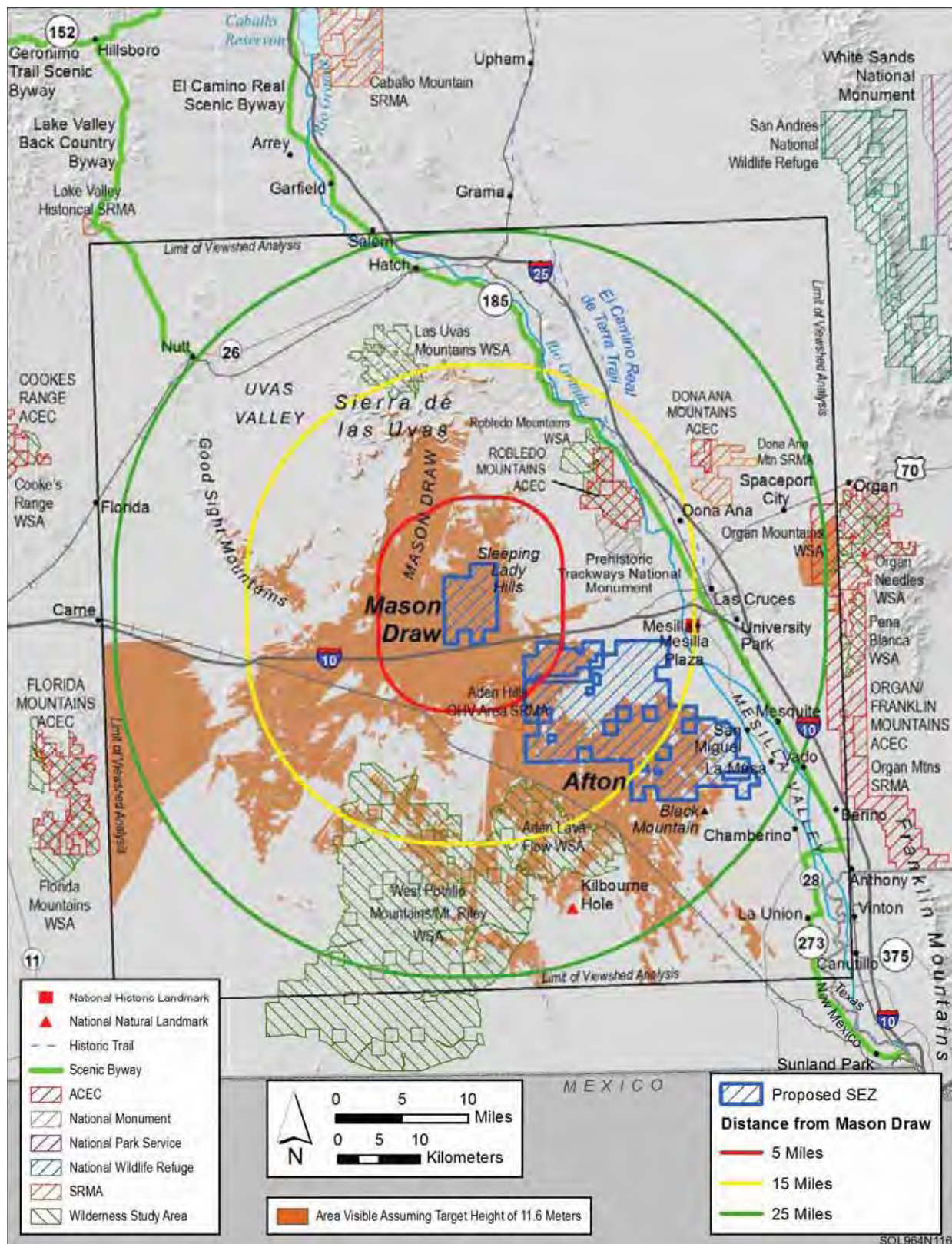


FIGURE N.6.2-2 Viewshed Analysis for the Proposed Mason Draw SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

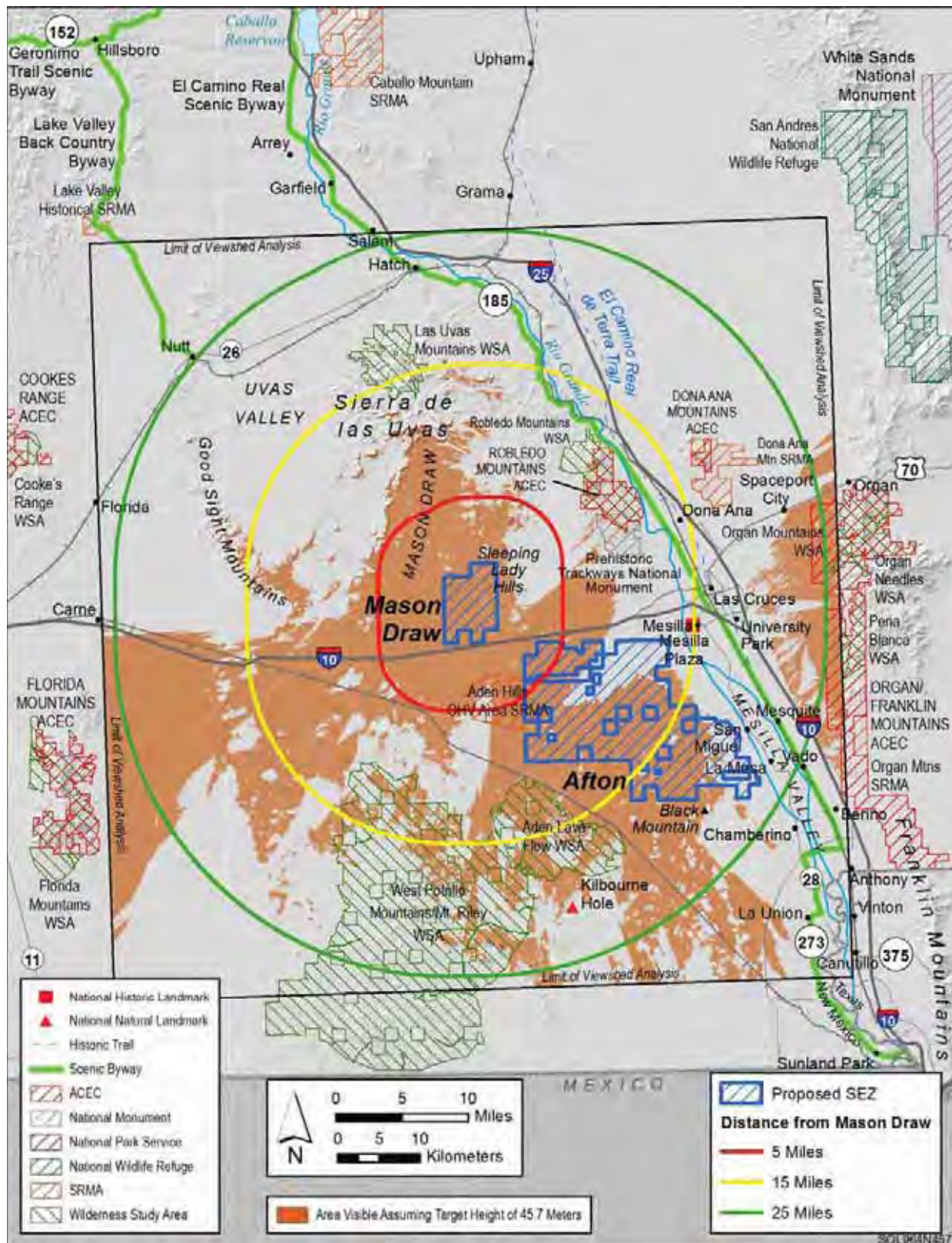


FIGURE N.6.2-3 Viewshed Analysis for the Proposed Mason Draw SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

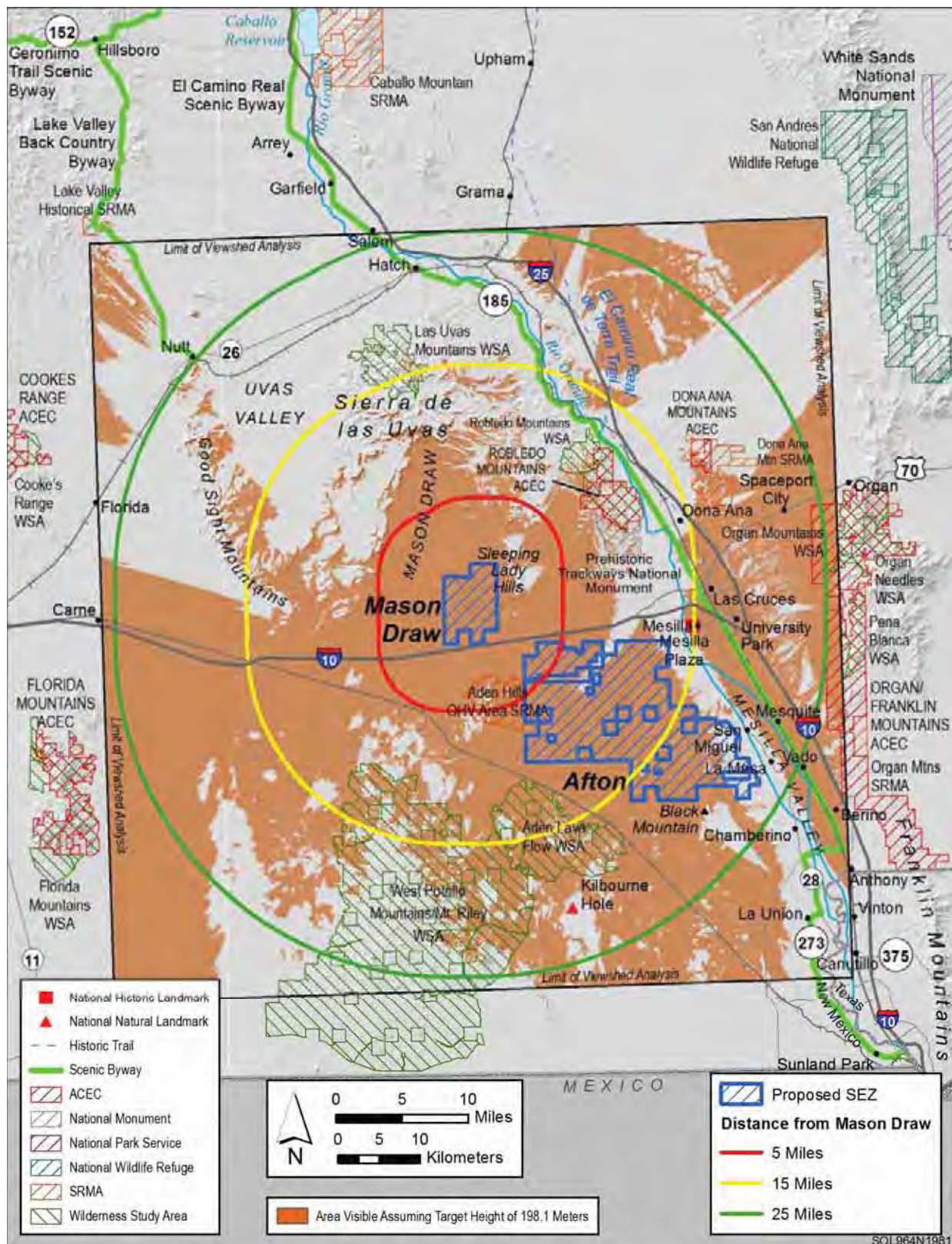
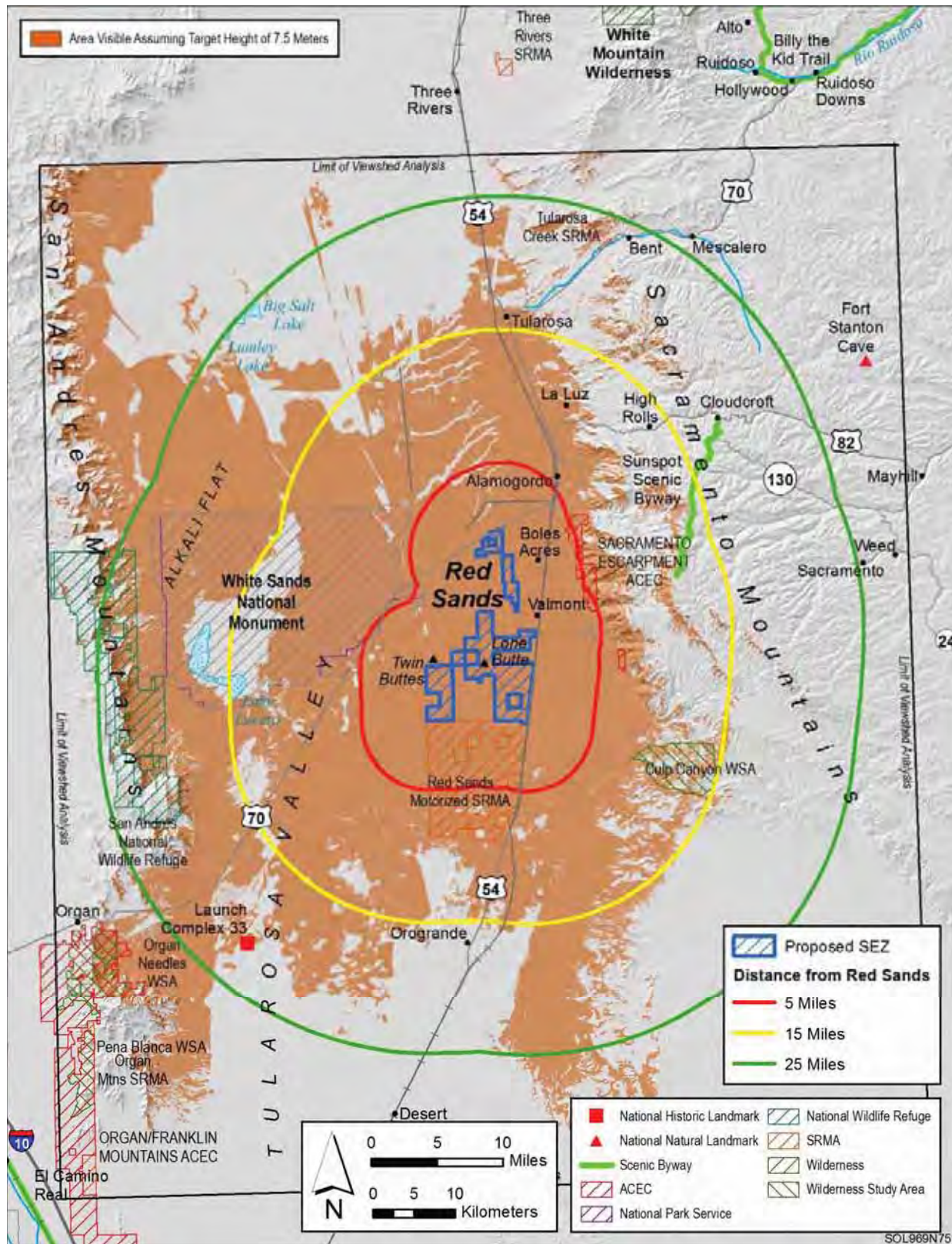


FIGURE N.6.2-4 Viewshed Analysis for the Proposed Mason Draw SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft (19.8 m)

1 **N.6.3 Viewshed Maps for the Proposed Red Sands SEZ**
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1 **FIGURE N.6.3-1 Viewshed Analysis for the Proposed Red Sands SEZ and Sensitive Visual**
 2 **Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m**

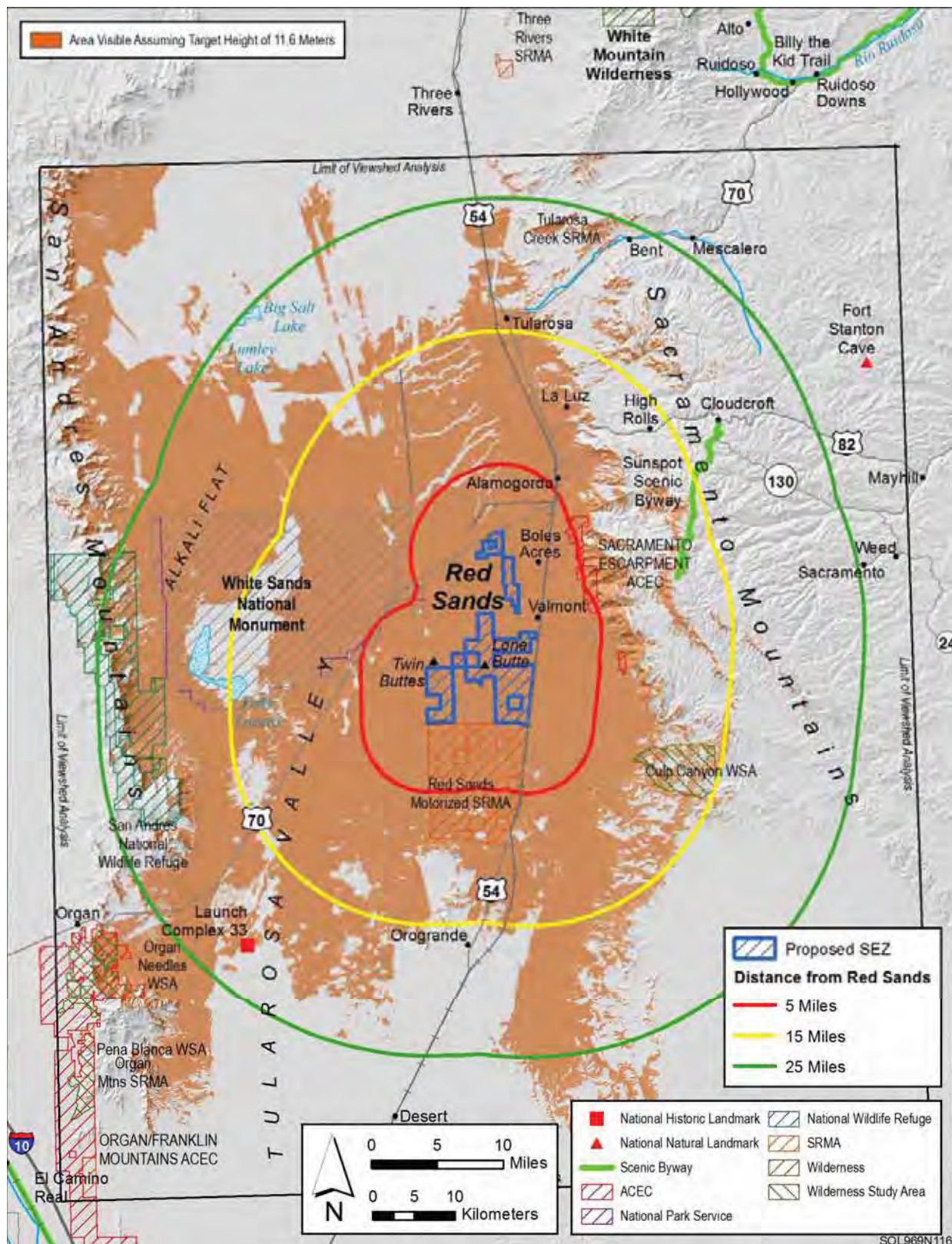


FIGURE N.6.3-2 Viewshed Analysis for the Proposed Red Sands SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

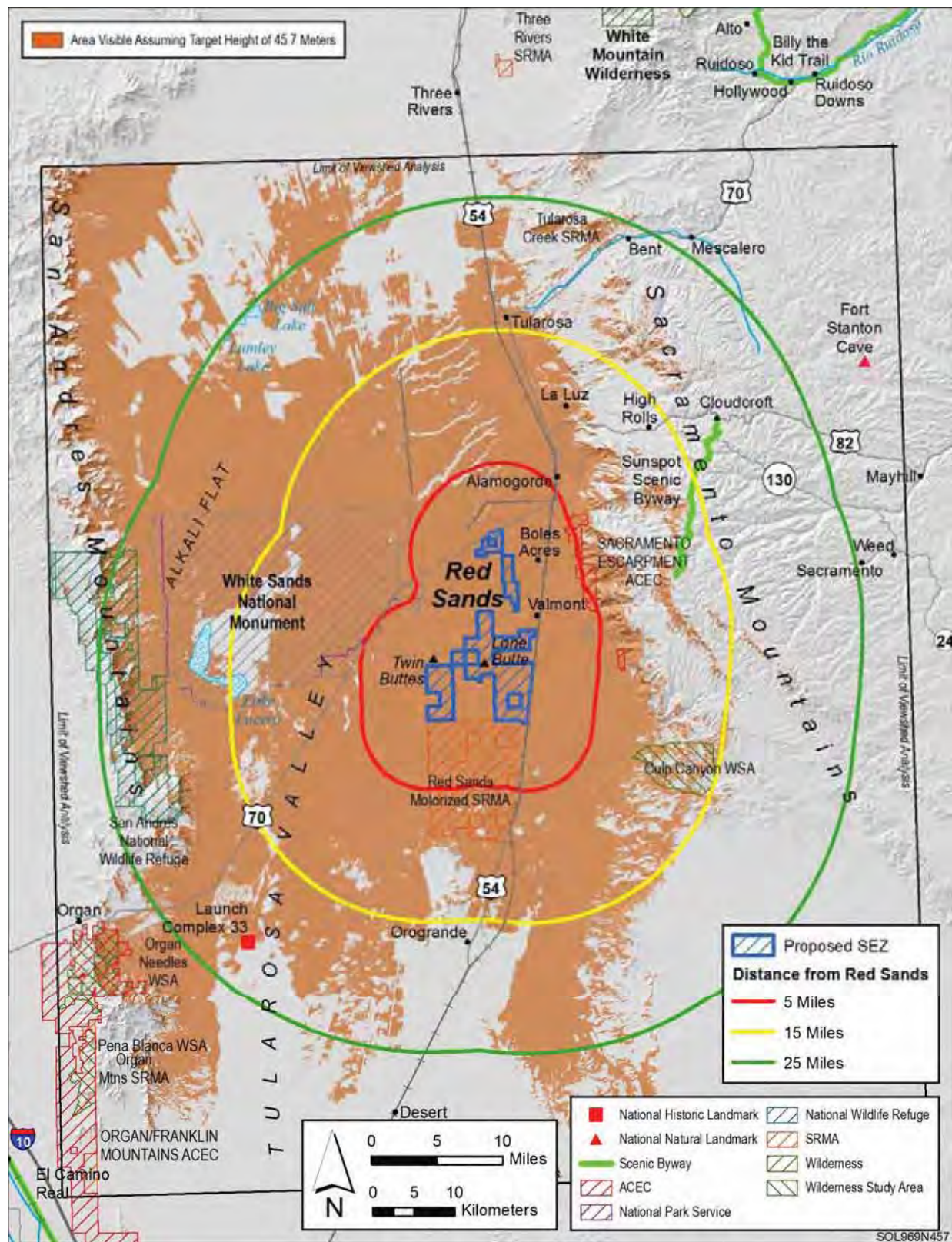


FIGURE N.6.3-3 Viewshed Analysis for the Proposed Red Sands SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

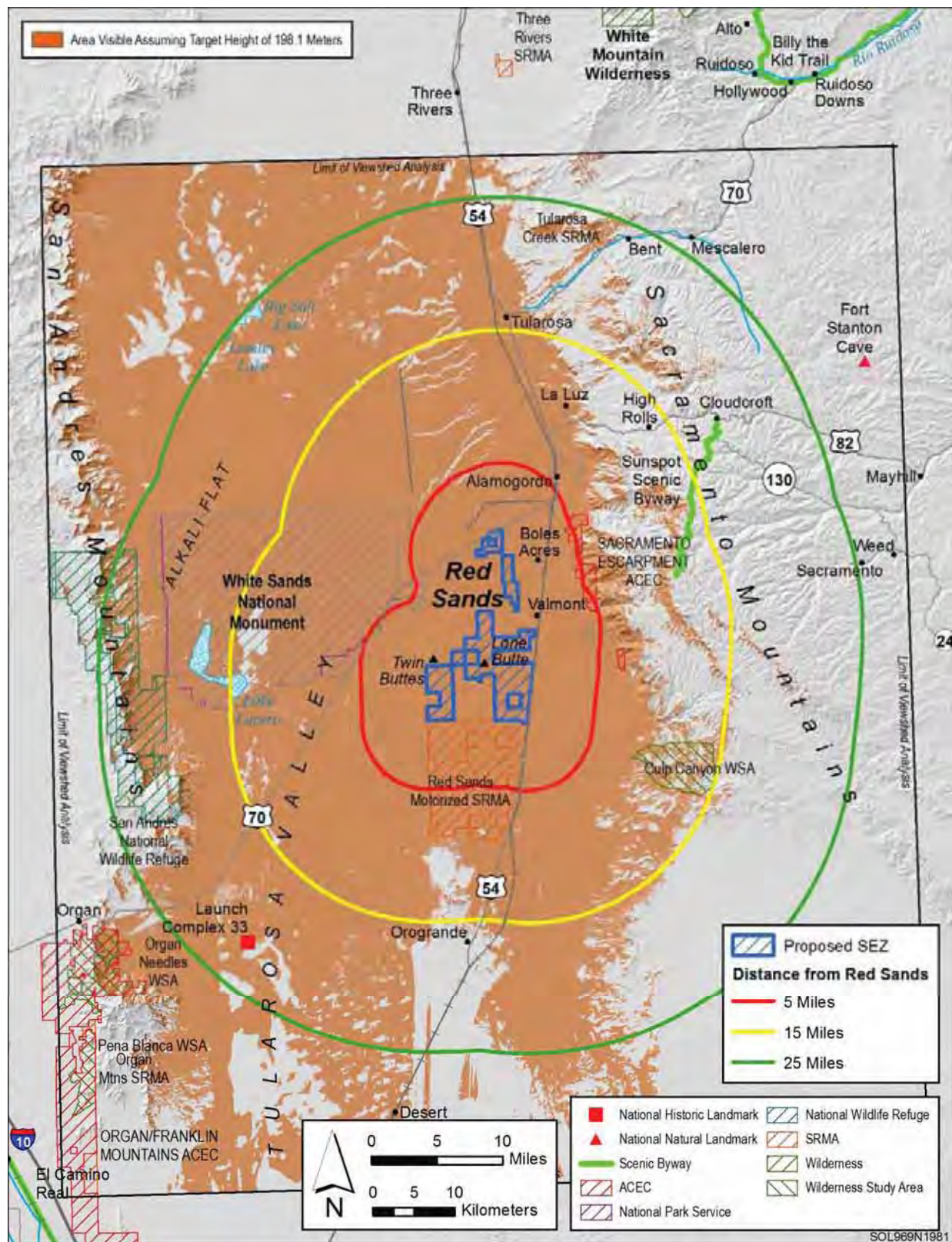


FIGURE N.6.3-4 Viewshed Analysis for the Proposed Red Sands SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

1 **N. VIEWSHED MAPS FOR UTAH SEZS**

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4 **N. .1 Viewshed Maps for the Proposed Escalante Valley SEZ**

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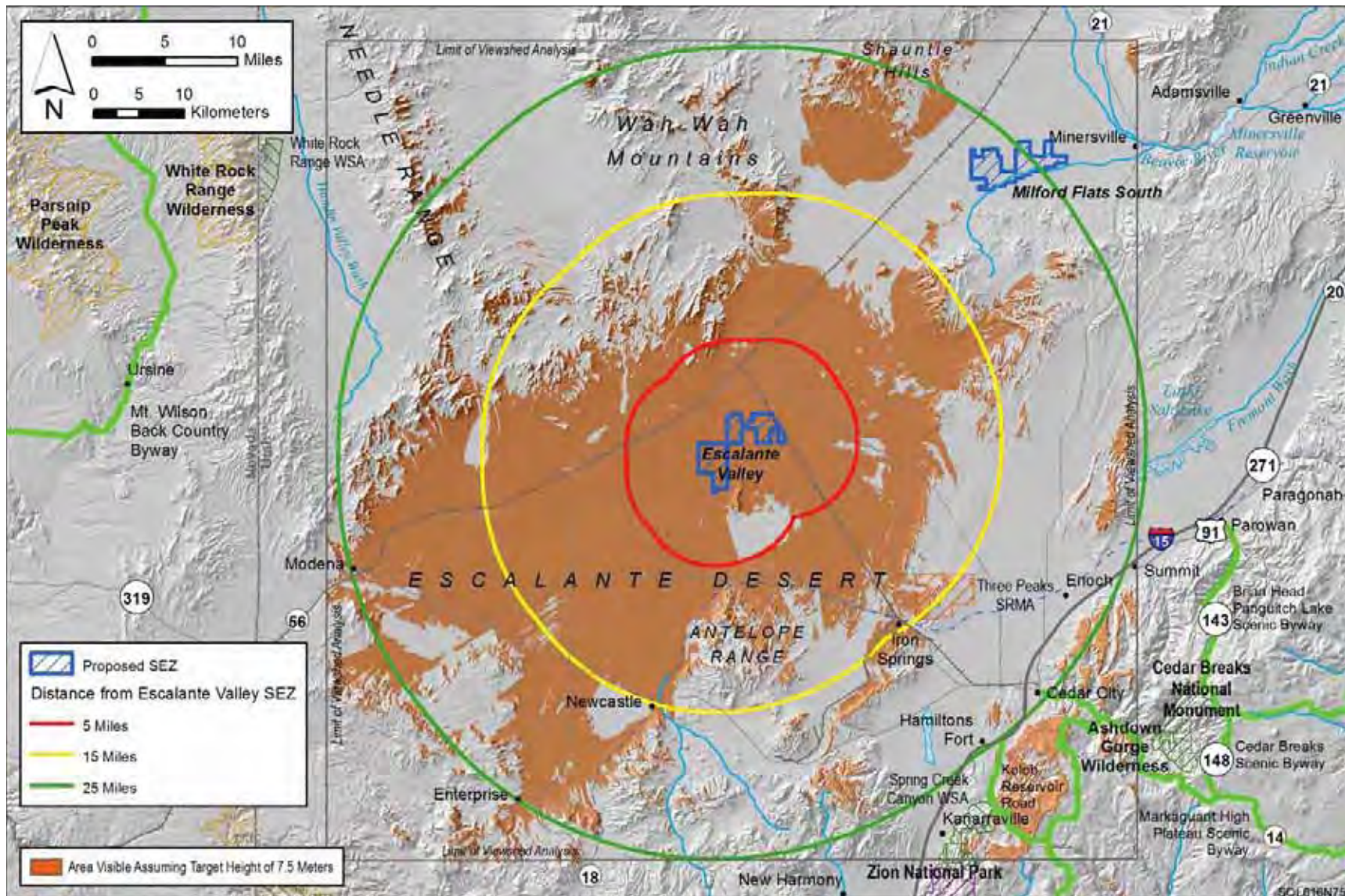


FIGURE N. .1-1 Viewshed Analysis for the Proposed Escalante Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft (7.5 m)

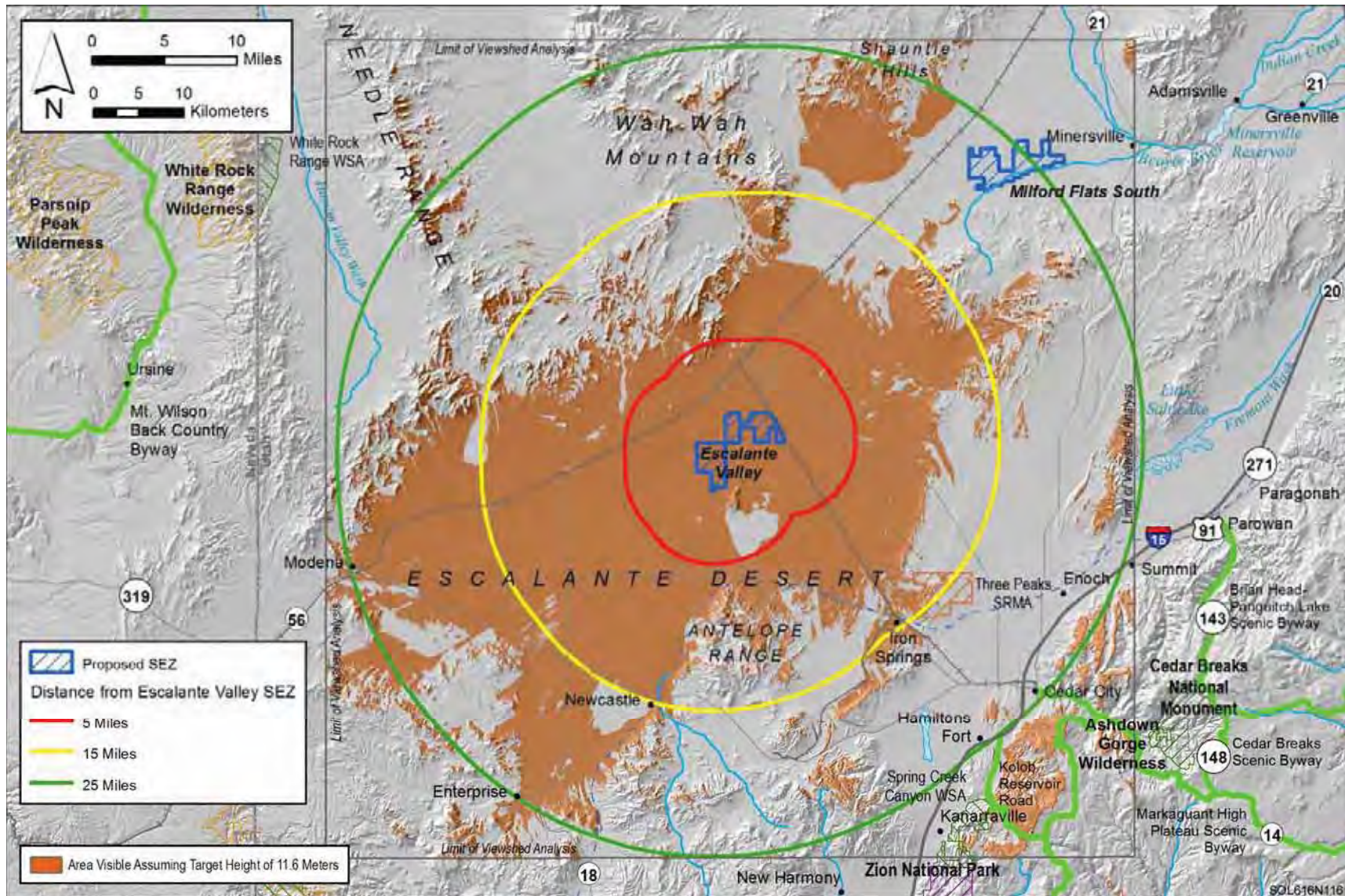


FIGURE N. .1-2 Viewshed Analysis for the Proposed Escalante Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

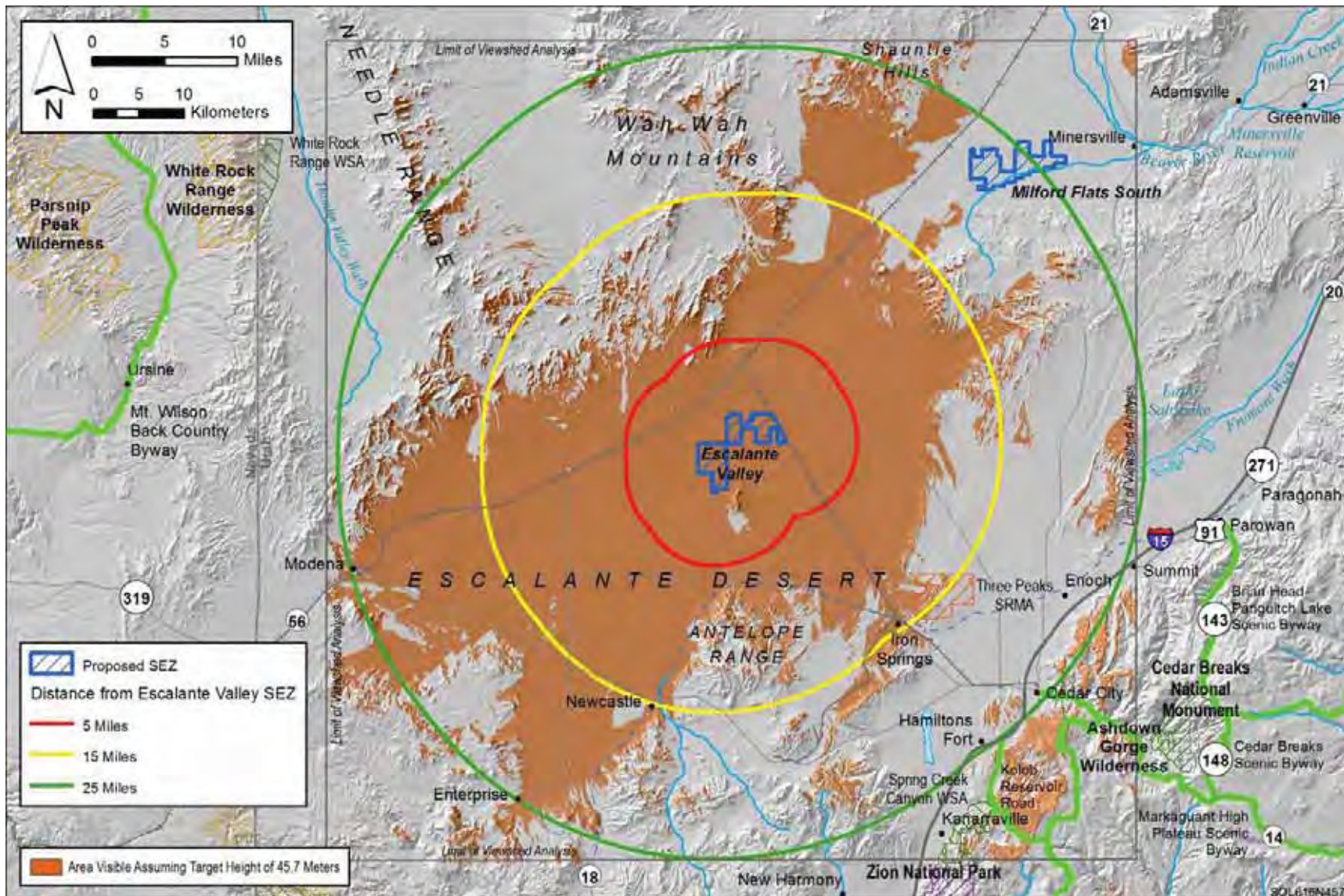


FIGURE N. .1-3 Viewshed Analysis for the Proposed Escalante Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

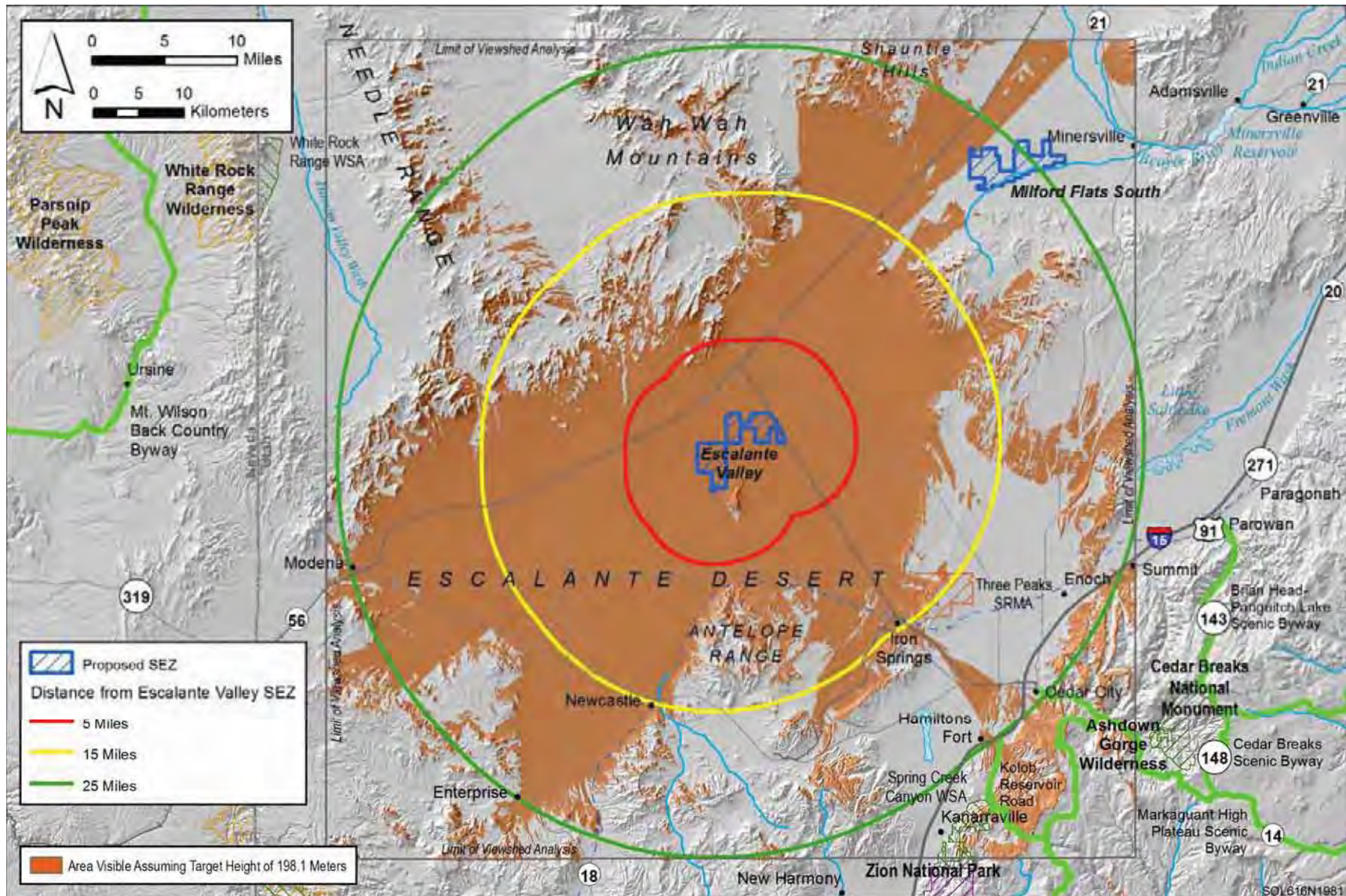


FIGURE N. .1-4 Viewshed Analysis for the Proposed Escalante Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft (19.8 m)

1 **N. .2 Viewshed Maps for the Proposed Milford Flats South SEZ**
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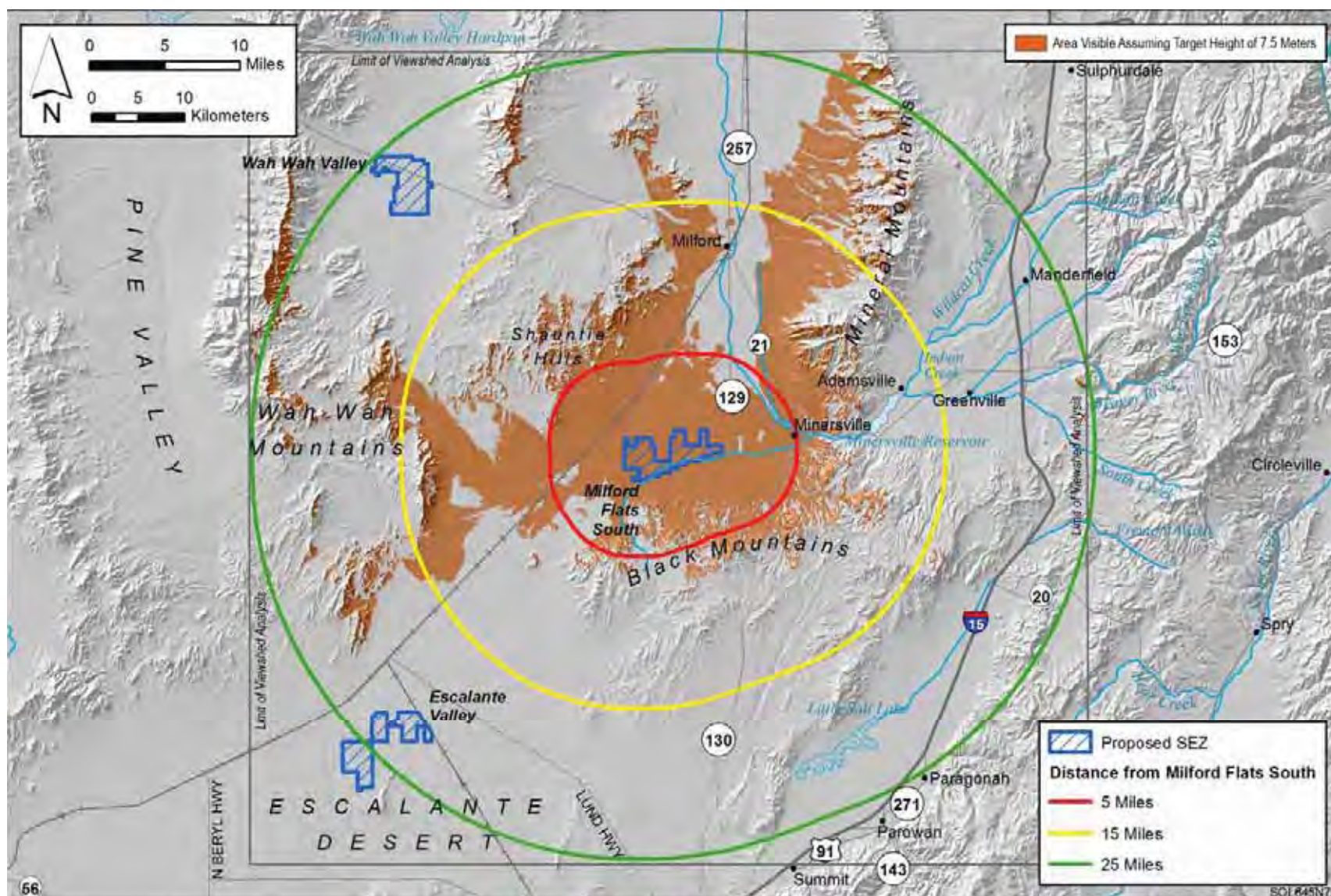


FIGURE N. .2-1 Viewshed Analysis for the Proposed Milford Flats South SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

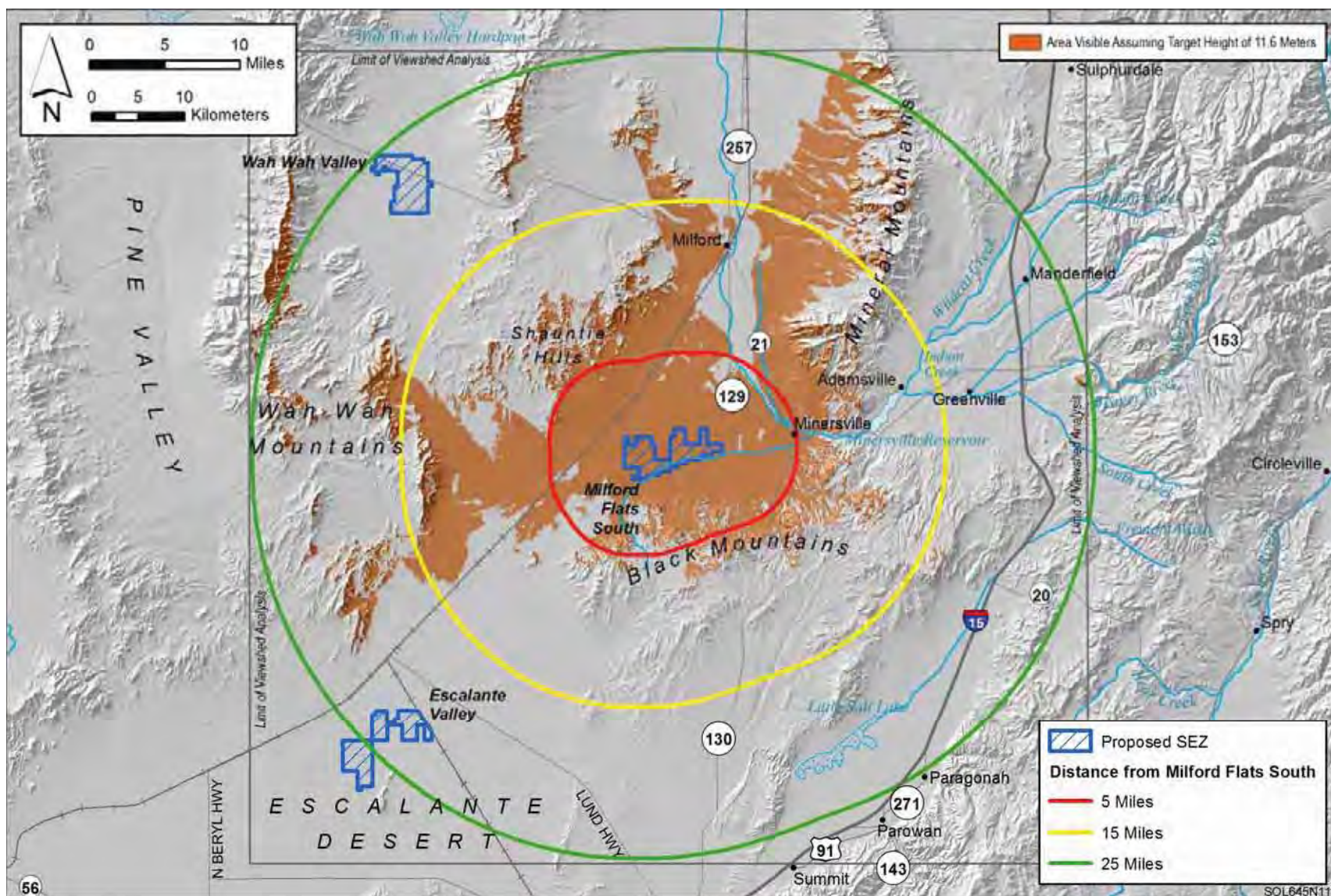


FIGURE N. .2-2 Viewshed Analysis for the Proposed Milford Flats South SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

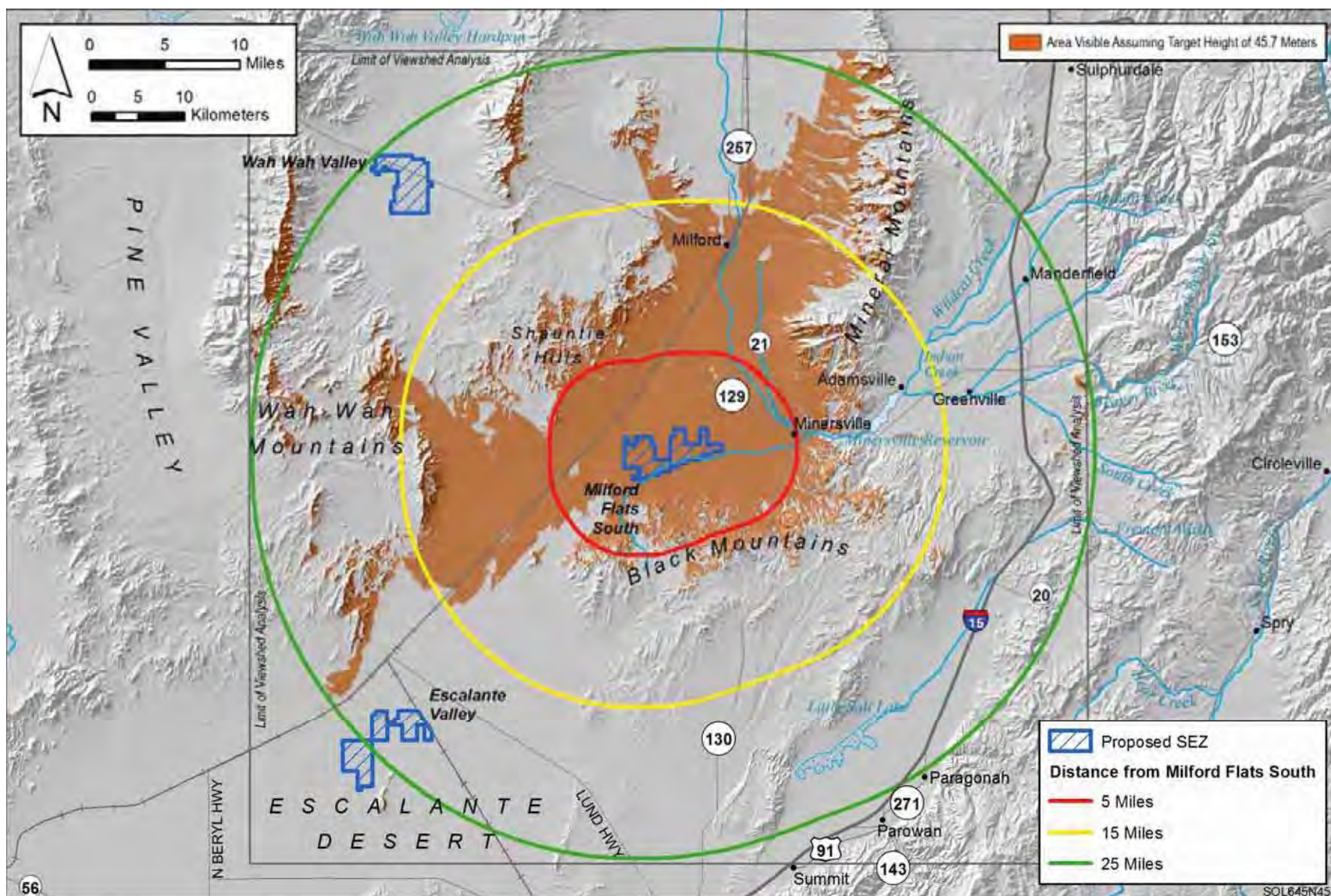


FIGURE N. .2-3 Viewshed Analysis for the Proposed Milford Flats South SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

1 **N. .3 Viewshed Maps for the Proposed Wah Wah Valley SEZ**
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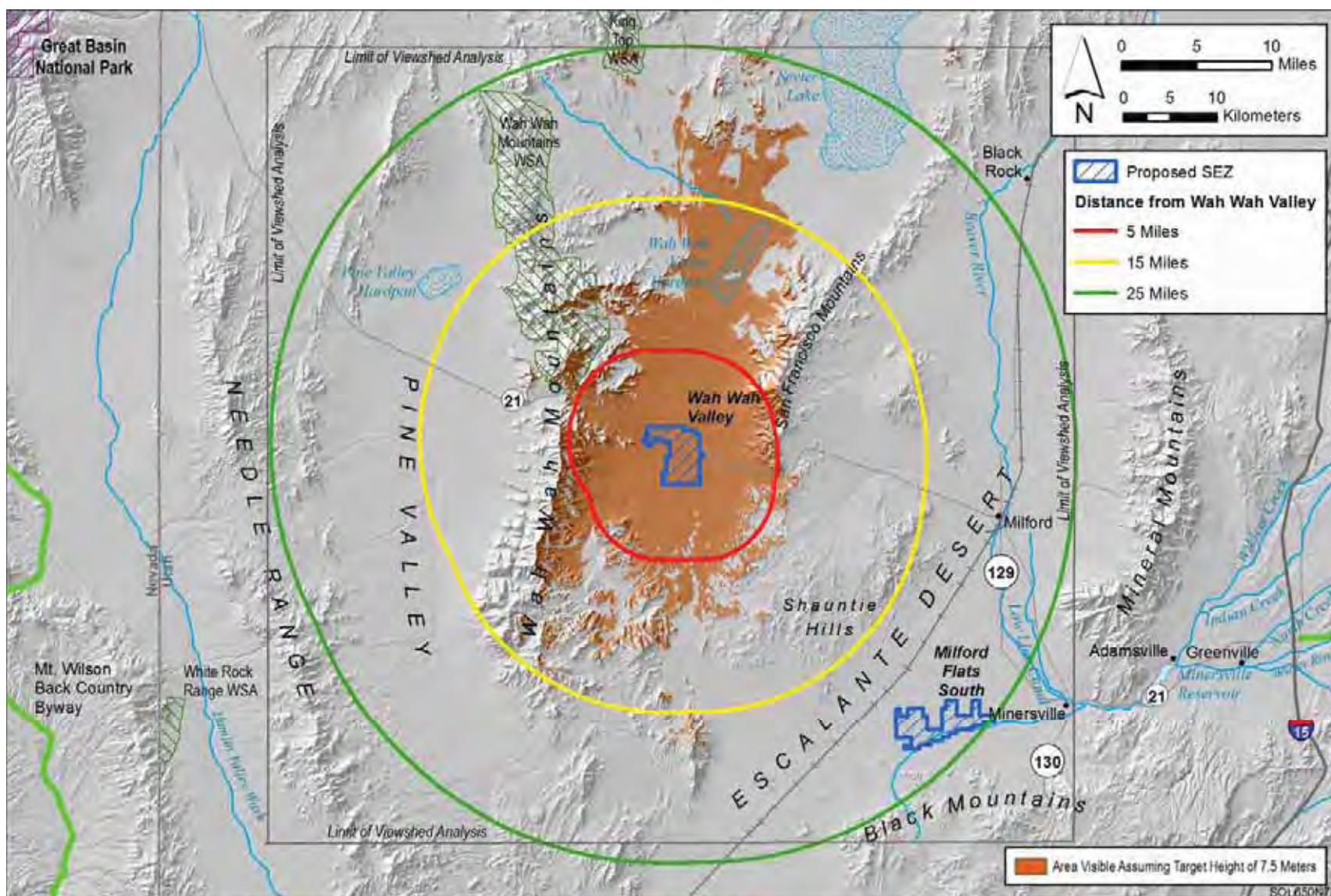


FIGURE N. 3-1 Viewshed Analysis for the Proposed Wah Wah Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 24.6 ft .5 m

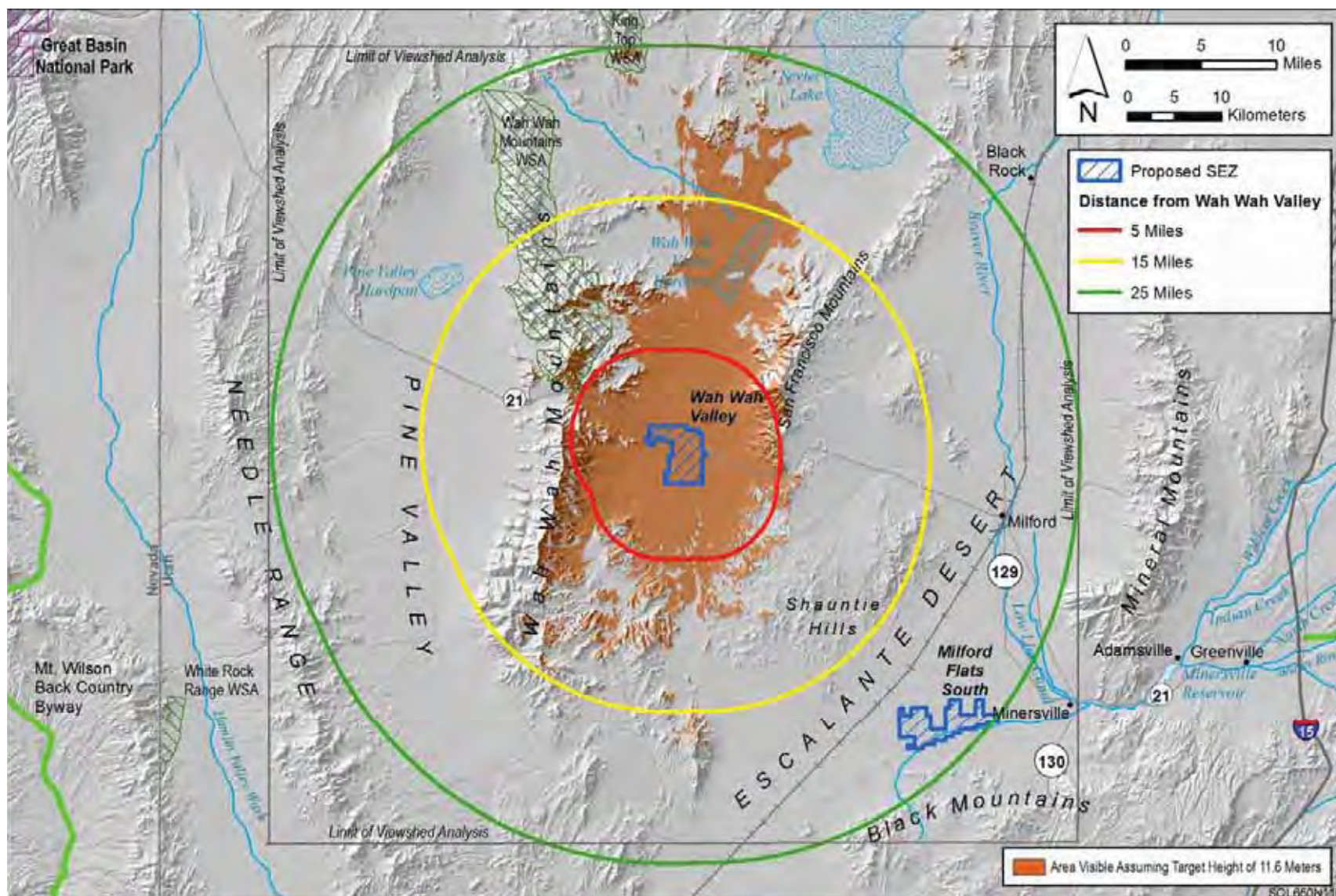


FIGURE N. .3-2 Viewshed Analysis for the Proposed Wah Wah Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 38 ft 11.6 m

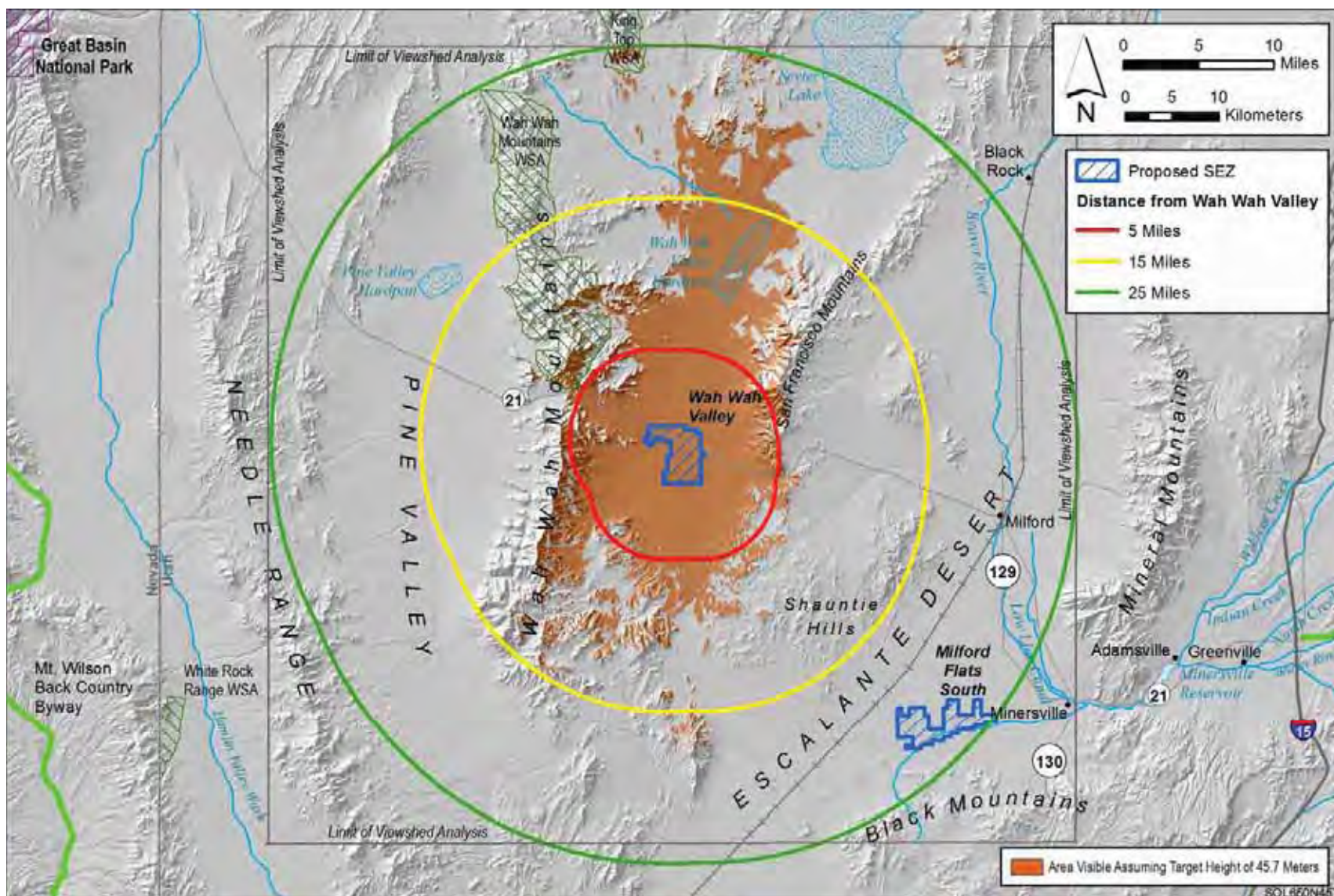


FIGURE N. .3-3 Viewshed Analysis for the Proposed Wah Wah Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 15 ft 45. m

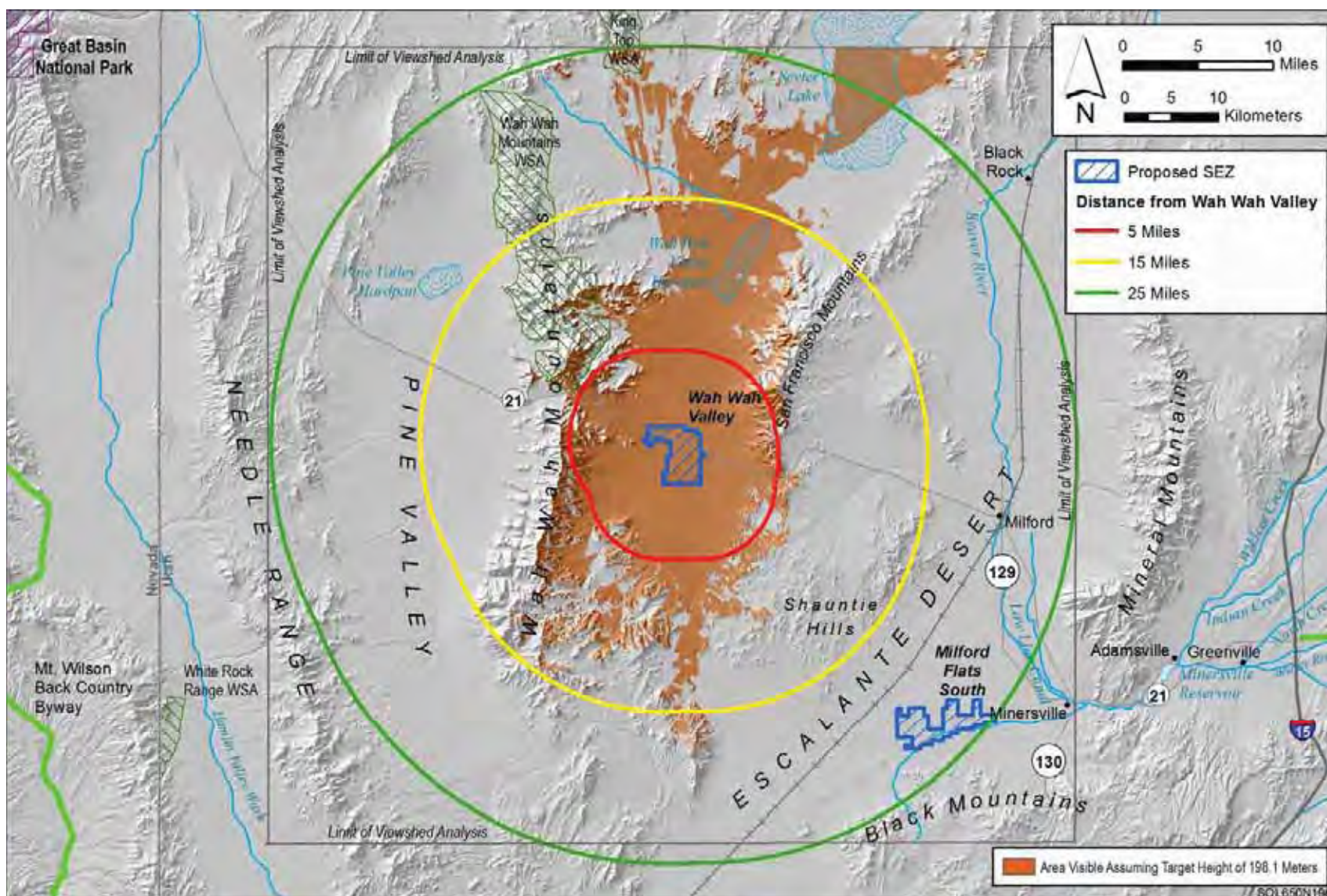


FIGURE N. 3-4 Viewshed Analysis for the Proposed Wah Wah Valley SEZ and Sensitive Visual Resources on Surrounding Lands, Assuming a Solar Technology Height of 65 ft 1 8.1 m

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APPENDIX M:
METHODOLOGIES AND DATA SOURCES FOR THE ANALYSIS OF IMPACTS
OF SOLAR ENERGY DEVELOPMENT ON RESOURCES

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APPENDIX M:

METHODOLOGIES AND DATA SOURCES FOR THE ANALYSIS OF IMPACTS OF SOLAR ENERGY DEVELOPMENT ON RESOURCES

M.1 GENERAL ASSUMPTIONS FOR THE ANALYSIS

This appendix provides detailed information on the methodologies and data sources used to assess the potential environmental impacts of solar energy development in this programmatic environmental impact statement (PEIS), mainly focused on assessing impacts from development of the solar energy zones (SEZs). The impact assessment for the PEIS was conducted at two different levels to support decisions to be made by the U.S. Department of the Interior (DOI) Bureau of Land Management (BLM) and the U.S. Department of Energy (DOE): a programmatic assessment of impacts of solar development generally and by solar technology type (as presented in Chapter 5), and an SEZ-specific assessment of impacts (as presented in Chapters 8 through 13 of the PEIS).

The programmatic assessment of the potential impacts of utility-scale solar energy development on resources present in the six-state study area was conducted for each of the technologies included in the scope of this PEIS (i.e., parabolic trough, power tower, dish engine, and photovoltaic [PV]) and for related development of electric transmission facilities. This assessment was conducted at a relatively high and general level (i.e., not site-specific) and was intended to describe the broadest possible range of impacts for individual solar facilities, associated transmission facilities, and other off-site infrastructure related to the different phases of development. The assessment, and the assumptions it was based on, are presented in Chapter 5 along with potential mitigation measures that could be used to eliminate, avoid, or minimize impacts. As discussed in Section 2.2.2, the analyses and mitigation measures presented in Chapter 5 provided one basis for the exclusions, policies, and required design features that the BLM proposes to establish in its new Solar Energy Program.¹ The specific exclusions proposed by the BLM are presented in Table 2.2-2; the proposed policies, programmatic design features, and SEZ-specific design features are presented in Appendix A, Sections A.2.1, A.2.2, and A.2.3, respectively. This appendix, while primarily addressing the impact assessment methods for SEZs, also addresses programmatic assumptions for water resources (Section M.9), vegetation clearing (Section M.10), and socioeconomic impacts (Section M.19).

The SEZ-specific assessments considered the potential impacts of utility-scale development on resources present in the 24 SEZs being proposed by the BLM under both of its action alternatives. These analyses, presented in Chapters 8 through 13 of the PEIS, consider the potential impacts for each of the solar technologies and related transmission and infrastructure development in the context of the specific environmental settings of the SEZs, thus providing a more detailed analysis of impacts than could be presented in Chapter 5. As discussed in Section 2.2.2, the SEZ-specific analyses provided the basis for the SEZ-specific design

¹ The BLM also evaluated existing, relevant mitigation guidance (Section 3.7.3) and comments received during scoping for the Draft PEIS (summarized in Section 14.1) in developing proposed elements of its new program.

features that the BLM proposes to be a part of its Solar Energy Program. A complete list of these SEZ-specific design features is provided in Appendix A, Section A.2.3. The BLM anticipates that the SEZ-specific analyses would also be used to support future analyses of individual projects proposed within the SEZs and to maximize streamlining of project-specific reviews. This appendix provides descriptions of the assessment methodologies and data sources used, with a focus on the more detailed SEZ-specific analyses. Special applications for evaluating specific technology types or impacts in specific proposed SEZs are summarized when applicable.

M.1.1 Assumptions for Solar Facilities

Both for the programmatic-level assessments and for the SEZ assessments, assumptions on the capacities and sizes of solar facilities were needed. For both assessments, it was assumed that parabolic trough and power tower facilities permitted on BLM-administered lands would have a nameplate capacity range of 100 to 400 MW. The upper end of the range corresponds to the capacity of the proposed Ivanpah Solar Energy Generating System power tower facility, which is well into the environmental review stage. The assumed capacity range for dish engine and PV facilities was 20 to 750 MW; the upper end of this range is based on the capacity of the proposed Imperial Valley Dish Engine facility, which also is proceeding through planning and environmental review requirement stages. On the basis of these assumptions, and assuming that 9 acres/MW (0.04 km²/MW) of land is required for power tower, dish engine, or PV technologies and 5 acres/MW (0.02 km²/MW) is needed for solar trough technologies, the maximum area of land disturbance for single facilities would be about 2,000 acres [8.1 km²] for a 400-MW parabolic trough facility, about 3,600 acres (15 km²) for a 400-MW power tower facility, and about 6,750 acres (27 km²) for a 750-MW dish engine or PV facility.

Maximum solar development (full build-out) of the proposed SEZs was assumed to involve 80% of the SEZ surface area over a period of 20 years. During construction, the maximum disturbed area for each solar development project was assumed to be 50 acres (0.20 km²) within a 24-hour period, 250 acres (1.01 km²) within a month, and 3,000 acres (12 km²) within a year. If the total area of a proposed SEZ was less than 10,000 acres (40 km²), it was assumed that only one project would be under construction at any given time; if the acreage of the SEZ was equal to or greater than 10,000 acres (40 km²) but less than 30,000 acres (121 km²), it was assumed that two projects could be under construction at the same time; and if the acreage of the SEZ was equal to or greater than 30,000 acres (121 km²), it was assumed that up to three projects could be under construction at the same time.

SEZ electrical power capacity at full build-out was estimated using the 80% full build-out acreage for each SEZ, and assuming that 9 acres/MW (0.04 km²/MW) would be required for power tower, dish engine, or PV technologies, and that 5 acres/MW (0.02 km²/MW) would be required for parabolic trough technology.² For example, the assumed full-build out area for the Brenda SEZ in Arizona was assumed to be 3,102 acres (13 km²), which is 80% of the entire area

² SEZ-specific analyses presented in Chapters 8 through 13 have identified a number of potential conflicts that could restrict the amount of land available for development within the SEZs to 80% or less. These findings support the assumption that only 80% of a given SEZ would be developable.

1 of 3,878 acres (16 km²). The capacity of the SEZ was assumed to range from 345 MW to
2 620 MW (3,102 acres divided by 9 acres/MW and by 5 acres/MW, respectively).
3
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5 **M.1.2 Assumptions for Transmission and Other Off-Site Infrastructure**

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7 Construction and operation of transmission lines to tie solar energy facilities into the
8 main power grid would be required for most new solar energy facilities. The location of the tie-in
9 to the transmission grid would likely be the nearest existing transmission line with sufficient
10 uncommitted capacity to accept power from the facility (or with the ability to be upgraded to
11 sufficient capacity). Thus, for the SEZ-specific analyses (Chapters 8 through 13), transmission
12 construction land disturbance was analyzed for the distance from SEZs to existing transmission
13 lines. No new transmission line construction was assumed if there was an existing transmission
14 line within or adjacent to (up to 1 mi [1.6 km] from) the SEZ. Evaluation of the available
15 transmission capacity of nearest existing lines was beyond the scope of the PEIS (because the
16 required magnitude of such upgrades was unknown, the upgrades would not be controlled by the
17 solar facility developers, and the upgrades might not be solely connected to solar facilities).
18

19 One consideration in selecting the locations for the proposed SEZs was proximity to
20 either existing transmission lines or to designated corridors, in order to facilitate access to the
21 regional transmission grid for these locations. Thus, many of the proposed SEZs are adjacent to
22 (or within 1 mi [1.6 km] of) designated corridors. In these instances and where construction of a
23 transmission line to connect to the nearest existing line was assumed to be needed (i.e., no
24 existing line ran through or was adjacent to the SEZ), the route of the new transmission line was
25 assumed to follow the route of the designated corridor.
26

27 It is likely that many of the existing transmission lines near SEZs would not have
28 sufficient capacity to support solar energy development at the SEZs and thus would need to be
29 upgraded to provide grid access for the SEZs. Upgrading of existing transmission lines would
30 result in variable additional land disturbance, depending on the extent of the upgrades needed. As
31 discussed in Appendix F, Section F.4.3.7, these land disturbance impacts of upgrades can be
32 conservatively assumed to be similar to those from new transmission line construction (this
33 could be the case if it were a large upgrade, for example, from a 69-kV line to a 230-kV or larger
34 line). Analysis of the impacts of transmission line construction and of line upgrades is included
35 in Chapter 5 of this PEIS.
36

37 With respect to the need for new roads to support SEZ development, a similar logic to
38 that used for transmission line needs was used to generate assumptions about the need for new
39 road construction. If a state, U.S., or interstate highway ran through or was within 1 mi (1.6 km)
40 of an SEZ, no significant new road construction was assumed to be needed. In many cases, there
41 were also existing county roads running through or adjacent to SEZs; however, use of these
42 roads for SEZ access was not assumed. This was a conservative assumption, likely resulting in
43 an overestimate of land disturbance associated with new road construction, because in many
44 cases, existing county roads could be used for SEZ access (although upgrades to county roads
45 would often be required). The assumption that a state, U.S., or interstate highway would be
46 needed was made so that the potential for land disturbance would not be underestimated. In

1 practice, the use and/or upgrade of existing roads for access to solar facilities would minimize
2 land disturbance impacts; this would be a consideration in site- and project-specific planning.

3
4 If SEZ-specific data indicated that construction of either new transmission lines or access
5 roads should be assumed, the following additional assumptions were used for the impact
6 analysis:

- 7
8 • A 230-kV transmission line would be constructed to the nearest existing
9 transmission line and delivered as alternating current (AC), and the corridor
10 right-of-way (ROW) width would be up to 250 ft (76 m) (this width includes
11 areas disturbed during construction, conservatively assuming that the
12 disturbed area is doubled during construction). This would result in
13 approximately 30 acres (0.12 km²) of land disturbance per mile (1.6 km) of
14 transmission line construction. If more than one project was assumed to be
15 built within an SEZ, transmission lines were assumed to be shared between
16 projects.
- 17
18 • For new access road construction from the SEZ to the nearest state, U.S., or
19 interstate highway, the width of disturbance was assumed to be up to 60 ft
20 (18 m), representing a two-lane highway with 12-ft (3.7-m) lanes and 3-ft
21 (1-m) shoulders, and the area doubled during construction. This would result
22 in approximately 7 acres (0.03 km²) of land disturbance per mile (1.6 km) of
23 transmission line construction.

24
25 Other off-site infrastructure that might be needed to support SEZ development could
26 include water pipelines (if water for construction and/or operations were being obtained from an
27 off-site source) and natural gas pipelines (if natural gas were required at the facility in large
28 quantities). For water pipelines, the impacts of construction with respect to land disturbance were
29 not assessed in the PEIS because: (1) based on applications received to date, most facilities
30 would use on-site groundwater as their water source, and (2) if off-site water sources were to be
31 used, the locations of these sources are completely unknown at this time. Similarly, the impacts
32 of pipeline construction for natural gas were not assessed, because such pipelines are not
33 expected to be needed for most solar facility development (solar facilities are not expected to use
34 natural gas in significant quantities), and because locations and lengths of pipelines are not
35 predictable at the programmatic level. Thus, if new water or gas pipelines are needed for solar
36 facility development, the impacts of construction and operation of these pipelines will need to be
37 assessed at the project-specific level. The amount of land disturbance associated with new
38 pipelines would be similar to that for new transmission lines; the impacts of such construction
39 are evaluated in the Corridors PEIS (DOE and DOI 2008).

40 41 42 **M.2 LANDS AND REALTY**

43
44 This section describes the methodology and data sources used to evaluate potential direct
45 and indirect impacts on present and future authorized uses of public lands within the SEZs as

1 related to the BLM's lands and realty program. This program provides authorization for a wide
2 variety of activities, including authorization of solar energy ROWs.
3
4

5 **M.2.1 Affected Area**

6

7 The area of analysis focused on about 677,400 acres (2,741 km²) of BLM-administered
8 public lands proposed as SEZs. Potential impacts on private and state lands within 5 mi (8 km) of
9 the borders of the SEZs that might be affected by development of the SEZs were also considered.
10 Existing ROW authorizations and designations under the BLM lands and realty program within
11 the SEZs were identified, as were existing transmission facilities and transmission corridors.
12 The major sources of information for this analysis included the project-specific geographic
13 information system (GIS), Google EarthTM, the BLM GeoCommunicator Web site (BLM and
14 USFS 2010), and the BLM LR 2000 system (BLM 2010b).
15
16

17 **M.2.2 Analysis Approach and Information Sources**

18

19 Both direct and indirect impacts are considered, depending on the specific situation,
20 including the land ownership pattern, the need for new transmission facilities, the effects of
21 topography combined with proposed SEZ boundaries, existing access routes, and the general
22 character of the land in and around the SEZs. Indirect effects are those that would occur outside
23 of the areas directly developed for solar energy production, including the possibility that
24 development of solar energy facilities within an SEZ might induce the development of solar
25 energy or related projects on adjacent and nearby state or private lands.
26

27 The analysis for the SEZs was based largely on SEZ-specific information available from
28 public sources, which were used to identify existing authorizations for use of the public lands.
29 Spatial analysis included the use of the project-specific GIS system, as well as paper maps,
30 especially the BLM's 1:100,000 scale Surface Management Status Maps. Google Earth was used
31 to provide context to the analysis and to cross-reference information sources. Existing BLM land
32 use plans were also consulted. Each of the SEZs was visited by assessment team members to
33 provide site familiarity. The local BLM office staff was consulted on specific issues. While the
34 analysis of impacts was made as specific as possible, there are still technology-specific and
35 location-specific impacts that would need to be further analyzed once details for specific projects
36 were known.
37

38 No attempt was made to quantify direct or indirect impacts to lands and realty in SEZs
39 other than to identify the acreage of land that could be affected.
40
41

42 **M.3 SPECIALLY DESIGNATED AREAS AND LANDS WITH WILDERNESS** 43 **CHARACTERISTICS** 44

45 This section describes the methodology and data sources used to evaluate potential direct
46 and indirect impacts on specially designated areas. The specially designated areas included in the

analysis are those excluded from potential solar energy development as specified in Table 2.2-2 in Section 2.2.2 describing the Solar Energy Program, plus areas that have been determined by BLM to possess wilderness characteristics. These areas are considered because they could potentially be affected, even though they are excluded from solar facility development. In some instances, potential impacts on areas that have been designated by state and local authorities are also assessed.

M.3.1 Affected Area

The area of analysis focused on approximately 677,400 acres (2,741 km²) of land proposed as SEZs. Potential impacts on specially designated areas located within 25 mi (40 km) of the borders of the SEZs were considered. The major sources of information for this analysis included the project-specific GIS, Google Earth, and a variety of BLM and other publicly available paper maps.

M.3.2 Analysis Approach and Information Sources

Although the impact analysis for specially designated areas focused on areas within a 25-mi (40-km) radius of the individual SEZs, in a few instances, more distant areas were considered if there was some unique reason to do so (on the basis of professional judgment). Several factors were considered in identifying areas that could be affected by solar development within the SEZs. These included the proximity of the SEZs to the specially designated areas, the view from the areas of potential development within an SEZ, and the nature of the resources and resource uses that were identified as the reason(s) for the special designations. In general, depending on the resources and resource values present, the closer a SEZ is to a specially designated area, the more likely the area and its resource values would be adversely affected by solar development. While there is an inherent subjectivity in this type of analysis, impact assessments of these special areas draw heavily on the visual analysis completed and recorded in the Visual Resource sections in this PEIS and on the professional judgment of the analysis team with respect to the potential sensitivity of the area to the presence of solar energy development.

Key sources of information supporting this analysis were the project-specific GIS system, SEZ-specific visual resource analysis, and Google Earth visualizations. In many cases it was not possible to make a determination of potential effects, but generally, where solar development would be within 5 mi (8 km) of a specially designated area, the impacts of development on areas with high visual sensitivity were considered to be “large.” There were also instances in which specially designated areas might be farther than 5 mi (8 km) from an SEZ, but because of the potential for extensive and continuous solar energy development over a large percentage of the viewshed of a specially designated area, this would also be classified as a large level of impact. For areas located farther than 5 mi (8 km) from the SEZ and/or where the viewshed would be dominated to a lesser degree by development in the SEZ, impacts could range from negligible to moderate.

4 ANGELAND ES ES

4.1 Livestock Grazing

4.1.1 Affected Area

For this topic, the analysis of the 677,400 acres (2,741 km²) of public lands proposed as SE is focused only on those grazing allotments with all or portions of their acreage located within an SE.

4.1.2 Analysis Approach and Information Sources

The SE-specific analysis of potential grazing impacts was based on a GIS analysis of the number of grazing allotments within the SE, the acreage and annual grazing authorization of each allotment, and an assumption that the reduction in the animal unit months (AUMs)³ of a particular allotment would be the same as the percentage of the public land that would be committed to solar development. Within individual SE sections, there is discussion of more specific factors that would be considered in any grazing allotment modification. Sources of information for this analysis included the project-specific GIS system, the BLM GeoCommunicator Web site, the BLM Rangeland Administration System Web site, which provides detailed allotment-specific information, and communication with BLM range management staff. The identification of potential impacts is somewhat subjective; it was assumed that allotments that lose greater than 50% of their land area would suffer a large impact, losses of 25% to 50% would be considered a moderate impact, and losses of less than 25% would be considered a small or negligible impact. While the potential to mitigate some of the grazing losses through provision of range improvements on remaining portions of an allotment was discussed within individual SE sections, it was not possible to assign an estimate of AUMs that might be recovered.

4.2 Wild Horses and Burros

4.2.1 Affected Area

Wild horse and burro areas considered in the assessment included herd management areas (HMAs) managed by BLM (BLM 2010a) and territories managed by the U.S. Forest Service (USFS 2007). The affected areas considered in the assessment included areas of direct and indirect effects. The area of direct effects was defined as the area that would be physically modified during project development (i.e., where ground-disturbing activities would occur). For some SEs, the area of direct effects was limited to the SE itself, because no new transmission

³ One AUM is a unit of forage required to support one cow and her calf for one month.

1 corridors or access roads were expected to be needed. Additionally, maximum development was
2 assumed to be 80% of the SE. Therefore, direct effects were considered to be present on
3 80% of the SE area. For other SEs, the area of direct effects also included an assumed area of
4 development for a transmission corridor and/or access road needed to connect projects on the
5 SE to the grid or road network, respectively. If a new transmission line was assumed to be
6 needed (see Section M.1.2), it was assumed to occur as a 250-ft (76-m) wide developed Right-of-Way
7 within a 1-mi (1.6-km) wide corridor to the nearest existing transmission line. If needed, a new
8 access road was assumed to occur as a 60-ft (18-m) wide developed road within a 1-mi (1.6-km)
9 wide straight-line corridor to the nearest highway.

10
11 The area of indirect effects was defined as the area where ground-disturbing activities
12 would not occur, but that could be indirectly affected by activities in the area of direct effects.
13 This indirect effects area was defined as the 20% portion of the SE that would not be
14 developed, the area outside of the SE but within 5 mi (8 km) of the SE boundary, and the area
15 within the 1-mi (1.6-km) wide access road and transmission corridors but outside of the area of
16 direct effects. The area of indirect effects could be affected by project activities in the area of
17 direct effects related to groundwater withdrawals, surface runoff, dust, noise, lighting, and
18 accidental spills. The distance from the SE boundary used to define this area of indirect effects
19 was based on professional judgment and was considered sufficiently large to bound the area that
20 would potentially be subject to indirect effects. The potential magnitude of indirect effects would
21 decrease with increasing distance from the SE.

22
23 Wild horse and burro HMAs and territories located within a 50-mi (80-km) radius around
24 the center of each SE were considered for the analysis. The area encompassed by this circle
25 was considered the SE region. The 50-mi (80-km) SE region was conservatively chosen on
26 the basis of professional judgment to ensure that impacts on wild horse and burro HMAs and
27 territories potentially affected by development within the SE could be evaluated.

30 4.2.2 Analysis Approach and Information Sources

31
32 Mapped HMAs and territories were used to determine whether these management areas
33 occurred in the areas of direct and indirect effects. The acreage within the areas of direct or
34 indirect effects was determined by using the Environmental Systems Research Institute (ESRI)
35 ArcGIS version 9 software. If HMAs or territories were not located in these areas, distances to
36 the closest HMAs or territories within the SE region were determined by using the GIS
37 software.

38
39 A landscape-level analysis was used to determine impacts by quantifying the total
40 acreage of HMAs or territories within the areas of direct and indirect effects relative to the total
41 acreage of those areas within the SE region. The relative impact magnitude categories were
42 based on Council on Environmental Quality (CEQ) regulations for implementing the National
43 Environmental Policy Act of 1969 (NEPA) (Title 40, Part 1508.27 of the Code of Federal
44 Regulations 40 CFR 1508.27) in which significance of impacts is based on context and
45 intensity. Similar impact magnitude categories and definitions were used in two recent
46 environmental impact statements (EISs) published by the BLM and by DHE and the DOI (BLM

2008a D E and D I 2008) and are widely applied by other agencies (e.g., the U.S. Nuclear Regulatory Commission) in the evaluation of environmental impacts. Impact magnitude categories used for the wild horse and burro analyses were as follows

None No impacts are expected.

Small Effects would not be detectable or would be so minor that they would neither destabilize nor noticeably alter any important attribute of an HMA or territory (for this analysis, impacts were considered small if less than 1 of the HMAs or territories in the region would be lost).

Moderate Effects would be sufficient to alter noticeably but not destabilize important attributes of an HMA or territory (for this analysis, impacts were considered moderate if equal to or more than 1 but less than 10 of the HMAs or territories in the region would be lost).

Large Effects would be clearly noticeable and sufficient to destabilize important attributes of an HMA or territory (for this analysis, impacts were considered large if 10 or more of the HMAs or territories in the region would be lost).

Actual impact magnitudes on wild horse and burros would depend on the location of the HMA or territory, project-specific design, application of mitigation measures (including avoidance, minimization, and compensation), and the status of the herd and its habitats in the project area. In defining impact magnitude, the application of design features was assumed. In most cases, it was assumed that design features would reduce most indirect effects to negligible levels.

Once impact magnitude was determined for an HMA or territory, specific mitigation measures were considered. Avoidance of HMAs or territories to the extent practicable was recommended for HMAs or territories within the direct effects area for an SE . For HMAs or territories outside the indirect effects area, no mitigation measures were deemed to be necessary. A final mitigation plan would have to be determined at the project level through consultation with the BLM or the USFS for any HMA or territory within the direct or indirect effects areas for an SE .

. E EAT N

. .1 Affected Area

The area of analysis focused on about 677,400 acres (2,741 km²) of public lands within the proposed SE s. In many instances, recreational use of adjacent or nearby areas also was considered.

M.5.2 Analysis Approach and Information Sources

The analysis of impacts on recreation was complicated by the fact that site-specific recreational use or visitor data were lacking for most of the areas. The most basic assumption was that recreational use would be precluded on all areas developed for solar energy production. Discussions with local BLM staff, field observations, and professional judgment were the basis for characterizations of existing recreational use of the SEZs. Other sources of information included the project-specific GIS, Google Earth, local recreation publications, BLM recreation and surface management maps, county recreation maps, and official state maps. If areas were designated for off-highway vehicle (OHV) use or supported commercial recreation activities, or if nearby areas supported recreational use, these were noted. Where specially designated areas were located adjacent to or near the SEZs, potential adverse effects on recreational use of these areas was discussed, but it was not possible to assess the potential impacts of that use. Specific attempts were made to analyze the road access patterns in and around the SEZs and to determine whether development of the area would adversely affect access to areas around the SEZs. Because of the lack of site-specific data, no quantitative determinations of impact on recreational use were made. Possible methodologies for quantifying the value of recreation on public land are discussed in Section M.19.1.5.

M.6 MILITARY AND CIVILIAN AVIATION

M.6.1 Affected Area

All military and civilian airfields were identified and considered in the analysis. The area of analysis for military aviation focused on military airspace immediately above the SEZs or within 5 mi (8 km) of the boundaries of the SEZs.

M.6.2 Analysis Approach and Information Sources

The analysis specifically identified where military airspace overlaps the SEZs and noted any military and civilian aviation facilities near the SEZs. The sources of information for this analysis were the BLM GeoCommunicator Web site (BLM and USFS 2010), the project-specific GIS, and Google Earth. The military also provided information that has been used to identify potential area-wide impacts. In many instances, the military identified specific potential issues and concerns with SEZs that have been incorporated into the analysis. Because of the potential for differential impacts caused by different solar technologies and the various types of military uses, specific impact analysis and definition of impacts were not possible. Where military or civilian airfields are within 25 mi (40 km) of an SEZ, this was noted as a potential conflict. However, since Federal Aviation Administration regulations would control activities near these facilities, no additional analysis was performed. Because of the site-specific nature of the potential impact on military airspace, no assessments of the potential level of impact could be made.

M. GEOLOGIC SETTING AND SOIL RESOURCES

M. .1 Geologic Setting

The geologic setting was established for each of the proposed SEZs based on a review of aerial maps, topographic maps, geologic maps, and the scientific literature. The descriptions provided in the affected environment section for each of the proposed SEZs focus mainly on surface features (e.g., terrain, water bodies, land forms, and geologic materials), with some attention to the underlying structural aspects of intermontane alluvial valleys (horsts and grabens). Detailed geologic history and descriptions of stratigraphic units with depth were purposely omitted to limit the discussion to the geologic context most relevant to the development of a solar project on the ground surface. References to the geologic time scale (eras, periods, and epochs) were based on the age ranges compiled by Walker and Geissman (2009) (Figure M.7-1).

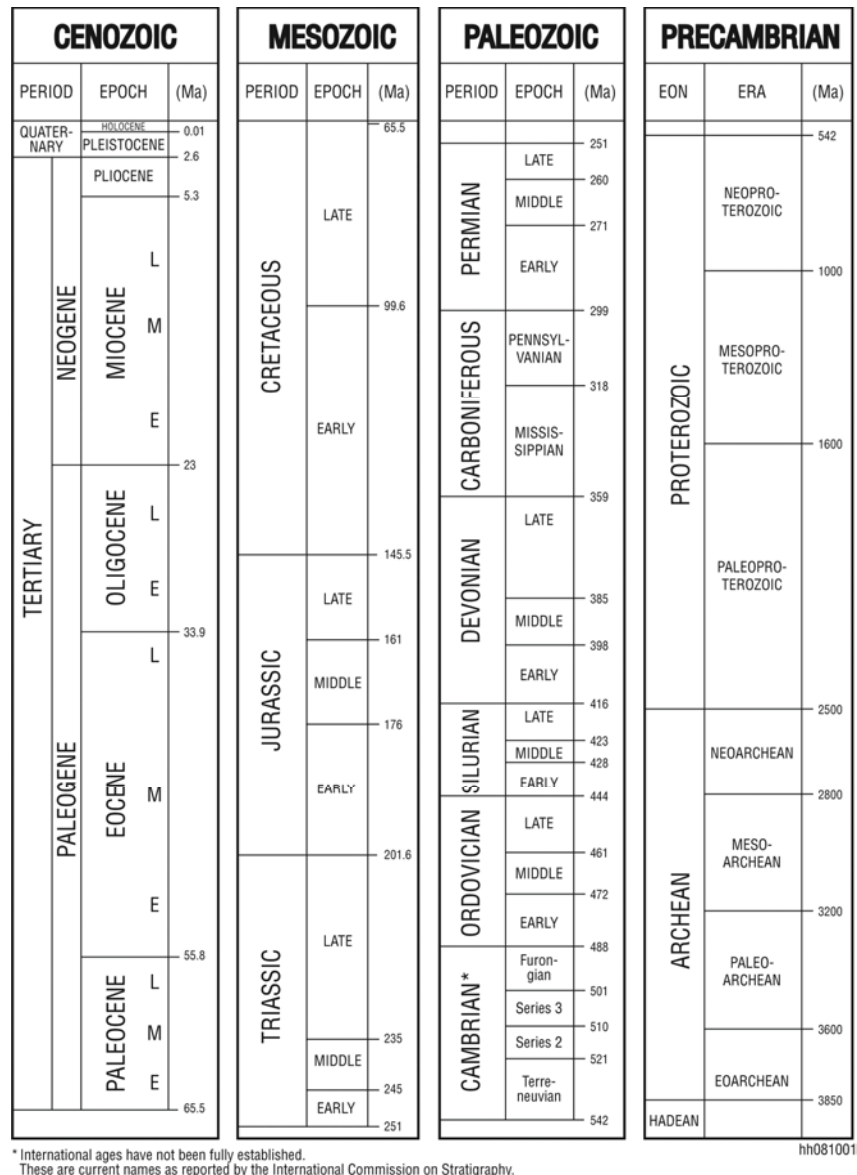
Geologic map data (shapefiles) were obtained from the U.S. Geological Survey (USGS) (Ludington et al. 2007; Stoesser et al. 2007). Because the data are considered preliminary, maps generated were checked against published state geologic maps (at scales of 1:500,000 and 1:1,000,000) for accuracy and for detailed map unit descriptions.

M. .2 Geologic Hazards Assessment

The geologic hazards assessment used several online database and interactive map sources and considered the findings published in numerous academic and professional articles and reports. The types of geologic hazards relevant to the six-state area are listed in Section 5.7.3, and a site-specific hazard assessment is provided in the affected environment section for each of the proposed SEZs. The assessment provided is preliminary, and developers may find that, depending on site conditions and local concerns, geotechnical studies are needed to fully characterize the geologic hazards associated with the locale of a particular SEZ (including those related to the engineering properties of soils). Such studies would be useful in defining facility design criteria and developing site-specific construction guidelines and mitigation measures to minimize risks.

The seismic-related hazards assessment was based on information compiled primarily from the USGS, the State of California, and literature reviews, including several earthquake- and fault-related sources, as follows:

- Quaternary Fault and Fold Database of the United States—Class A fault search (USGS 2010a);
- National Earthquake Information Center Database—Circular search within a 100-km radius of the center of each proposed SEZ (USGS 2010b);



* International ages have not been fully established. These are current names as reported by the International Commission on Stratigraphy.

hh081001

FIGURE M. -1 Geologic Time Scale Source: modified from Walker and Geissman 2

- Geologic Hazards Team Interactive Map Server (Seismic Hazard Map)—Peak horizontal acceleration (as a percentage of “g”) with a probability of exceedance in 50 years (USGS 2010c); and
- Alquist-Priolo Earthquake Fault Zones—Detailed surface trace maps for active faults in California (CGS 2010).

The evaluation of liquefaction potential was based on the findings of published studies (if available) or a general consideration of the liquefaction susceptibility of sediments at the proposed SEZs (based on sediment texture and depth to groundwater) in combination with the

1 opportunity for liquefaction to occur based on the projected strength of ground shaking caused
2 by a probable earthquake as shown on USGS shake maps (USGS 2010c).

3
4 Volcanic hazards were assessed by consulting the maps and publications on the USGS's
5 Volcano Hazards Program Web site (USGS 2010d), state geological surveys, and various
6 published studies.

7
8 Other geologic hazards, including soil settlement and subsidence, slope instability, and
9 flooding, were preliminarily assessed by considering site-specific conditions (e.g., soil texture,
10 topography, and land forms) in combination with findings published in academic and
11 professional articles and reports. State and local sources (e.g., ground fissures) were also
12 considered, as available.

13 14 15 **M. .3 Soil Resources Impacts Assessment**

16
17 The impacts assessment for soil resources relied on field observations, reviews by and
18 consultations with BLM field office personnel, and academic and professional literature reviews
19 to characterize site-specific soil conditions. No soil boring samples were collected, and no field
20 or laboratory tests for soil properties were conducted at any of the proposed SEZs as part of this
21 assessment. At this time, only general project locations (as delineated by the site boundaries for
22 each proposed SEZ) are known; footprints of specific solar projects to be developed within the
23 proposed SEZs are not yet available. As a result, impacts on soil resources are discussed in this
24 PEIS only in relative terms by project phase and technology type and size (these are presented in
25 Sections 5.7.1 and 5.7.2). Site-specific impacts are identified in the impacts section for each of
26 the proposed SEZs.

27
28 The main elements in assessing relative impacts on soil resources at the proposed SEZs
29 are the geographic location and temporal/spatial extent of ground-disturbing activities during
30 all project phases. Activities resulting in ground disturbance include vegetation clearing and
31 grubbing, excavation and backfilling, construction of project structures (met towers, solar
32 collectors, cooling systems) and ancillary facilities, trenching, drilling, stockpiling of soils,
33 construction of road beds, drainage and wetland crossings, heavy truck and equipment traffic,
34 and increased foot traffic (Section 5.7.1). Because the footprints of specific solar projects to be
35 developed within the proposed SEZs are not currently known, the temporal/spatial extent of
36 these ground-disturbing activities and soil-related impacts cannot be quantified in this PEIS.

37
38 Soil conditions within each of the proposed SEZs were characterized by using
39 customized map data from the U.S. Department of Agriculture (USDA's) National Resources
40 Conservation Service (NRCS) Web soil survey (USDA 2010a) as a starting point and
41 supplemented with information provided by state and local agencies, as available. Information
42 such as soil texture and composition, parent material, land forms on which the soils developed,
43 drainage class, soil permeability, surface runoff potential, soil hydric rating, compaction, fugitive
44 dust, rutting potential, soil erosion factors (e.g., whole soil erodibility factor [K factor] and wind
45 erodibility group/index), land classification (e.g., prime or unique farmland), and primary land
46 use data was gathered to gain a general understanding of a soil's susceptibility to impacts as a

1 result of ground-disturbing activities. Information on special soil features, such as biological
2 crusts and desert pavement, was also obtained. General soil maps and map unit descriptions are
3 provided in the affected environment section for each of the proposed SEZs. These maps are
4 based on the soil series delineated on county soil surveys at scales of 1:12,000 to 1:100,000
5 (USDA 1999). The types of potential soil impacts are described in detail in Section 5.7.1, and
6 site-specific concerns are identified in the impacts section for each of the proposed SEZs.

7
8 Mitigation measures identified in Section 5.7.4 were based on a combination of best
9 engineering practices published as general industry standards and guidelines developed by
10 various government agencies, including the BLM (erosion control and road construction), the
11 Western Area Power Administration (transmission line construction), and the State of California
12 (erosion and sediment control).

13 14 15 **M.8 MINERALS FLUIDS, SOLIDS, AND GEOTHERMAL RESOURCES**

16 17 18 **M.8.1 Affected Area**

19
20 The area of analysis focused within the SEZs for direct impacts and also considered the
21 presence of mining claims and leases near the SEZs. The distance evaluated outside the SEZs for
22 mining claims or leases varied by location and was based on professional judgment.

23 24 25 **M.8.2 Analysis Approach and Information Sources**

26
27 The analysis specifically identified whether there are closed or active mining claims or
28 mineral or geothermal leases within the SEZ or within the immediate vicinity of the SEZ. This
29 information was obtained from the BLM GeoCommunicator Web site (BLM and USFS 2010).
30 If there were either no active leases or mining claims and there had been no previous mineral
31 development, it was assumed there would be no impact on mineral resources. Where there were
32 existing valid claims or leases, these represented prior existing rights. There would be no impact
33 on valid claims or leases because solar energy development would have to be conducted in such
34 a way as to not adversely affect those prior rights. In the case of potential future development of
35 oil and gas resources (should any be found) under SEZs, it was assumed that those resources
36 would usually be accessible by directional drilling from outside of the SEZs.

37 38 39 **M. WATER RESOURCES**

40 41 42 **M. .1 General Considerations**

43
44 The analysis of water resources considered impacts on surface water features and
45 groundwater within the SEZ, the surrounding valley, the entire groundwater basin, as well as
46 upstream/upgradient and downstream/downgradient valleys and groundwater basins (if it was

determined that there was connectivity and the potential for indirect impacts). Surface water features that were considered were streams, lakes, wetlands, surface springs and seeps, ephemeral washes/drainages, playas, dry lakes, and floodplains. Groundwater features considered for potential impacts were drawdown of groundwater elevations, surface water-groundwater connectivity, recharge and discharge areas, land subsidence, phreatic vegetation, and groundwater flow systems in local and regional aquifers.

Impacts on surface water and groundwater features are primarily related to the alteration of natural hydrologic conditions, degradation of water quality, and the consumptive use of water for solar facilities. The assessment of impacts relating to hydrologic alterations and water quality was performed by using a variety of data sources to characterize water features and professional judgment to identify potential direct and indirect impacts from solar energy developments. Impacts related to water use were determined by assessing the available amount of surface water and groundwater resources in the region of the SEZ (explained above) and estimating water requirements for solar energy developments during construction and operation phases.

M. .2 Methods for Determining Water Use at Solar Facilities

This section explains the methods and assumptions used to estimate water use requirements by solar energy facilities. The analysis is relevant to construction and operations phases of utility-scale parabolic trough, power tower, dish engine, and PV facilities.

M. .2.1 Construction

During construction, water is needed primarily for fugitive dust control and the workforce potable supply. Water potentially needed for concrete preparation was assumed to come from an off-site source and was not included in the calculations. Workforce potable water supply was calculated by using scaled estimates of full-time-equivalent (FTE) workforce (see Section M.19) and water consumption rates from various solar energy development applications (CEC 2009a,b; CEC and BLM 2009; Topaz Solar Farms, LLC 2008).

Fugitive dust was assumed to be controlled by spraying the land surface with water. Dust can be problematic in a desert climate where the surface is composed of fine-grained aeolian or lacustrine deposits easily transported by wind. Less water would be required if a chemical immobilizer was mixed with the water; however, the potential use of chemicals would have to be investigated during site characterization. Fugitive dust control using only water was estimated according to the empirical equation presented by Cowherd et al. (1988):

$$I = \frac{0.8 P d t}{(100 - C)}, \quad (\text{M.1})$$

where

I = rate of water application (L/m^2),

P = potential average daytime evaporation rate (mm/h),

C = removal efficiency of the process for PM_{10} (i.e., particles $> 10 \mu m$),

d = number of vehicles passing a point (h^{-1}), and

t = time between applications (h).

The rate of water application (I) was estimated by assuming that C was equal to 80 (CASLC 2006), d was equal to 5, and t was equal to 6 hours. Potential evaporation (P) values were estimated by using average pan evaporation data relevant to the particular region considered (Cowherd et al. 1988; WRCC 2010a). The total water needed for dust suppression for a single day was calculated by multiplying the rate of application, I , by the number of applications per day, assumed to be two, and the disturbed area for the project. The factors used to estimate water use during the peak construction year are presented in Table M.9-1. The estimated value of sanitary wastewater generated during the peak construction year was assumed to equal to the required workforce potable water supply.

M. .2.2 Normal Operations

Water needs for normal operation of a solar project were calculated for mirror washing, the potable workforce water supply, and cooling for parabolic trough and power tower technologies (dish engine and PV technologies do not use cooling systems). During operations, the water use estimates are a function of the full build-out capacity of the facility. The factors used to estimate water use during operations are presented in Table M.9-2. The estimated value of sanitary wastewater generated during operations was assumed to equal the required workforce potable water supply.

M.1 VEGETATION

This section describes the methodology used to evaluate potential impacts on vegetation within the potentially affected area of the proposed SEZs.

M.1 .1 Vegetation Included in the Assessment

Vegetation considered in the assessment included plant communities that were associated with the ecoregions and land cover types mapped for the potentially affected area (see data sources below) or that were known to occur based on field observations in 2009. Communities associated with wetland types, or other water-dependent habitats, known to occur in the potentially affected area were also included.

TABLE M. -1 Assumptions and Multipliers for Estimating Water Use Requirements during the Peak Construction Year

Factor	Parabolic Trough	Power Tower	Dish Engine	PV	Reference
Facility Details					
(A) Number of facilities	If the total area of the proposed development is 10,000 acres (40 km ²), one annual project was assumed; if the acreage of the site is ≥10,000 acres (40 km ²) and 30,000 acres (121 km ²), two annual projects were assumed; if the acreage of the site is ≥30,000 acres (121 km ²), three annual projects were assumed.				Section M.1
(B) Land use for a solar facility (acres/MW)	5	9	9	9	Section M.1
(C) Maximum power produced by individual solar facility (MW)	400	400	750	750	Section M.1
(D) Maximum allowed annual build-out for individual solar facility (acres)	3,000	3,000	3,000	3,000	Section M.1
(E) Land disturbance during peak construction year (acres)	If A B C D, the area of land disturbance per project during peak construction is A B C.				
	If A B C D, the area of land disturbance per project during peak construction is D.				
Water Use Requirements					
(F) Full-time equivalent (FTE/MW)	3.30	2.40	1.00	0.50	Section M.19
(G) FTE water consumption (gal/day/FTE)	50	50	50	50	a
(H) Workforce water supply (ac-ft)	0.00112 F G E B ^b				
(I) Fugitive dust control (ac-ft)	Estimated using Equation M.1 with local rates of pan evaporation; see Section M.9.1.1 for explanation of conversion of application rate, <i>I</i> , to water volume.				

^a Calculated using potable water consumption values given in utility-scale solar energy development applications representing parabolic trough (CEC 2009a), power tower (CEC 2009b), dish engine (CEC and BLM 2009), and PV (Topaz Solar Farms, LLC 2008) technologies.

^b Where 0.00112 is the conversion factor from gal/day to ac-ft/yr.

TABLE M. -2 Assumptions and Multipliers for Estimating Water Use Requirements during Operations

Factor	Parabolic Trough	Power Tower	Dish Engine	PV	Reference
Facility Details					
(A) Full build-out land use (acres)	Equals 80% of the total area of the proposed development.				Section M.1
(B) Land use for a solar facility (acres/MW)	5	9	9	9	Section M.1
(C) Full build-out capacity (MW)	Equals A ÷ B.				
Water Use Requirements					
(D) Mirror washing (ac-ft/yr/MW)	0.5	0.5	0.5 ^a	0.05 ^a	DOE 2009
(E) Full-time equivalent (FTE/MW)	0.25	0.20	0.20	0.02	Section M.19
(F) FTE water consumption (gal/day/FTE)	50	50	50	50	^b
(G) Annual mirror washing and workforce supply (ac-ft/yr)	Mirror washing = D × C. Workforce supply = 0.00112 × E × F × C. ^c				
Cooling technology estimates	Range in dry- and wet-cooling estimates reflect the assumed 30% to 60% operating times of the facilities.				
(H) Dry cooling (ac-ft/yr/MW)	0.2 – 1	0.2 – 1	NA ^d	NA	DOE 2009
(I) Wet cooling (ac-ft/yr/MW)	4.5 – 14.5	4.5 – 14.5	NA	NA	DOE 2009
(J) Annual cooling water needs (ac-ft/yr)	Dry cooling = H × C, wet cooling = I × C.				

^a Water needs for PV panel washing were estimated as one-tenth of the requirements for concentrating solar power (CSP) mirror-washing values.

^b Calculated using potable water consumption values given in utility-scale solar energy development applications representing parabolic trough (CEC 2009a), power tower (CEC 2009b), dish engine (CEC and BLM 2009), and PV (Topaz Solar Farms, LLC 2008) technologies.

^c Where 0.00112 is the conversion factor from gal/day to ac-ft/yr.

^d NA = not applicable.

M.1 .2 Affected Area

The affected area considered in this assessment included the areas of direct and indirect effects. The area of direct effects was defined as the area that would be physically modified during project development (i.e., where ground-disturbing activities would occur). For some SEZs, the area of direct effects was limited to the SEZ itself, because no new transmission corridors or access roads were expected to be needed (see Section M.1). For others, the area of direct effects included an assumed area of development for a transmission corridor and/or access road needed to connect projects on the SEZ to the grid or road network, respectively. If needed, a new transmission line was assumed to occur as a 250-ft (76-m) wide developed ROW within a 1-mi (1.6-km) wide corridor from the SEZ to the nearest existing transmission line, and a new access road was assumed to occur as a 60-ft (18-m) wide developed road within a 1-mi (1.6-km) wide straight-line corridor to the nearest highway.

The area of indirect effects was defined as the area where ground-disturbing activities would not occur, but that could be indirectly affected by activities in the area of direct effect. This indirect effects area was defined as the area outside of the SEZ but within 5 mi (8 km) of the SEZ boundary and the area within the 1-mi (1.6-km) wide access road and transmission corridors. The area of indirect effects could be affected by project activities in the area of direct effects related to groundwater withdrawals, surface runoff, dust, noise, lighting, and accidental spills. The distance from the SEZ boundary used to define this area of indirect effects was based on professional judgment and was considered sufficiently large to bound the area that would potentially be subject to indirect effects. The potential magnitude of indirect effects would decrease with increasing distance from the SEZ.

For some SEZs, the area of indirect effects included areas dependent on groundwater that did not meet the distance criteria defined above. An example is the proposed Amargosa Valley SEZ in Nevada, where groundwater withdrawals have the potential to deplete regional groundwater supplies needed to maintain seeps, springs, wetlands, and surface water bodies in the Amargosa River, Oasis Valley, and Ash Meadows, which are up to 25 mi (40 km) from the SEZ boundary. The size of the affected area for these SEZs was considered on a case-by-case basis.

A circular area with a 50-mi (80-km) radius around the center of each SEZ was identified. The area encompassed by this circle was considered the SEZ region. The SEZ region was conservatively chosen based upon professional judgment to account for uncertainty in species distributions and to ensure that impacts on vegetation potentially affected by development on the SEZ could be comprehensively evaluated.

M.1 .3 Data Sources

The types of data used to determine the known or potential presence of plant communities in the vicinity of the proposed SEZs were collected from various sources and at different geographical and organizational levels. Sources of information included, but were not limited to, the following:

- Level III and Level IV ecoregions (EPA 2007; Bryce et al. 2003; Woods et al. 2001; Chapman et al. 2006; Griffith et al. 2006);
- Gap analysis programs (the California Gap Analysis Program [Davis et al. 1998; USGS 2008]; Sanborn Mapping (2008); the Southwest Regional Gap Analysis Project (SWReGAP) (USGS 2004, 2005, 2007);
- State noxious weed lists;
- Regional weed management area lists;
- USDA Plants Database (USDA 2010b);
- National Wetlands Inventory (USFWS 2009); and
- National Hydrography Dataset.

M.1 .4 Analysis Approach

Plant communities that were known to occur or could potentially occur within the affected area were included in the impact analysis. A landscape-level analysis was used to determine impacts by quantifying the total number of acres of each land cover type, encompassing a range of similar plant communities, within the areas of direct and indirect effects relative to the total acreage of each cover type within the SEZ region. The impact magnitude was based on what percentage that the area of each cover type within the direct impact area represented out of the total of all occurrences of that cover type within the SEZ region. The percentage that area represented out of a total of all occurrences of that cover type on BLM lands within the SEZ region was also calculated. In addition, the area of each cover type within the indirect impact area relative to the total acreage of each cover type within the SEZ region was calculated.

Relative impact magnitude categories were based on CEQ regulations for implementing NEPA (40 CFR 1508.27), in which significance of impacts is based on context and intensity. Similar impact magnitude categories and definitions were used in two recent EISs published by the BLM (2008a) and by DOE and the DOI (2008) and are widely applied by other agencies (e.g., the U.S. Nuclear Regulatory Commission) when evaluating environmental impacts. Impact magnitude categories were as follows:

- *None*—No impacts are expected.
- *Small*—Effects would not be detectable or would be so minor that they would neither destabilize nor noticeably alter any important attribute of the resource (for this analysis, impacts were considered small if less than 1 of the cover type would be lost in the region).

- *Moderate*—Effects would be sufficient to alter noticeably, but not destabilize important attributes of the resource (for this analysis, impacts were considered moderate if equal to or more than 1 but less than 10 of the cover type would be lost in the region).
- *Large* Effects would be clearly noticeable and would be sufficient to destabilize important attributes of the resource (for this analysis, impacts were considered large if 10 or more of a cover type would be lost in the region).

Actual magnitudes of impacts on plant communities would depend on the location of projects, project-specific design, application of mitigation measures (including avoidance, minimization, and compensation), and the status of plant communities in project areas. In defining impact magnitude, the application of design features was assumed. In most cases, it was assumed that design features would reduce most indirect effects to negligible levels.

The analysis of impacts on environmental resources from the construction of utility-scale solar energy projects was based, in part, on a set of assumptions regarding site preparation and restoration activities. These assumptions were based on management practices at existing and planned large-scale solar facilities and current BLM guidance (BLM 1992, 2007a,b, 2008b,c), and were used for the evaluation of impacts at the programmatic level and at the SEZ-specific level.

Areas granted ROWs for solar project development would typically be located in shrubland, shrub steppe, or grassland habitat types. The actual extent of land clearing within the ROW footprint of any solar facility would be specified in a detailed facility development plan that would likely avoid development in difficult areas (severe slopes, natural drainage courses, environmentally sensitive areas, rocky outcroppings, unstable areas, and the like) and that would reflect the tolerance of the solar technology for proximate vegetation. However, to ensure an upper-bound assumption for the impact analyses, the entire project area was assumed to be cleared of all vegetation during site preparation for facility construction. For most solar facilities it can be assumed that the project area would cover most of the ROW area. Because of variations in ROW configurations, 80 of the total SEZ area was assumed to be cleared of vegetation. Design features recommending that project-specific vegetation management plans investigate possibilities of revegetating parts of the solar array area were included, but such revegetation was not assumed in the impact analysis because its applicability is technology-specific and its success has not yet been demonstrated. Additionally, where revegetation was accomplished, a design feature was included to require firebreaks such that vegetated areas would not result in increased fire hazard.

It was assumed that Joshua trees (*Yucca brevifolia*), other *Yucca* species, and most cactus species would be salvaged prior to clearing and transplanted (as directed by the local BLM field office), held for use in revegetating temporarily disturbed areas, or otherwise protected as prescribed by state or local BLM requirements. It was further assumed that facility operators would maintain all ground surfaces within and adjacent to the solar array, the power block, and any electrical substations or switchyards or other support structures (buildings, roads, and so on) free of all vegetation throughout the operating period of the facility. An invasive species plan

1 would be implemented to prevent the establishment and spread of invasive plant species within
2 any portion of the solar ROW area and within access road and transmission line ROWs. In the
3 case of the transmission line ROW, the invasive species plan would be consistent with the
4 existing vegetation management plan for that ROW. Principles of integrated pest management,
5 including biological controls, would be used to prevent the spread of invasive species. Design
6 features would require the plan to include periodic monitoring, reporting, and immediate
7 eradication of noxious weed or invasive species occurring within these managed areas.
8

9 A small proportion of the solar ROW project area was assumed to be temporarily
10 disturbed during the construction period for short-term uses, such as component assembly,
11 equipment storage and laydown, or underground utility line installation. These areas would not
12 be included in the footprint of the solar array or support structures. Design features would
13 include the reestablishment of vegetation within temporarily disturbed areas immediately
14 following the completion of construction activities, provided such revegetation would not
15 compromise the function of the buried utilities. Yucca species salvaged during construction
16 could be transplanted into these areas at a density similar to preconstruction conditions.
17

18 Immediately following the decommissioning of a solar energy facility, it was assumed
19 land surfaces would be returned to predevelopment contours to the greatest extent feasible. The
20 operator would subsequently reestablish vegetation on the ROW area, including those areas
21 previously replanted and subsequently disturbed during decommissioning. As identified in the
22 design features, revegetation efforts would be guided by the implementation of a restoration plan
23 that would focus on the establishment of native plant communities similar to those present in the
24 vicinity of the project site. The plan would be designed to expedite the reestablishment of
25 vegetation and require restoration to be completed as soon as practicable. To ensure rapid and
26 successful reestablishment efforts, the plan would specify success criteria, including target dates,
27 that would be developed in coordination with the BLM and that would be required to be met by
28 the operator. Vegetation reestablishment efforts would continue until all success criteria were
29 met. Bonding to cover the full cost of vegetation reestablishment would be required as a design
30 feature. Species used for vegetation reestablishment would consist of native species dominant
31 within the plant communities existing in adjacent areas having similar soil conditions. The plan
32 would require the use of weed-free seed mixes of native shrubs, grasses, and forbs. In areas
33 where suitable native species were unavailable, other plant species approved by the BLM would
34 be used. The cover, species composition, and diversity of the reestablished plant community
35 would be similar to those in the vicinity of the site.
36

37 On the basis of current Federal Energy Regulatory Commission (FERC)
38 recommendations, it was assumed that only low-growing vegetation would be allowed in
39 solar facility-associated transmission line ROWs. Revegetation and control of invasive
40 species within the transmission line ROWs was assumed to be required as described above
41 for the solar facility project areas.
42

43 The following text, extracted from BLM documents, represents current policy regarding
44 habitat restoration and the use of native species on BLM lands:
45

- 1 • Native species should always be given first consideration and shall be used
2 except under limited circumstances. If local sources of native plants and seeds
3 are unavailable, commercial sources may be used. The BLM should determine
4 if the use of released germplasm, which may include cultivars, is appropriate
5 for a particular project. If non-natives are necessary, for example, for site
6 stabilization, they should be non-invasive, and ideally be short-lived, have low
7 reproductive capabilities, or be self-pollinating to prevent gene flow into the
8 native community. Non-natives used should not exchange genetic material
9 with common native plant species (BLM 2008c).
- 10
11 • In certain circumstances to prevent further site degradation and improve
12 functionality, non-native plants may be used to achieve land management
13 objectives (BLM 2008b).
- 14
15 • The use of non-native seeds as part of a seeding mixture is appropriate only if
16 (1) suitable native species are not available, (2) the natural biological diversity
17 of the proposed management area will not be diminished, (3) exotic and
18 naturalized species can be confined within the proposed management area,
19 (4) analysis of ecological site inventory information indicates that a site will
20 not support reestablishment of a species that historically was part of the
21 natural environment, and (5) resource management objectives cannot be met
22 with native species (BLM 1992).
- 23
24 • The use of local seed sources for native plants is recommended; the use of
25 local native genotypes is encouraged. If cultivars of native species are used,
26 the use of certified seed (i.e., blue tag) is recommended. The use of “source
27 identified” seed (i.e., yellow tag) is recommended when native seed is
28 collected from wildland sites. The use of native species is preferred to
29 non-natives. However, a mixture of native and non-native species is preferable
30 to using only non-natives if the desired natives are not available and if the use
31 of non-natives is consistent with approved land use plans. Competitive
32 non-native seed or plants should not be used in a seed mixture to facilitate
33 the establishment and persistence of the native (BLM 2007a).
- 34
35 • When available, use seed of known origin as labeled by state seed certification
36 programs; use seed of non-native cultivars and species only when locally
37 adapted native seed is not available or when it is unlikely to establish quickly
38 enough to prevent soil erosion or weed establishment; use seed that is free of
39 noxious and invasive weeds, as determined and documented by a seed
40 inspection test by a certified seed laboratory; where important pollinator
41 resources exist, include native nectar and pollen producing plants, include
42 non-forage plant species for their pollinator/host relationships as foraging,
43 nesting, or shelter species, choose native plant species over manipulated
44 cultivars, especially of forbs and shrubs, for their more valuable pollen and
45 nectar resources, and choose species with bloom times that match the activity
46 times for pollinators (BLM 2007b).

M.11 WILDLIFE AND AQUATIC BIOTA

M.11.1 Wildlife

This section describes the methodology used to evaluate impacts on wildlife known to occur, or for which suitable habitat could occur, within the potentially affected area of the proposed SEZs.

M.11.1.1 Wildlife Species Included in the Assessment

Wildlife species considered in the assessment included representative amphibian, reptile, bird, and mammal species. Representative species were selected among those species known to occur, or for which potentially suitable habitat occurs, within the potentially affected areas of an SEZ. To a large extent, selection of representative species was based on whether a species (1) has key habitats within or near the SEZ, (2) is important to humans (e.g., big game, small game, and furbearer species), (3) is representative of other species that share important habitats (e.g., desert focal bird species), or (4) has some type of regulatory protection (e.g., Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act). To the extent practicable, representative species included wildlife species whose range included the six-state study area or at least extended throughout the region for all or most of the SEZs within a state.

M.11.1.2 Affected Area

For the wildlife impact assessment, the affected area, the area of direct effects, and the SEZ region were the same as assumed for the vegetation assessment (see Section M.10.2).

M.11.1.3 Data Sources

The types of data used to determine the known or potential presence of wildlife species in the vicinity of the proposed SEZs, and life history information for the species, were collected from various sources and at different geographical and organizational levels. The most current, location-specific data at the highest resolution were used whenever available. Sources of information included, but were not limited to, the following:

- State game or natural resource agencies—Arizona Game and Fish Department (AZGFD 2010a,b), Biota Information System of New Mexico (BISON-M) (NMDGF 2010), California Department of Fish and Game (CDFG 2010a,b), Colorado National Heritage Program (CNHP 2009), Colorado Division of Wildlife (CDOW 2009), Natural Heritage New Mexico (NHNH 2010), Nevada Department of Wildlife (NDOW 2010), Nevada Natural Heritage Program (NNHP 2010a), and Utah Division of Wildlife Resources (UDWR 2009);

- Gap analysis programs—the California Gap Analysis Program (Davis et al. 1998; USGS 2008) and the Southwest Regional Gap Analysis Project (SWReGAP) (USGS 2004, 2005, 2007); and
- NatureServe (2010).

M.11.1.4 Analysis Approach

Because of the uncertainty in species distributions and the inherent challenges involved with tracking wildlife species in all solar energy study areas, a conservative approach was used to determine the potential for species to occur on or in the vicinity of the proposed SEZs. For the purpose of identifying potential wildlife species in the general area of the SEZ, a 50-mi (80-km) radius circle around the center of each SEZ was used to identify species based on (1) county-level occurrences, (2) locations of species observations as determined by state wildlife and/or natural heritage agencies, and (3) occurrence of identified land cover for the species listed by the SWReGAP (USGS 2005). The area encompassed by this circle was considered the SEZ region. The 50-mi (80-km) SEZ region was conservatively chosen on the basis of professional judgment to account for uncertainty in species distributions and to ensure that impacts on representative wildlife species potentially affected by development within the SEZ could be evaluated.

Wildlife species that were known to occur within the SEZ region were screened to determine their potential to occur within the direct or indirect effects areas. Spatial data provided by state natural heritage and regional Gap Analysis Programs were used to determine whether potentially suitable habitat occurred in the affected area. Gap Analysis Program data consisted of vertebrate animal land cover models. When mapped key habitats for a big game or game bird species (e.g., crucial winter range) were available from state agencies, the acreage of that habitat within the area of direct effects, the area of indirect effects, and the SEZ region was determined using the ESRI ArcGIS Version 9 software.

Wildlife species that were known to occur or for which potentially suitable habitat occurred within the area of direct effects were included as representative species in the impact analysis. A landscape-level analysis was used to determine impacts by quantifying the total acreage of potentially suitable habitat within the areas of direct and indirect effects relative to the total acreage of potentially suitable habitat within the SEZ region.

As for the assessment of vegetation (Section M.10.2), relative impact magnitude categories were based on CEQ regulations for implementing NEPA (40 CFR 1508.27), and were as follows:

- *None*—No impacts are expected.
- *Small*—Effects would not be detectable or would be so minor that they would neither destabilize nor noticeably alter any important attribute of the resource (for this analysis, impacts were considered small if less than 1% of identified habitat for a representative species would be lost in the region).

- *Moderate*—Effects would be sufficient to alter noticeably but not destabilize important attributes of the resource (for this analysis, impacts were considered moderate if equal to or more than 1 but less than 10 of identified habitat for a representative species would be lost in the region).
- *Large*—Effects would be clearly noticeable and sufficient to destabilize important attributes of the resource (for this analysis, impacts were considered large if 10 or more of identified habitat for a representative species would be lost in the region).

Actual impact magnitudes on wildlife species would depend on the location of projects, project-specific design, application of mitigation measures (including avoidance, minimization, and compensation), and the status of the species and their habitats in project areas. In defining impact magnitude, the application of design features was assumed. In most cases, it was assumed that design features would reduce most indirect effects to negligible levels.

Once impact magnitude was determined for each species, species-specific mitigation measures were considered. For all SEZs, pre-disturbance surveys to identify occupied and potentially suitable habitats were recommended. Avoidance of potentially suitable habitat was recommended (1) for those species that inhabited sensitive or unique habitats (e.g., desert dunes, washes, playas, wetlands, and riparian areas), (2) where minimization or avoidance measures could be readily implemented, and (3) for habitats such as nesting or roosting habitats that served a critical life history function. For species that used habitats common or widespread in the SEZ region (such as habitat generalists that may forage in a wide variety of habitats), avoidance of potentially suitable habitats was not considered feasible mitigation unless pre-disturbance surveys were conducted to determine the location of occupied habitats. A final mitigation plan would have to be determined at the project level through consultation with the U.S. Fish and Wildlife Service (USFWS) and appropriate state agencies (particularly for mitigation to species protected by the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act).

M.11.2 Aquatic Biota

This section describes the methodology used to evaluate direct and indirect impacts on aquatic habitat and biota known to occur on or within the potentially affected area of the proposed SEZs.

M.11.2.1 Affected Area

For the aquatic biota impact assessment, the affected area, the area of direct effects, and the SEZ region were the same as assumed for the vegetation assessment (see Section M.10.2).

M.11.2.2 Analysis Approach

Aquatic habitat and communities were assessed by determining first the perennial and intermittent/ephemeral surface water features (streams and water bodies) and wetlands present within the SEZ region. Maps of surface water features were based on data from the USGS National Atlas (<http://www.nationalatlas.gov/natlas/Natlasstart.asp>), and the length and acreage within each zone were calculated for streams and water bodies, respectively, using the ESRI ArcGIS Version 9 software. Small ephemeral washes are scattered throughout the desert southwest landscape. Only larger washes were inventoried by the National Atlas; therefore, many washes present in SEZs could not be quantified. Wetlands within each zone were identified by using National Wetland Inventory maps when available. Also quantified was the percentage of each surface water type (intermittent stream, perennial stream, intermittent lake, perennial lake) located within the area of direct and indirect effects as a percentage of the total amount of that surface water type within the SEZ region.

Many of the wetland and surface water features in the Southwest are washes and dry lakes that have no connection to perennial surface waters and contain water for only short periods following rainfall. Therefore, although map data indicated the presence of an intermittent surface water or wetland feature within the SEZ region, it was not considered to be aquatic habitat if hydrologic data indicated water was rarely, if ever, present. The hydrologic status of wetlands and surface waters was evaluated on the basis of information from site visits and existing hydrology data for the region as described in the water resources section for each SEZ.

Descriptions of aquatic communities within wetlands and surface water features were derived from state and federal resource agency reports and existing EISs when available. For many of the ephemeral/intermittent washes and rivers, no data were available. Many of the surface water features in the SEZ regions, particularly in California, Utah, and Nevada, are ephemeral and are not expected to contain aquatic habitat or biota. However, with sufficient frequency and flow, ephemeral or intermittent surface water may contain a diverse seasonal community of opportunistic species or habitat specialists adapted to living in temporary aquatic environments. Such specialists may be present in a dormant state even in dry periods. Therefore, for larger washes and frequently flooded ephemeral washes, aquatic biota could be present at least temporarily. To better resolve whether aquatic habitat and biota are present within an SEZ, site-specific surveys of aquatic communities were presumed to be required prior to site development.

Impacts on aquatic habitat and communities were considered to potentially result from direct disturbance, surface and ground water withdrawal, and changes in water, sediment, and contaminant inputs to surface water features. Based on best professional judgment, much greater weight was given to the magnitude of direct effects, because those effects would be difficult to mitigate. The potential for indirect impacts on surface water outside of the SEZs was evaluated based on their proximity and connectivity to surface water inside the SEZs. In most cases, it was assumed that design features would reduce most indirect effects to negligible levels. Actual impacts on aquatic habitat and biota would depend on the location of projects relative to surface water, project-specific design, and application of mitigation measures (including avoidance, minimization, and compensation). Mitigation was considered if there was a potential for impacts

on aquatic habitat and biota. Mitigation methods for aquatic habitats are described in detail in Section 5.9.3 and Section 5.10.4, and SEZ-specific measures are described in the individual SEZ sections.

M.12 SPECIAL STATUS SPECIES

This section describes the methodology used to evaluate impacts on special status species that are known to occur, or for which suitable habitat could occur, within the potentially affected area of the proposed SEZs.

M.12.1 Special Status Species Included in the Assessment

Special status species considered in the assessment included the following groups:

- Species listed as threatened or endangered under the Endangered Species Act (ESA);
- Species that are proposed for listing, are under review, or are candidates for listing under the ESA;
- Species that are designated by the BLM as sensitive;
- Species that are listed as threatened or endangered by the state or states in the affected area⁴; and
- Species that are considered rare in the affected area. These included species that have been ranked by state natural heritage programs as S1 or S2, species listed by the state(s) as species of concern, or species listed by the USFWS as species of concern. The inclusion of species with high state ranks also accounted for species with high global ranks (i.e., G1 or G2), because these species invariably have high state ranks as well.

M.12.2 Affected Area

For the special status species impact assessment, the affected area, the area of direct effects, and the SEZ region were the same as assumed for the vegetation assessment (see Section M.10.2). As for the vegetation assessment, for some SEZs, the area of indirect effects included areas dependent on groundwater that did not meet the distance criteria defined above (e.g., Amargosa Valley, where groundwater withdrawals have the potential to deplete regional

⁴ State-listed species are considered to be those species that are protected by individual state regulatory statutes (e.g., in California, the California Endangered Species Act; in Nevada, *Nevada Revised Statutes* (NRS) 501 or NRS 527).

groundwater supplies). The size of the affected area for these SEZs was considered on a case-by-case basis.

M.12.3 Data Sources

The types of data used to determine the known or potential presence of special status species in the vicinity of the proposed SEZs were collected from various sources and at different geographical and organizational levels, as presented in Table M.12-1. The most current, location-specific data at the highest resolution were used whenever available.

M.12.4 Analysis Approach

Because of the uncertainty in species distributions and the inherent challenges involved with tracking special status species in all solar energy study areas, a conservative approach was used to determine the potential for species to occur on or in the vicinity of the proposed SEZs. This approach is diagrammed in Figure M.12-1. Special status species in the area of the SEZs were determined by using the ESRI ArcGIS Version 9 software and spatial and nonspatial data of species occurrences. For the purpose of identifying potential special status species in the area, a circular area with a 50-mi (80-km) radius around the center of each SEZ was used to identify species based on (1) county-level occurrences, (2) locations of species observations as determined by state natural heritage programs, and (3) designated critical habitat for species listed under the ESA (Table M.12-1). The full list of special status species in the region surrounding each of the SEZs is presented in Appendix J.

Special status species that were known to occur within the SEZ region were screened to determine their potential to occur within the direct or indirect effects areas (Figure M.12-1). Spatial data provided by state natural heritage and regional Gap Analysis Programs were used to determine whether potentially suitable habitat occurred in the affected area. Gap Analysis Program data consisted of vertebrate animal habitat suitability models and land cover models. For plants and animals that did not have published habitat suitability models, professional judgment was used to determine the land cover types that could serve as potentially suitable habitat based on species ecology and natural history information. For many of the species evaluated, therefore, their predicted potential occurrence in the affected area was conservatively based on a general correspondence between mapped land cover types and descriptions of species habitat preferences. This overall approach to identifying species in the affected area likely overestimated the number of species that actually occurred in the affected area.

Special status species that were known to occur or for which potentially suitable habitat occurred within the affected area were included in the impact analysis (Figure M.12-1). A landscape-level analysis was used to determine impacts by quantifying the total area of potentially suitable habitat (and designated critical habitat for ESA-listed species) within the areas of direct and indirect effects relative to the total area of potentially suitable habitat within the SEZ region.

TABLE M.12-1 Information Reviewed and the Types of Data for Special Status Species Analy ed in this PEIS

States	Data Element	Data Type ^a	Source
All	Ecology, habitat, and natural history information; county-level occurrences; state rank information	Nonspatial; descriptive only	NatureServe Explorer (NatureServe 2010)
All	Current ESA and USFWS status, <i>Federal Register</i> documents describing ESA listing decisions for special status species, and species recovery information	Nonspatial; descriptive only	USFWS Environmental Conservation Online System (USFWS 2010a)
All	USFWS-designated critical habitat for ESA-listed species ^b	GIS spatial data—lines and polygons representing designated critical habitat	USFWS Critical Habitat Portal (USFWS 2010b)
All	Regional land cover data	GIS spatial data—raster grid	Gap Analysis Program, National Landcover (USGS 2004, 2008)
Arizona, Colorado, Nevada, New Mexico, Utah	Predicted potentially suitable habitat for special status terrestrial wildlife species (amphibians, reptiles, birds, and mammals) in the five-state region, excluding California	GIS spatial data—raster grid	Gap Analysis Program (Davis et al. 1998; USGS 2007)
Arizona, California, Nevada, Utah	USGS desert tortoise habitat suitability model ^c	GIS spatial data—raster grid	Nussear et al. (2009)
Arizona	Ecology and distribution of special status plant and animal species in Arizona; statewide distribution maps included	Nonspatial; descriptive only ^d	Arizona Game and Fish Department, Plant and Animal Abstracts, Distribution Maps, and Illustrations (AZGFD 2010a)
Arizona	Occurrences of special status species in Arizona	GIS spatial data—polygons of USGS quad-level occurrences	Arizona Game and Fish Department Heritage Data Management System (AZGFD 2010b)
California	Ecology and distribution of special status plant species in California; statewide distribution maps included	Nonspatial; descriptive only ^d	California Native Plant Society (CNPS 2010)

TABLE 12.1 cont.

States	Data Element	Data Type ^a	Source
California	Ecology, natural history, and range of special status terrestrial wildlife (amphibians, reptiles, birds, and mammals) in California statewide range maps included	Nonspatial descriptive only	California Department of Fish and Game, California Wildlife Habitat Relationship System (CDG 2010a)
California	Predicted potentially suitable habitat for special status terrestrial wildlife species (amphibians, reptiles, birds, and mammals) in California	GIS spatial data raster grid	Gap Analysis Program (Davis et al. 1998)
California	Occurrences of special status species in California	GIS spatial data point and polygon element occurrences	California Department of Fish and Game, California Natural Diversity Database (CDG 2010b)
Colorado	Ecology and distribution of special status plant species in Colorado statewide distribution maps included	Nonspatial descriptive only ^d	Colorado Rare Plant List (Colorado Rare Plant Technical Committee 2010)
Colorado	Occurrences of special status species in Colorado	GIS spatial data polygons of USGS quad-level occurrences	Colorado Natural Heritage Program (CNHP 2009)
Nevada	Occurrences of special status species in Nevada	GIS spatial data polygon element occurrences	Nevada Natural Heritage Program (NDCNR 2010)
Nevada	Ecology and distribution of special status plant species in Nevada statewide distribution maps included	Nonspatial descriptive only ^d	Nevada Rare Plant List (NNHP 2010b)
New Mexico	Federal and state listing status, county-level occurrence information, and species documentation	Nonspatial descriptive only	Biota Information System of New Mexico (BIS N-M) (NMDG 2010)
New Mexico	Occurrences of special status species in the state of New Mexico	GIS spatial data polygons of USGS quad-level occurrences	Natural Heritage New Mexico (NHNM 2010)
New Mexico	Occurrences of special status plant species in the BLM as Cruces field office	GIS spatial data point element occurrences	BLM as Cruces field office

TABLE M.12-1 Cont.

States	Data Element	Data Type ^a	Source
Nevada, New Mexico	Locations of Aplomado falcons in the BLM Las Cruces Field Office	GIS spatial data—point element occurrences	BLM Las Cruces Field Office
New Mexico	Model of potentially suitable habitat for the Aplomado falcon in New Mexico	GIS spatial data—polygons of habitat ranked not suitable to highly suitable	BLM Las Cruces Field Office (as verified from Young et al. 2002)
Utah	Ecology and range of special status plant species in Utah; statewide range maps included	Nonspatial; descriptive only ^d	Utah Native Plant Society, <i>Utah Rare Plants Guide</i> (UNPS 2009)
Utah	Ecology and distribution of special status plant species in Utah; statewide distribution maps included	Nonspatial; descriptive only ^d	<i>Revised Atlas of Utah Plants</i> (Shultz et al. 2006)
Utah	Occurrences of special status species in Utah	GIS spatial data—polygons of USGS quad-level occurrences	Utah Division of Wildlife Resources, Utah Conservation Data Center (UDWR 2009)
Utah	Occurrences of Utah prairie dog colonies through the UDWR Utah prairie dog colony tracking database	GIS spatial data—polygon element occurrences	Utah Division of Wildlife Resources, GRAMA Request (UDWR 2010)

^a Spatial data were evaluated in a GIS and used to identify species that occurred in the SEZ region, determine the occurrence of species or the presence of potentially suitable habitat in the affected area, and facilitate the impact analysis. Nonspatial data included species reports of natural history information and county-level occurrences, which were used to determine the presence of species within the SEZ region and habitat associations for the impact analysis.

^b Designated critical habitat is a specific geographic region that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as “critical habitat” after the USFWS publishes a proposed federal regulation in the *Federal Register* and receives and considers public comments on the proposal. The final boundary of the critical habitat area is also published in the *Federal Register*. Federal agencies are required to consult with the USFWS on actions they carry out, fund, or authorize to ensure that their actions do not destroy or adversely modify critical habitat. In this way, a critical habitat designation protects areas that are necessary for the conservation of the species. A critical habitat designation does not necessarily restrict further development. It is a reminder to federal agencies that they must consult with the USFWS and make special efforts to protect the important characteristics of these areas (USFWS 2002). Not all species listed as threatened or endangered have designated critical habitat spatially available through the USFWS critical habitat portal.

Footnotes continued on next page

TABLE M.12-1 Cont.

- ^c The desert tortoise habitat suitability model provides output of the statistical probability of habitat potential that can be used to map potential areas of desert tortoise habitat. This type of analysis, while robust in its predictions of habitat, does not account for anthropogenic changes that may have altered habitat with relatively high potential into areas with lower potential.
- ^d In some cases, species distribution maps were digitized in a GIS to facilitate spatial analyses in the impact assessment.

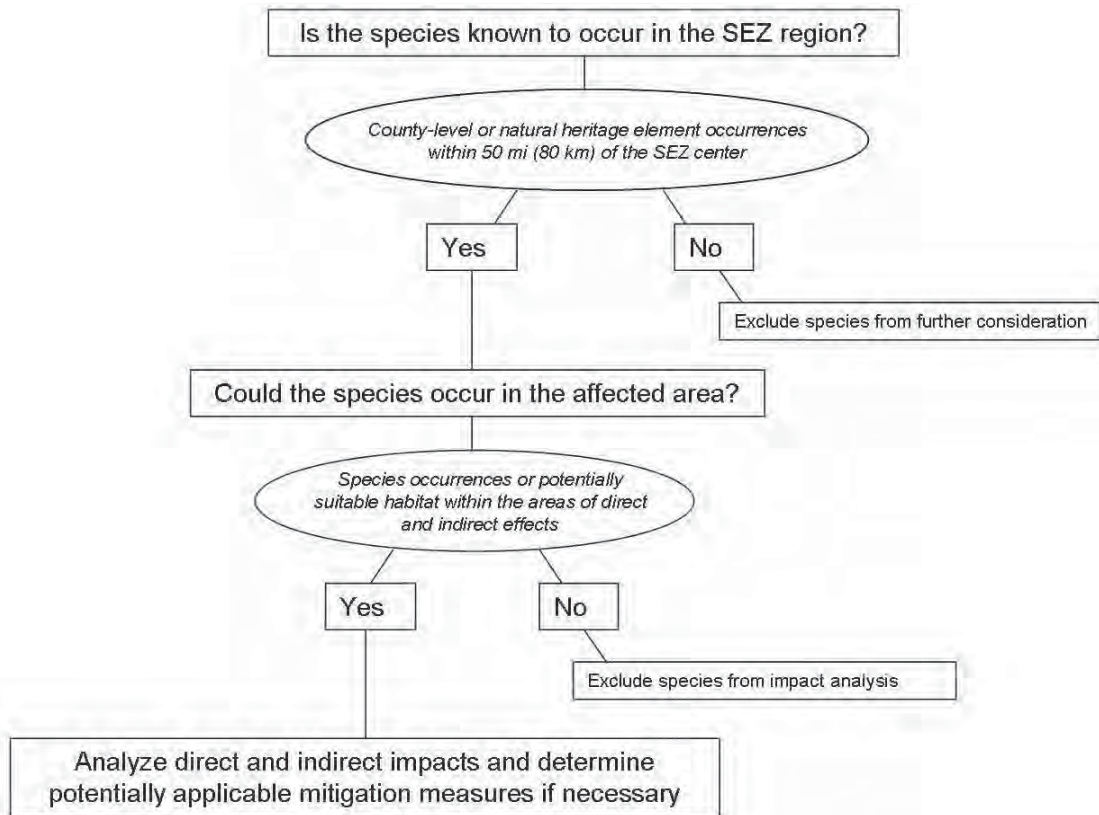


FIGURE M.12-1 Approach for Identifying and Analy ing Impacts on Special Status Species see text for description of steps

1 As for the assessment of vegetation (Section M.10.2), relative impact magnitude
2 categories were based on CEQ regulations for implementing NEPA (40 CFR 1508.27), and
3 were as follows:

- 4
- 5 • *None*—No impacts are expected.
- 6
- 7 • *Small*—Effects would not be detectable or would be so minor that they would
8 neither destabilize nor noticeably alter any important attribute of the resource
9 (for this analysis, impacts were considered small if less than 1 of the
10 population or its habitat would be lost in the region).
- 11
- 12 • *Moderate*—Effects would be sufficient to alter noticeably but not destabilize
13 important attributes of the resource (for this analysis, impacts were considered
14 moderate if equal to or greater than 1 but less than 10 of the population or
15 its habitat would be lost in the region).
- 16
- 17 • *Large*—Effects would be clearly noticeable and would be sufficient to
18 destabilize important attributes of the resource (for our analysis, impacts were
19 considered large if 10 or more of a population or its habitat would be lost in
20 the region).
- 21

22 Actual impact magnitudes on special status species would depend on the location of
23 projects, project-specific design, application of mitigation measures (including avoidance,
24 minimization, and compensation), and the status of special status species and their habitats in
25 project areas. In defining impact magnitude, the application of design features was assumed. In
26 most cases, it was assumed that design features would reduce most indirect effects to negligible
27 levels.

28

29 Once impact magnitude was determined for each species, species-specific mitigation
30 measures were considered. Mitigation measures were not considered warranted for species that
31 occur only in the project vicinity as occasional migrants or transients. For all SEZs with the
32 potential to support special status species, pre-disturbance surveys to identify occupied and
33 potentially suitable habitats were recommended. Avoidance of potentially suitable habitat was
34 recommended for those species that inhabit sensitive or unique habitats (e.g., desert dunes,
35 washes, playas, wetlands, and riparian areas), where minimization or avoidance measures could
36 be readily implemented, and for habitats such as nesting or roosting habitats that serve a critical
37 life history function. For species that use habitats common or widespread in the SEZ region
38 (such as habitat generalists that may forage in a wide variety of habitats), avoidance of
39 potentially suitable habitats was not considered feasible mitigation unless pre-disturbance
40 surveys were conducted to first determine the location of occupied habitats. If avoidance of
41 occupied habitats was not possible, translocation and compensatory mitigation were
42 recommended for consideration and, where possible, followed established mitigation protocols
43 (e.g., *Guidelines for Handling Desert Tortoises during Construction Projects* [Desert Tortoise
44 Council 1994]). A final mitigation plan would have to be determined at the project level through
45 consultation with the USFWS and appropriate state agencies (particularly for mitigation to ESA-
46 listed species).

M.13 AIR QUALITY AND CLIMATE

M.13.1 Affected Area

The area considered in this analysis included the areas at the SEZ boundaries and beyond the boundaries up to 31 mi (50 km). The affected area was defined as the area in which air emissions from the proposed SEZ could have some impacts and for which the Gaussian air dispersion model is typically applicable. However, if other air pollution problems, such as air quality-related values (AQRVs) like visibility or acid deposition or ground-level ozone are issues in the areas surrounding the SEZs or nearby federal Class I areas, the affected area could be extended to several hundred miles (kilometers) from the SEZ boundaries.

M.13.2 Estimation of Emissions Associated with Construction of Solar Facilities at the Proposed SEZs

Most of SEZs have a flat terrain; thus only a minimum number of site preparation activities, perhaps with no large-scale earthmoving operations, would be required. However, fugitive dust emissions from soil disturbances during the construction phase would be a major concern because of the large areas that would be disturbed in regions that experience windblown dust problems. In addition, fugitive dusts, which are released near ground level, typically have higher impacts than similar emissions from an elevated stack. For screening purposes, only potential impacts for particulate matter with a mean aerodynamic diameter of 10 μ m or less (PM₁₀) and of 2.5 μ m or less (PM_{2.5}), which compose fugitive dust, are presented in this analysis.

In the absence of details on the time schedule, heavy equipment usage, and activity level, affected area-wide uncontrolled PM₁₀ emission factors of 0.11 and 0.42 ton/acre-month (0.025 and 0.094 kg/m²-month) were considered for use for average and worst-case construction conditions, respectively (MRI 1996). For construction sites that include cut-and-fill areas, large-scale earthmoving activities, and/or heavy traffic volumes, an emission factor of 0.42 ton/acre-month (0.094 kg/m²-month) was applied. During the site preparation and general construction phase, no large-scale earthmoving activities at the solar construction site are anticipated; thus, an uncontrolled emission factor of 0.11 ton/acre-month (0.025 kg/m²-month) was applied. The PM_{2.5} emission factor assumed for construction activities was 10% of the PM₁₀ emission factor (MRI 2006). It was assumed that the conventional dust control measure of water spraying, with a control efficiency of 50%, would be applied over the disturbed area and on unpaved roads. While construction emissions for PV or dish engine facilities without power blocks might be less than for those for other solar technologies, for modeling it was assumed that construction emissions would be uniform regardless of solar technology.

As stated in Section M.1, depending on SEZ size, one to three simultaneous construction projects were assumed for each SEZ. Each project could disturb up to 3,000 acres (12 km²) annually. It was also conservatively assumed that the projects being constructed simultaneously could be located in the area within the SEZ that is closest to off-site residences.

1 The emissions estimated in this analysis could be highly conservative in terms of
2 emission factors and acreage of disturbed areas. In the permitting phase, when more detailed
3 information on construction activities might be available, more realistic emission inventories
4 based on actual activity levels are warranted.

7 **M.13.3 Air Quality Modeling Analysis for Construction**

9 For screening purposes, air quality modeling for PM₁₀ and PM_{2.5} emissions associated
10 with construction activities was performed; the estimated air concentrations were compared
11 with the applicable National Ambient Air Quality Standards (NAAQS) and State Ambient Air
12 Quality Standards (SAAQS) levels at the site boundaries and nearby residences/communities
13 and Prevention of Significant Deterioration (PSD) increment levels at nearby Class I areas.⁵
14 However, air dispersion modeling for other criteria air pollutants might be needed in the
15 permitting process. In particular, if AQRVs, such as visibility or acid deposition, are a concern
16 in the nearby federal Class I areas, or the area surrounding the SEZ has an ozone problem, more
17 refined air dispersion modeling would be needed.

18
19 The following sections briefly describe the air dispersion model used for the analysis,
20 meteorological and terrain data processing, receptor data, and underlying modeling assumptions.

23 **M.13.3.1 Selection of Air Dispersion Model**

24
25 For this modeling analysis, the latest version of the AMS/EPA Regulatory Model
26 (AERMOD) modeling system (version 09292) (EPA 2009b) was used. AERMOD is the
27 U.S. Environmental Protection Agency's (EPA's) preferred or recommended model for a
28 wide range of regulatory applications and uses hourly sequential meteorological data to
29 estimate pollutant concentrations for averaging times ranging from 1 hour to annual to
30 multiple years.

31
32 AERMOD contains three major components, as follows:

- 34 • AERMET—a meteorological data preprocessor that incorporates air
35 dispersion based on planetary boundary layer turbulence structure and
36 scaling concepts;
- 37
38 • AERMAP—a terrain data preprocessor that incorporates complex terrain
39 using digital elevation data; and
40

5 To provide a quantitative assessment, the modeled air impacts of construction were compared to the NAAQS/
SAAQS levels and the PSD Class I increment levels. Although the Clean Air Act exempts construction activities
from PSD requirements, a comparison with the Class I increment levels was used to quantify potential impacts.
Only monitored data can be used to determine the attainment status. Modeled data are used to assess potential
problems and as a consideration in the permitting process.

- AERMOD—an air dispersion model that estimates airborne concentrations and dry/wet deposition fluxes.

In addition, supporting programs for the AERMOD modeling system include the following:

- AERSURFACE—a surface characteristics preprocessor that estimates surface characteristics, including surface roughness length, albedo, and Bowen ratio for input to the AERMET;
- BPIPRIME—a tool that calculates building parameters to account for building downwash effects of point source(s) for input to the AERMOD; and
- AERSCREEN—a screening model for AERMOD that produces estimates of regulatory design concentrations without the need for meteorological data and is designed to produce more conservative results than AERMOD. The EPA is currently working on a beta version of the code.

All these components, except BPIPRIME and AERSCREEN, were used for air dispersion modeling.

M.13.3.2 Determination of Surface Characteristics

For the computation of the fluxes and stability of the atmosphere, AERMET needs surface characteristics parameters, including surface roughness length, albedo, and the Bowen ratio. The surface roughness length is a measure of irregularities at the surface of the earth, including vegetation, topography, and structures, which influence the near-surface wind stress. Surface roughness length plays the most crucial role in determining the magnitude of mechanical turbulence and the stability of the boundary layer. Typical values range from 0.003 ft (0.001 m) over calm water surfaces to 3 ft (1 m) or more over a forest or urban area. Albedo is the fraction of the amount of radiation reflected from the surface to the amount of radiation incident on the surface. Typical values range from 0.1 for thick deciduous forests to 0.9 for fresh snow. The Bowen ratio, an indicator of surface moisture, is the ratio of sensible heat flux to the latent heat flux. The Bowen ratio is used to determine the planetary boundary layer parameters for convective conditions. Typical values range from 0.1 over water to 10 over the desert at mid-day.

Surface characteristics should represent the meteorological data at the application site. However, such data may not be available at the proposed SEZ site, and data from a nearby representative measurement site (typically the nearest airport) can be used. Sometimes, the nearest meteorological station is not representative of the proposed SEZ; for example, there may be a dissimilar orientation of nearby mountain ranges between the proposed SEZ and the nearest meteorological station. In this case, the AERMOD Implementation Guide (EPA 2009b) recommends finding another nearby measurement site representative of both meteorological parameters and surface characteristics of the site of interest. Failing that, it is likely that site-specific meteorological data will be required.

1 The AERSURFACE tool has been developed to aid users in obtaining realistic and
2 reproducible surface characteristic values, which is, in turn, entered into the meteorological data
3 preprocessor AERMET. AERSURFACE requires land cover data from the USGS National Land
4 Cover Data 1992 archives (USGS 2010e). These data are used to determine the land cover types
5 around the user-defined location.

6
7 Seasonal surface characteristics were determined for each of twelve 30-degree sectors.
8 A default domain defined by 10 km 10 km (6 mi 6 mi) centered on the measurement site is
9 used for determination of albedo and Bowen ratio. A radius of 0.6 mi (1 km) from the
10 measurement site was used to determine the surface roughness values per recommendation in the
11 EPA's AERMOD Implementation Guide (EPA 2009b). To determine the Bowen ratio, surface
12 moisture conditions around the site are needed to characterize the area relative to climate
13 normals. Surface moisture conditions for the Bowen ratio were determined by year, based on the
14 30-year (1971 to 2000) annual precipitation record at the nearby airport or meteorological station
15 (NCDC 2010a; WRCC 2010b). If annual precipitation for the year of interest is within the lower
16 30th percentile or the upper 30th percentile of the 30-year record, dry or wet conditions,
17 respectively, are assigned. Otherwise, average conditions were assigned. Additional user inputs
18 affecting surface characteristic values include whether the site is an airport or an arid region and
19 the amount of continuous snow cover through most of the winter.

20 21 22 **M.13.3.3 Meteorological Data Processing**

23
24 The meteorological data preprocessor (AERMET) requires three types of data: National
25 Weather Service (NWS) hourly surface observations; NWS twice-daily upper air soundings; and
26 data collected from an on-site measurement tool such as an instrumented tower, if available.
27 However, no on-site meteorological data are available for the proposed SEZs, so hourly surface
28 and twice-daily upper sounding data from the nearby NWS stations were used for the analysis
29 (NCDC 2010b; NOAA 2010). Based on proximity, topographic features, climate regime, and
30 longer-time history of complete records (up to 5 years), the meteorological stations for surface
31 and twice-daily upper air meteorological data were selected as being representative of the SEZ
32 site. Using the AERMET preprocessor, the most recent 5 years of meteorological data (2005 to
33 2009)⁶ were processed for input to the AERMOD model.

34 35 36 **M.13.3.4 Receptor Location Data**

37
38 For the analysis, a modeling domain centered on the proposed SEZ was developed. Two
39 sets of receptor networks were developed for the assessment: (1) SEZ boundary receptors and
40 (2) regularly spaced receptor grids. For the analysis, discrete receptors, ranging from 100 to 200,
41 depending on the size of the SEZ, were set along the SEZ boundary, where maximum

⁶ In accordance with the EPA's Modeling Guidance (40 CFR Part 51 Appendix W), the most recent consecutive 5 years of meteorological data representative of the site of interest should be used when estimating concentrations with an air quality model. However, meteorological stations representative of some SEZs have less than 5 years of data or not the most recent consecutive 5 years of meteorological data.

1 concentrations would be anticipated to occur. The modeling domain was determined based on a
2 maximum modeling distance of 31 mi (50 km) for the AERMOD. Accordingly, regularly spaced
3 receptor grids over a modeling domain of 62 mi × 62 mi (100 km × 100 km) centered on the
4 proposed SEZ were developed. Three intervals of these receptors (with intervals of innermost,
5 0.6 mi [1 km]; intermediate, 1.2 mi [2 km]; and outermost, 6.2 mi [10 km]) were placed over the
6 modeling domain. For PSD analysis, additional receptors were placed at site boundaries and
7 regular-interval inner locations at the nearby federal Class I areas, if they were located within the
8 modeling domain. If not, no receptors were modeled for PSD analysis at the nearest Class I area.
9 Instead, several regularly spaced receptors in the direction of the nearest federal Class I area
10 were selected as surrogates for the PSD analysis. To predict concentrations at the Class I area,
11 concentrations at these surrogate receptors were estimated by considering the same decay ratio
12 with distance. For the analysis, a proportional ratio was applied; for example, concentration was
13 reduced to a half for a distance ratio of two to the emission source.

14 15 16 **M.13.3.5 Terrain Data Processing**

17
18 The AERMAP terrain data preprocessor was used to account for the effects of terrain
19 features. The terrain elevations for source and receptor locations were estimated based on the
20 Digital Elevation Model (DEM) elevation data in the USGS DEM format (USGS 2010e).
21 One vertex of each area source for the construction site and receptors was entered into the
22 AERMAP. For area sources, the AERMAP determines the elevation of the area source. For
23 receptors, the AERMAP determines the elevations of receptors along with hill height scale,
24 which is the elevation of the terrain feature that dominates the flow at a receptor of interest.

25 26 27 **M.13.3.6 Modeling Assumptions**

28
29 The following assumptions were used for air quality modeling and modeling result
30 interpretations:

- 31
32 • Construction sites are divided into one to three area sources depending on
33 topographic features of the SEZ. The AREAPOLY source option in the
34 AERMOD is used to specify an area source as an irregularly shaped polygon
35 of a construction site, and one elevation representative of the construction site
36 is needed for input to the AERMOD.
- 37
38 • Construction activities are assumed to occur every day of the year from 7 a.m.
39 to 4 p.m.
- 40
41 • Dry and wet deposition mechanisms are uncertain and are not included in
42 EPA's regulatory option, and thus, it is not recommended that they be used
43 for typical applications, except in special cases (e.g., deposition impacts on
44 vegetation). Accordingly, no dry and wet depositions for construction-related
45 PM modeling are assumed (i.e., all PMs are conservatively assumed to be
46 airborne).

- During site preparation and construction phases, fugitive dust emissions resulting from soil disturbances by heavy construction equipment or vehicles are typically released at the top of the wheel/tire, with initial dispersion corresponding to the volume size of the equipment or truck. However, for this analysis, it is conservatively assumed that emissions are released at the ground level without vertical initial volume.
- For PM₁₀, the highest concentration of the sixth highest⁷ over 5 years was calculated; for PM_{2.5}, the highest concentration of the highest-eighth⁸ at each receptor was calculated. The highest of 5-year averaged annual means across the receptors for PM₁₀ and PM_{2.5} were calculated.

To obtain total concentrations for comparison with applicable air quality standards, these modeled concentration increments were added to measured background concentrations representative of the SEZ, which can be obtained from state agency or from the EPA's *AirData* Web site (EPA 2010).

M.13.4 Air Quality Impacts of Operations

Because solar facilities either do not burn any fossil fuels or use only small amounts for maintaining the temperature of the heat transfer fluids for more efficient daily start-up during operation, only a few sources of air emissions exist, and their emissions would typically be relatively small. In particular, since design features would require on-site roads and parking lots to be paved and/or treated, their fugitive dust emissions would be significantly lower than during the construction phase. Therefore, potential impacts on ambient air quality during the operation of a solar facility would be small.

Overall, the operation of a solar facility would likely have positive air quality impacts, because it would offset air emissions of criteria pollutants, volatile organic compounds (VOCs), toxic air pollutants (TAPs), and greenhouse gases (GHGs) that would otherwise be released from fossil fuel fired power plants. However, these benefits might accrue at locations far removed from the solar facilities and over a wide geographic area. To assess these benefits, emissions avoided from fossil fuel fired power plants (e.g., coal, natural gas, oil) were estimated on the basis of the assumption that the SEZ would eventually have development on 80% of its lands. Total offset emissions for the SEZ can be estimated by:

$$\text{Total offset emissions (tons/year)} = CAP \times (8,760) \times CF \times CEF \quad (2,000), \quad (M.2)$$

⁷ Represents the highest concentration among the ranked sixth-highest concentration of 24-hour PM₁₀ received by the receptors.

⁸ Represents the highest concentration among the ranked eighth-highest concentration of 24-hour PM_{2.5} received by the receptors.

where

CAP is a nameplate capacity in MW;

8,760 is total hours in a year;

CF is a capacity factor (unitless), the percentage of time that the plant can produce power at its nameplate capacity;

CEF is a composite emission factor (lb/MWh) (see Table M.13-1); and

2,000 is a conversion factor from pounds to tons.

To estimate the potential capacity for a SEZ, it is assumed that the SEZ would eventually have development on 80% of the lands and that a range of 5 acres (0.020 km²) per MW (for parabolic trough technology) to 9 acres (0.036 km²) per MW (power tower, dish engine, and PV technologies) would be required. A capacity factor of 20% is assumed, which can be attained in case of no thermal energy storage (TES). Composite emission factors for a state are estimated based on annual total emissions divided by total combustion net generation, as shown in Table M.13-1 (EPA 2009a). Emission factors for SO₂ and NO_x (representative of criteria pollutants), Hg (representative of TAPs), and CO₂ (representative of GHGs) are developed. Potential air emissions offset by the solar project development for each SEZ are compared with emissions from electric power systems and all source categories for its own state and the entire six-state study area to examine the importance of solar projects.

**TABLE M.13-1 Composite Emission Factors
Estimated Based on Combustion-Related
Power Generation**

State	Composite Emission Factors (lb/MWh; lb/GWh for Hg)			
	SO ₂	NO _x	Hg	CO ₂
Arizona	1.54	2.37	0.0217	1,700
California	0.26	0.42	0.0037	994
Colorado	2.64	3.05	0.0171	1,976
New Mexico	1.79	4.47	0.0657	1,990
Nevada	2.82	2.42	0.0161	1,553
Utah	1.99	3.81	0.0078	2,158
Six-state average	1.51	2.23	0.0176	1,578

Source: EPA (2009a).

M.14 VISUAL RESOURCES

The visual impact analysis identified lands within the 25-mi (40-km) viewshed of the proposed SEZs that would likely be affected by views of solar energy development within the SEZs. The SEZ analysis included two major components: viewshed analyses and analyses using Google Earth and Google SketchUp™ to create visualizations of the SEZ and models of hypothetical solar energy facility models placed within the SEZ.

The selected sensitive visual resource areas included in the analysis were as follows:

- National Parks, National Monuments, National Recreation Areas, National Preserves, National Wildlife Refuges, National Reserves, National Conservation Areas, National Historic Sites;
- Congressionally authorized Wilderness Areas;
- Wilderness Study Areas;
- National Wild and Scenic Rivers; Congressionally authorized Wild and Scenic Study Rivers;
- National Scenic Trails and National Historic Trails;
- National Historic Landmarks and National Natural Landmarks;
- All-American Roads, National Scenic Byways, State Scenic Highways; and BLM- and USFS-designated scenic highways/byways;
- BLM-designated Special Recreation Management Areas; and
- Areas of Critical Environmental Concern (ACECs) designated because of outstanding scenic qualities.

M.14.1 Viewshed Analyses

Preliminary viewshed analyses were conducted to identify which lands surrounding the proposed SEZs are visible from the SEZs. Four viewshed analyses were conducted, each with a different height representative of project elements associated with potential solar energy technologies, including PV and parabolic trough arrays (24.6 ft [7.5 m]), solar dishes and power blocks for CSP technologies (38 ft [11.6 m]), transmission towers and short solar power towers (150 ft [45.7 m]), and tall solar power towers (650 ft [198.1 m]). These heights were selected based on review of available literature on utility-scale solar technologies and consultation with solar technology experts at Sandia National Laboratories.

1 The Spatial Analyst Extension of the ESRI ArcGIS 9.3.1 software was used to calculate
2 viewsheds. The viewshed tool (or program) determines whether there is a line of sight between
3 a target and the area surrounding the target. The only inputs required for the viewshed tool are
4 targets (or points), from which to determine the line of sight and a digital elevation model
5 (a grid of rectangular cells, each cell representing the elevation at its center). The viewshed tool
6 examines each cell in the digital elevation model and determines whether there are one or more
7 cells of higher elevation between it and the target point. If there is not, that cell is included in the
8 calculated viewshed. The result of the viewshed tool is another grid of rectangular cells; in this
9 case each cell represents how many of the targets used as input have a line of sight to that
10 individual cell.

11
12 For all the proposed SEZs except Imperial East in California, the 32.8-ft (10-m) (the
13 approximate vertical resolution and width of each cell) digital elevation models from the USGS
14 National Elevation Data were used as inputs. For the proposed Imperial East SEZ, the 32.8-ft
15 (10-m) data were not available, so the 98.4-ft (30-m) data were used instead.

16
17 The viewshed analysis did not account for the presence of vegetation or structures that
18 might screen views of the landscape; however, in most cases, this introduced little error, because
19 most of the land within the viewsheds of the SEZs is devoid of vegetation or structures of
20 sufficient height to screen solar facilities from view.

21
22 Because the proposed SEZs represent large areas, rather than specifically located targets,
23 sample points placed throughout the area of each SEZ had to be used as target inputs to the
24 viewshed tool. The sample points were developed by dividing each proposed SEZ into
25 rectangular zones measuring about 1 mi (1.6 km) on each side. Zonal sampling tools from the
26 Spatial Analyst Extension were then used to calculate the location of the highest point in each
27 zone. These sampling points were then used as target inputs for the viewshed tool. In some cases,
28 more sampling points were added around the SEZ border based on the analyst's visual inspection
29 of the surrounding terrain (as seen in the digital elevation model).

30
31 In addition to its geographical location on the ground, each target point can represent its
32 own height as well as the height of a person viewing it. Heights representative of the potential
33 solar energy technologies (see above) were used as target heights, and the viewer height
34 remained constant at 1.75 m (5.7 ft) for each set of targets. This resulted in four separate
35 viewsheds for each proposed SEZ, each representing a potential solar energy technology.

36
37 An additional parameter set in the viewshed tool is whether or not curvature of the earth
38 is to be taken into consideration. The viewsheds for the proposed SEZs were calculated to
39 include the curvature of the earth at a refractivity coefficient of 0.13.

40
41 Each viewshed was then overlaid on the 17 layers of data representing the different
42 classes of visual resources (for example, wilderness areas). Each of the visual resource layers
43 was another grid of rectangular cells measuring about 32.8 ft (10 m) on each side. In this case,
44 each grid represented an individual visual resource (e.g., Big Maria Mountains Wilderness Area
45 was represented by a grid with 1,863,808 cells). The overlap between the viewshed and the
46 visual resource layer was measured, and acreage estimates for each individual resource were

1 calculated by using the count of overlapping cells divided by 40.46873 to convert the 100-m²
2 cells to acres.

3
4 Viewshed maps for each of the SEZs for all four solar technology heights are available in
5 Appendix N.

6 7 8 **M.14.2 Google Earth Visualizations** 9

10 Google Earth and Google SketchUp were used extensively for preparing visualizations
11 of virtual models of solar facilities within the SEZs. The visualizations allowed visual resource
12 analysts to judge the apparent size and viewing angles of hypothetical solar facilities within the
13 SEZs. The visualizations also allowed visual resource analysts to see the relationship of the
14 hypothetical facilities to nearby land forms that would form the visual setting for potential solar
15 facilities built within the SEZs. These visualizations helped analysts assess the potential visual
16 contrast levels that could be expected if real solar facilities were built within the SEZs.

17
18 The following approach was used to create the Google Earth visualizations used in the
19 visual impact analysis.

20
21 The ESRI ArcGIS software Version 9.3.1 was used to generate keyhole markup language
22 (KML) files for use in Google Earth. KML files were created for (1) the proposed SEZ
23 boundaries and (2) the selected sensitive visual resource areas listed above.

24
25 Google SketchUp is a three-dimensional modeling software package that allows
26 construction of three-dimensional models that can be imported and manipulated within Google
27 Earth. By using drawings and other information contained in available utility-scale solar energy
28 facility applications, simplified but spatially accurate scale models of the facilities were built in
29 Google SketchUp. The three-dimensional models of facilities were then imported into Google
30 Earth and placed within the SEZs. Where possible, multiple models were placed into the SEZs.
31 Most analyses utilized models of power tower facilities, because the inclusion of the power
32 tower receiver, which is very tall, in the model facilitated “worst case” analysis of impacts.

33
34 Using the KML files of the sensitive visual resource area boundaries imported from
35 ArcGIS, analysts chose a variety of viewpoints within the sensitive areas to create (1) views of
36 the SEZs and (2) views of the models within the SEZs. Viewpoints were chosen to be as close
37 to the assumed human viewpoint elevation of 5.7 ft (1.7 m) as possible, but generally Google
38 Earth limits viewpoints to between 7 and 10 ft (2 to 3 m) above the surface elevation. Thus the
39 Google Earth viewer height is slightly above the actual height of a person standing in a real
40 landscape. However, because of the large distances between the sensitive visual resource areas
41 and the SEZs, the difference between the real view and the modeled view would be minimal.
42 When possible, viewpoints were selected based on knowledge of visitor use areas. For cases
43 where that information was not available, the analysts chose viewpoints that represented a range
44 of contrast levels that might be experienced by visitors to the sensitive resource areas. The lead
45 visual analyst used the visualizations to inform the impact assessment and selected some
46 visualizations for inclusion in this PEIS document. Google Earth’s “Snapshot View” tool was

1 used to create screen captures of the visualizations, which were then imported into Adobe
2 Photoshop and converted to a suitable image format for inclusion in this PEIS.

3 4 5 **M.15 ACOUSTIC ENVIRONMENT**

6
7 Potential noise impacts were assessed by estimating the noise levels from noise-emitting
8 sources associated with construction and operation and then performing simplified noise
9 propagation modeling. Estimated noise levels at sensitive receptors, such as nearby residences,
10 were assessed by comparison to assumed background noise levels, the EPA noise guideline
11 (EPA 1974), and/or state and local regulations or ordinances, if any.

12 13 14 **M.15.1 Affected Area**

15
16 Noise energy is dissipated quickly with distance, and thus the noise is usually considered
17 a local problem unless the noise levels are extremely high. The affected area considered in these
18 noise assessments included the areas at the nearest sensitive receptors (e.g., residences), which
19 range from one adjacent to the SEZ to one about 6 mi (10 km) from the SEZ boundary.

20 21 22 **M.15.2 Estimation of Noise Emissions Levels**

23 24 25 **M.15.2.1 Construction**

26
27 During construction, heavy equipment such as bulldozers, graders, heavy trucks,
28 compressors, and the like would be employed. No detailed information, such as schedule,
29 number and type of equipment, or activity levels, is available. Average noise levels for typical
30 construction equipment range from 74 dBA for a roller to 101 dBA for a pile driver at a distance
31 of 50 ft (15 m) (Hanson et al. 2006). Most construction equipment has noise levels within the
32 range of 80 to 90 dBA at 50 ft (15 m). For several pieces of heavy equipment and their
33 separation distances, a combined noise level of 95 dBA at a distance of 50 ft (15 m) is
34 conservatively assumed, if impact equipment such as pile drivers or rock drills is not being used.

35 36 37 **M.15.2.2 Operation**

38
39 For the parabolic trough and power tower technologies, most noise sources during
40 operations would be in the power block area, including the turbine generator (typically in an
41 enclosure), pumps, boilers, and dry- or wet-cooling systems. The power block is typically
42 located in the center of the facility. On the basis of a 250-MW parabolic trough facility with a
43 cooling tower (Beacon Solar, LLC 2008), a sound pressure level of 118 dBA at a distance of 3 ft
44 (0.9 m) from the cooling tower was used for the analysis. This noise level dominates (by about
45 30 dBA) any other equipment, such as boiler, pumps, and steam turbine generators in the facility.

1 The solar dish engine is unique among CSP technologies, because it generates electricity
2 directly and does not require a power block. A single, large solar dish engine has relatively low
3 noise levels, but a solar facility might employ tens of thousands of dish engines, which would
4 cause high noise levels around such a facility. For example, the proposed 750-MW SES Solar
5 Two dish engine facility in California would employ as many as 30,000 dish engines (SES Solar
6 Two, LLC 2008). A sound power level of 99 dBA from a Stirling solar dish engine, which is
7 equivalent to a sound pressure level of about 89 dBA at a distance of 3 ft (0.9 m),⁹ was used for
8 this analysis. The noise level from a solar dish engine is about 17 dBA higher than that from a
9 transformer and about 32 dBA higher than that from a step-up transformer embedded in the solar
10 field.

13 M.15.3 Estimation of Noise Levels at the Receptors

15 Several important factors affect the propagation of sound in the outdoor environment
16 (Anderson and Kurze 1992):

- 18 • *Source characteristics*, such as sound power, directivity, and configuration;
- 20 • *Geometric spreading* (independent of frequency), as the sound moves away
21 from the source, resulting in 6- and 3-dB reductions per doubling of distance
22 from point (e.g., fixed equipment) and line (e.g., road traffic) sources,
23 respectively;
- 25 • *Air absorption*, which depends strongly on frequency and relative humidity;
- 27 • *Ground effects*, which result from interferences of reflected sound by
28 reflecting surfaces (e.g., ground surfaces) with direct sound;
- 30 • *Meteorological effects* due to turbulence and variations in vertical wind speed
31 and temperature; and
- 33 • *Screening effects*, by topography, structures, dense vegetation, and other
34 natural or man-made barriers.

36 A refined noise analysis would employ a sound propagation model that integrates most of
37 the sound attenuation mechanisms noted above along with detailed source-, receptor-, and site-
38 specific data. However, such detailed information is unavailable at this time. Thus, only
39 geometric spreading or geometric spreading combined with ground effects was considered when
40 predicting noise levels.

⁹ Many SEZs are located at a higher elevation, and thus this level was corrected based on average temperature and atmospheric pressure. For example, all SEZs in Utah have an elevation of 5,000 ft (1,524 m), where the sound pressure level would be about 0.7 dBA lower than that at mean sea level.

The sound pressure level at the receptor locations from point source(s) was estimated by using the following simple noise propagation formula, which considers geometric spreading and ground effects only (Hanson et al. 2006):

$$L_p = L_{p,ref} - (20 - 10G) \log_{10} (D / D_{ref}), \quad (M.3)$$

where

L_p is A-weighted sound pressure level at a given distance (dBA),

$L_{p, ref}$ is A-weighted sound pressure level at a reference distance (dBA),

G is a constant that accounts for ground effects (unitless),

D is the distance from the receiver to the noise source (ft), and

D_{ref} is the reference distance (ft).

Large ground factor, G , means large amounts of ground attenuation with increasing distance from the source. Ground factor can be calculated as follows:

For soft ground,

$$G = 0.66 \text{ for } H_{eff} \leq 5,$$

$$G = 0.75 (1 - H_{eff} / 42) \text{ for } 5 \leq H_{eff} \leq 42, \quad (M.4)$$

$$G = 0 \text{ for } H_{eff} \geq 42.$$

For hard ground,

$$G = 0. \quad (M.5)$$

Effective height (H_{eff}) is the average height of source height and receptor height. To minimize noise attenuation from ground effects (i.e., maximize noise impacts at the receptors), the highest point among many source heights is selected as source height. Source height for construction equipment is assumed to be 10 ft (3.0 m) (approximate exhaust stack height), while that for cooling tower is assumed to be 50 ft (15.2 m) (approximate fan stack height). Source height of the Stirling solar dish engine is assumed to be 38 ft (11.6 m) (SES Solar Two, LLC 2008). The receptor height is set at 5 ft (1.5 m), which is the approximate height of human ears from the ground.

Day-night average noise level (L_{dn} or DNL in dBA), which represents a receiver's cumulative noise exposure from all events over a full 24 hours, is given by:

$$L_{dn} = 10 \log_{10} [(T_d - 10(L_{p,d}/10) - T_n - 10[(L_{p,n} - 10)/10] - 15 - 10(L_{pb,d}/10) - 9 - 10[(L_{pb,n} - 10)/10] - 24], \quad (M.6)$$

where

T_d and T_n are daytime and nighttime operation hours of the project noise sources, respectively,

$L_{p,d}$ and $L_{p,n}$ are sound pressure levels from the project noise sources for daytime and nighttime hours, respectively, and

$L_{pb,d}$ and $L_{pb,n}$ are background levels for daytime and nighttime hours, respectively.

Because most SEZs are located in remote areas with rural environments, background levels of 40 and 30 dBA for daytime and nighttime hours, respectively, are assumed (Eldred 1982), which result in a day-night average noise level (L_{dn}) of 40 dBA considering only background levels alone.

On a calm, clear night typical of the sites of most of the proposed SEZs, the air temperature would likely increase with height (temperature inversion) because of strong radiative cooling. Such a temperature profile tends to focus noise downward toward the ground. There would be little, if any, shadow zone¹⁰ within 1 or 2 mi (2 or 3 km) of the noise source in the presence of a strong temperature inversion (Beranek 1988). In particular, such conditions add to the effect of noise being more discernable during nighttime hours, when the background noise levels are the lowest. The noise propagation formula used in the analysis assumes a simplified uniform (isothermal) atmosphere with calm winds, which is unusual for typically changing atmospheric conditions. For a temperature lapse condition typical of daytime, the sound bends upward to the sky, and sound levels would be about 5 dB lower than those for the uniform condition (Saurenman et al. 2005). For a temperature inversion condition typical of nighttime, sound levels would be about 5 to 10 dB higher than those for the uniform condition. Just before sunrise, when the temperature inversion is the strongest, sound levels would be about 10 to 15 dB higher (but noise-producing operations at solar facilities are not anticipated to occur at this time of day). For implementation of TES for parabolic trough or power tower technology during nighttime hours, the following adjustment was made to estimate the nighttime noise level and L_{dn} . For nighttime hours under temperature inversion, 10 dBA was added to the value estimated under uniform atmosphere. This 10-dB addition was applied from 10 p.m. and beyond after 12 hours of daytime operation (7 a.m. to 7 p.m.) and 3 hours of nighttime operation (7 p.m. to 10 p.m.), which is a transition from lapse to inversion. In L_{dn} calculation, the noise level for the nighttime temperature inversion hours would be 20 dBA higher than that for the daytime lapse hours: 10-dB addition due to temperature inversion and 10-dB addition due to 10-dB penalty for nighttime hours.

¹⁰ A shadow zone is defined as the region in which direct sound does not penetrate because of upward diffraction.

1 The sound propagation formula used in this analysis assumes uniform (isothermal)
2 atmosphere with calm winds. However, actual noise levels at the receptors could be lower than
3 estimated noise levels using the above formula. For example, mid- and high-frequency noise
4 from construction activities is significantly attenuated by atmospheric absorption under the low-
5 humidity conditions typical of an arid desert environment where most SEZs are located and by
6 temperature lapse conditions typical of daytime hours. In addition, noise levels would be
7 significantly reduced if the sound propagation path is blocked by intervening topographic
8 features or man-made noise barriers or berms. However, depending on upwind/downwind
9 locations, vertical wind gradients could increase or decrease noise levels at the receptors
10 compared with those estimated from uniform atmosphere. Thus, the results presented in the
11 analysis should be interpreted in this context. The estimate of noise level used in this analysis is
12 considered conservative, considering all these factors.
13
14

15 **M.15.4 Vibration**

16
17 Construction activities could result in various degrees of ground vibration, depending
18 on the equipment used and construction methods employed. All construction equipment causes
19 ground vibration to some degree, but activities that typically generate the most severe vibrations
20 are high-explosive detonations and impact pile driving. As is the case for noise, vibration would
21 diminish in strength with distance. For example, vibration levels at receptors beyond 140 ft
22 (43 m) from a large bulldozer (87 VdB at 25 ft [7.6 m]) would diminish below the threshold of
23 perception for humans, which is about 65 VdB (Hanson et al. 2006). During the construction
24 phase, no major construction equipment that can cause significant ground vibration would be
25 used, and no residences or sensitive structures are located in close proximity.¹¹ Therefore, no
26 adverse vibration impacts are anticipated from construction activities, including pile driving for
27 dish engines.
28

29 During operations, no major ground-vibrating equipment would be used. In addition,
30 no sensitive structures are located close enough to the most SEZs to experience physical damage.
31 Therefore, potential vibration impacts on surrounding communities and vibration-sensitive
32 structures during operation of any solar facility would be minimal.
33
34

35 **M.16 PALEONTOLOGICAL RESOURCES**

36
37 Methods used in the assessment of paleontological resources for the SEZs focused on
38 assessing the potential disturbance of plant and animal fossils. Paleontological remains are
39 protected under Paleontological Resources Preservation under the Omnibus Public Lands Act
40 of 2009, as discussed in Section 4.14. The examination of impacts on paleontological resources
41 ultimately relied on evidence of the existence, density, and nature of fossil deposits in areas that
42 might be disturbed. Potential Fossil Yield Classification (PFYC) maps were used when available

¹¹ Typically, the heavy equipment operators would not allow public access any closer than 330 ft (100 m) for safety reasons. In other words, construction of a solar facility would not occur within this distance from the nearest residence.

1 to characterize the potential for paleontological resources. The region of influence (ROI) for
2 paleontological resource assessment for the SEZs included the SEZ areas, assumed access road
3 and transmission ROWs, and any additional off-development areas affected or likely to be
4 affected by construction and operation or maintenance. A 5-mi (8-km) radius outside of SEZ
5 boundaries was included as part of the ROI to take into account possible erosion-related issues
6 present in a desert environment, as well as potential new routes of access to previously remote
7 areas.

8
9 The assessment of potential impacts on paleontological resources involved identifying
10 those activities that would result in surface or subsurface disturbance within the ROI. Activities
11 evaluated included construction and operations that likely would disturb areas containing known
12 paleontological resources or areas with PFYC classifications of Class 3 and higher. The
13 identification of impacts relied on GIS-based overlays with PFYC maps, emphasizing either
14 co-occurrence or geographical proximity of potential disturbance to known or potential deposits.
15 Other potential sources of impacts included the effects of erosion and increased accessibility to
16 intact paleontological remains, such as potential impacts on ACECs designated for
17 paleontological values that may be located near SEZs. Of particular concern were any impacts
18 potentially affecting known deposits of vertebrate fossils.

19
20 Several disciplines provided data relevant to the evaluation of impacts on paleontological
21 resources. Geology/soils analyses provided information on the distribution of geological strata,
22 affording insights on areas with a high potential for paleontological resources previously not
23 documented and on areas lacking PFYC classifications. The hydrological evaluation provided
24 information on changing waterways and the potential for erosion that might threaten
25 paleontological deposits. Information on land use and recreation and wilderness resources
26 identified areas of concentrated activity that may require additional monitoring if access to areas
27 of paleontological sensitivity is made available as a result of solar energy development.

30 **M.1 CULTURAL RESOURCES**

31
32 The methods used to evaluate impacts on cultural resources for the SEZs focused on
33 assessing the potential disturbance to archaeological sites, historic structures, and traditional
34 cultural properties. The assessment of impacts on cultural resources relied primarily on *National*
35 *Register of Historic Places* (NRHP) eligibility status, either determined or potential, when data
36 were available. However, the evaluation also considered the quality of the available data,
37 condition of known cultural resources, and potential for significant resources to be present in
38 unsurveyed areas. The ROI for cultural resource assessment for the SEZs included the SEZ
39 areas, assumed access road and transmission ROWs, and any additional off-development areas
40 affected, or likely to be affected, by construction and operation or maintenance. A 5-mi (8-km)
41 radius outside of SEZ boundaries was included as part of the ROI to take into account possible
42 erosion-related issues present in a desert environment, as well as potential new routes of access
43 to previously remote areas. A 25-mi (40-km) radius outside of SEZ boundaries was also included
44 to take into account possible viewshed concerns when historic properties (where visual setting is
45 a contributing factor to their significance) are affected, including traditional cultural properties,
46 historic structures, and trails.

1 The evaluation of impacts on cultural resources required specific information on those
2 resources. Archaeological sites, traditional cultural properties, and historic structures within the
3 ROI were identified and assessed by using site and survey location information provided by the
4 State Historic Preservation Offices or the BLM field offices, consultation results with affected
5 Native American Tribes and available ethnographic literature regarding traditional cultural
6 properties, and properties listed on the NRHP. Archaeological survey reports were reviewed
7 when available from the BLM, but typically data were limited to the GIS coverages, and the
8 quality of attribute data varied greatly from state to state. Prehistoric and historic contexts were
9 gleaned from the open literature. Other information used included ACEC descriptions for those
10 ACECs near SEZs designated for their cultural value.

11
12 The assessment of potential impacts on cultural resources involved identifying those
13 activities that would result in surface or subsurface disturbance within the ROI. Activities
14 evaluated included construction and operations that likely would disturb areas containing known
15 cultural resources. Impacts, in turn, were defined as the effect of identified activities on intact
16 known cultural resources or areas with a high potential to contain significant cultural resources.
17 The identification of impacts relied on GIS-based overlays, emphasizing either co-occurrence or
18 geographical proximity of potential disturbance to known resources. In those portions of the ROI
19 where the extent of cultural resources is not well known, the analysis identified areas with high
20 potential for sites based on similar environmental characteristics with known resources in the
21 region. Other potential sources of impacts included the effects of erosion and increased
22 accessibility on intact cultural remains.

23
24 Several disciplines provided data relevant to the evaluation of impacts on cultural
25 resources. Geology/soils studies provided information on soil types. Soil erosion was a major
26 concern during the analysis, primarily because of the number of dry lakes and washes that could
27 alter archaeological resources during water events. Hydrology studies provided information on
28 changing waterways and the resulting erosion that would accompany such changes. Information
29 on land use and recreation and wilderness resources identified areas of concentrated activity that
30 may require additional monitoring if access to areas of cultural sensitivity is made available as a
31 result of solar energy development.

32
33 The potentially applicable mitigation measures identified in Section 5.15.3 are intended
34 to extend beyond regulatory requirements and BLM policy and were derived from the literature
35 on best management practices, communications from the Tribes, and information in past NEPA
36 documents. These documents were examined to determine what forms of mitigation had been
37 considered acceptable in the past or were suggested as acceptable for the current study.

38 39 40 **M.18 NATIVE AMERICAN CONCERNS**

41
42 Methods used in the assessment of resources of concern to Native Americans focused on
43 assessing the potential disturbance of resources of Tribal significance. These resources included,
44 but were not limited to, sacred places and landscapes, cultural resources, plant and animal
45 resources, water rights, water quality and use, air quality and noise, human health and safety, and
46 economics. The ROI for Native American concerns for the SEZ impact assessments included the

1 SEZ areas, assumed access road and transmission ROWs, and any additional off-development
2 areas affected, or likely to be affected, by construction and operation or maintenance. A 25-mi
3 (40-km) radius outside of SEZ boundaries was included as part of the ROI to take into account
4 possible viewshed concerns.

5
6 The affected Tribes were determined by the location of the SEZs, as compared to
7 traditional use areas as described in standard ethnographic sources such as the *Handbook of*
8 *North American Indians* (a multivolume work being issued a volume at a time) (Sturtevant
9 1978–2008), the National Park Service *Native American Consultation Database* (NPS 2010),
10 and any available information in the records of the Indian Claims Commission and California's
11 Native American Heritage Commission. BLM field offices also were consulted to determine
12 which Tribes they consult with regularly for projects in their jurisdiction. Past NEPA documents
13 for projects within or close to the SEZs were consulted to determine which Tribes had been
14 contacted for past projects in the area.

15
16 Concerns were identified through responses from Tribes to communications from
17 national, state, and local BLM offices regarding this PEIS. Details on government-to-government
18 consultation efforts are presented in Section 14 and Appendix K. Locations of the SEZs were
19 examined for general and specific Tribal concerns. Native American and Cultural Resources
20 sections of previous NEPA documents and the ethnographic literature were likewise examined
21 for general and specific local concerns, including traditional cultural properties. Particular
22 attention was given to culturally important/sacred places, culturally important plant resources,
23 animal resources, water resources, and mineral resources.

24
25 Several disciplines provided data relevant to the evaluation of impacts on resources of
26 concern to Native Americans. The susceptibility of physical features and landscapes to adverse
27 effects from construction and operation was determined in conjunction with parallel studies of
28 noise, air quality, visual resources (viewsheds), geology, hydrology, and so on. For ecological
29 resources, species important to Tribes were compared with the descriptions of plants and wildlife
30 in the area of the SEZs to determine whether such species had been observed or were likely in
31 those locations.

32
33 The potentially applicable mitigation measures identified in Section 5.16.3 were derived
34 from communications with the Tribes, ethnographic studies, and past NEPA documents. Those
35 documents were examined to determine what forms of mitigation had been acceptable in the past
36 or were suggested as acceptable for the current study.

37 38 39 **M.1 SOCIOECONOMICS**

40
41 The analysis of the socioeconomic impacts of solar development in the six states
42 consisted of two interdependent parts. Using existing solar project labor and expenditure data,
43 the analysis of *economic impacts* estimated the impacts of construction and operation of solar
44 facilities on employment and income and on state income and sales tax revenues. Impacts on
45 recreation are also considered by measuring the impact of reductions in activity in various

1 recreation-related sectors (see Section 4.17.10). Other methods and data that might have been
2 used in the analysis are reviewed in this section.

3
4 Because of the relative economic importance of solar development in small rural
5 economies, and the consequent incapacity of local labor markets to provide sufficient workers in
6 the appropriate occupations required for construction and operation in sufficient numbers, solar
7 development is likely to result in the influx of a temporary population. On the basis of these
8 considerations, the analysis of *social impacts* assessed the potential impacts of solar development
9 on population, housing, and local public service employment. Impacts on crime, alcoholism,
10 illicit drug use, divorce rates, and mental illness also were considered. Since social disruption
11 may occur with rapid population growth and the “boom and bust” economic development that
12 could be associated with solar facilities, a review of the literature on social disruption is included
13 in this section.

14
15 The analysis assessed the impacts of solar development in an ROI. At the state level, the
16 ROI for solar development consists of each entire state, while the ROI for each SEZ consists of
17 the counties and communities most likely to be affected by solar development. Selection of these
18 ROIs was based on assessments of the area in which workers are expected to spend most of their
19 salaries and in which a significant portion of site purchases and non-payroll expenditures from
20 the construction and operation phases of the proposed solar facilities are expected to take place.

21 22 23 **M.1 .1 Economic and Fiscal Impacts**

24 25 26 **M.1 .1.1 General Approach to Estimating Economic Impacts**

27
28 The assessment of economic impacts used representative data from various solar
29 development projects (Solar Partners I, LLC 2007; SES Solar Two, LLC 2008; Topaz Solar
30 Farms, LLC 2008) and from the DOE’s JEDI model (DOE 2010) to estimate the direct impacts
31 of solar facilities. These data cover labor costs and employment for project construction and
32 operation. Employment and income data from these studies used in the PEIS analysis are
33 summarized in Table M.19-1. Additional data on spending patterns associated with labor,
34 material, and equipment were taken from Schwer and Riddel (2004) and Stoddard et al. (2006).
35 These data sources were used to calculate impacts on direct employment, income, and state tax
36 revenue (sales and income). The IMPLAN economic impact modeling software was used to
37 estimate the indirect impacts of solar project development in each ROI (MIG, Inc. 2010).
38 Economic multipliers for 2007 for various energy, manufacturing, and service sectors and
39 personal consumption expenditures provided by the IMPLAN model captured the indirect (off-
40 site) effects of construction and operation of solar facilities.

TABLE M.1 -1 Employment and Income Factors by Phase and Solar Technology

Phase and Technology	Direct Employment (FTEs ^a per MW)	Direct Income (million 2008 per MW)
Construction		
Parabolic Trough	3.34	241.4
Power Tower	2.40	173.0
Dish Engine	0.97	70.3
PV	0.45	32.8
Operations		
Parabolic Trough	0.24	7.6
Power Tower	0.23	7.1
Dish Engine	0.22	6.9
PV	0.02	0.7

^a FTE = full-time equivalent.

Sources: Solar Partners I, LLC (2007); SES Solar Two, LLC (2008); Topaz Solar Farms, LLC (2008); DOE (2009).

M.1 .1.2 Comparison between the IMPLAN Input-Output Model and Other Available Regional Economic Models

Simple Input-Output Models. Input-output models, such as IMPLAN, are a widely used means of estimating the overall regional impact (direct plus indirect plus induced) of new energy development facilities and projects. Regional input-output models are based on national input-output accounts and include information for 528 separate industries based on the North American Industrial Classification System used by the U.S. Department of Commerce Bureau of Economic Analysis (BEA). These accounts show the flow of commodities between industries and institutional consumers. Industries represented are agriculture; mining; construction; manufacturing; wholesale and retail trade; utilities; finance, insurance and real estate; and consumer and business services. Each industry is described in terms of its purchases from and sales to all other industries in the local economy.

The accounts also provide information on value added by each industry and sales by each industry to final demand. Value added has four main components: employee compensation (wages and salary payments, benefits, life insurance, retirement, and so on), proprietary income (payments received by self-employed individuals as income), other property-type income (payments received from royalties and dividends), and indirect business taxes (primarily excise and sales taxes paid by individuals to businesses). Final demands include personal consumption expenditures (payments by individuals/households to industries for goods and services used for personal consumption); federal government purchases (military and nonmilitary) and sales; state and local government purchases (public education and noneducation) and sales; inventory purchases (unsold annual output) and

1 sales (where inventory reduction exceeds additions from production); capital formation
2 (expenditures made to obtain capital equipment); and exports outside the region and nation.
3

4 Basic input-output data were used to produce estimates of the economic impacts of changes
5 in final demand by making a series of assumptions about economic behavior, as follows:
6

- 7 • *No supply constraints.* Supplies to each sector are available in unlimited
8 quantities, with no production bottlenecks, transportation constraints, and the
9 like.
- 10
- 11 • *Constant returns to scale.* Sector inputs vary in constant proportion to sector
12 outputs, implying that the technology used to produce outputs in each sector
13 does not change as demand for sector output changes.
- 14
- 15 • *Fixed commodity input structure.* Input price changes do not lead to changes
16 in inputs used to produce the output of any given industry. Changes in the
17 economy affect only industry output in any given industry, not production
18 structure in any individual industry.
- 19
- 20 • *Homogenous sector output.* Many industries produce multiple products. Input-
21 output models assume that changes in industry output do not change the
22 proportion of each product produced in any given industry.
23

24 Given these assumptions, a series of matrix manipulations were used to produce multipliers
25 for each sector in the ROI economy under consideration and for the ROI economy as a whole.
26 These multipliers typically give the total (direct plus indirect plus induced) benefits to the ROI in
27 terms of employment, output, and income.
28

29 Two input-output models are available that can be readily calibrated to county-level
30 input-output accounts. The RIMS II system produced by the BEA (BEA 2010) provides sets of
31 multipliers for each sector in the national input-output table. The RIMS II system can be used to
32 produce multipliers for any county or multicounty region in the United States to provide
33 estimates of the indirect impacts of changes in final demand at the chosen level of sector and
34 geographic interest. The IMPLAN model produced by MIG, Inc. (2009) provides county-level
35 input-output models, which are used to estimate multipliers and can be used for more detailed
36 analysis of the impacts of changes in final demand. Although both models can be readily applied
37 to the estimation of the impacts of construction and operation of solar facilities, the IMPLAN
38 model provides input-output baseline data for each ROI, in addition to sector multipliers also
39 provided in the RIMS II modeling system.
40

41
42 ***Input-Output/Econometric Models.*** Combining input-output data with other economic
43 and demographic data in a more complex modeling framework can provide estimates of a wider
44 range of economic and demographic impacts of solar facility construction and operation. ROI
45 baseline forecasts can also be provided. Although more complex modeling systems often use
46 econometric techniques, these systems have a major advantage over simple econometric models

1 in that they use the theoretical structural restrictions implied in the input-output accounts instead
2 of econometric estimates based on single time-series observations for single regions. The
3 combination of input-output and econometric techniques in a model allows the use of a range of
4 policy options and the tracking of their effects on a range of variables in the model throughout
5 each forecast period.

6
7 An example of a complex input-output based economic modeling system widely used in
8 regional analyses is the REMI model (REMI 2010). At its core the model has an input-output
9 structure representing inter-industry linkages and linkages to final demands for 53 individual
10 industry groupings. In addition to the basic input-output structure, the model includes
11 substitution between factors of production in response to changes in relative factor costs,
12 migration in response to changes in expected income, wage responses to changes in labor market
13 conditions, and changes in the share of local and export markets in response to changes in
14 regional profitability and production costs. REMI models can be set up for any county or
15 multicounty region in the United States.

16
17
18 **Computable General Equilibrium (CGE) Models.** Although input-output models have
19 been widely used in the analysis of energy development facilities and projects, the framework
20 assumes that responses to increases in output are linear and rigid. As a result, forms of economic
21 adjustment behavior, such as input substitution or capacity restrictions in industries and labor
22 markets, are not easily incorporated into the modeling framework. CGE models provide an
23 alternative to input-output models insofar as they can incorporate producer and consumer
24 responses to price signals, and nonlinear production functions allow the inclusion of input
25 substitution and conservation measures. The framework includes price-responsive product and
26 factor demand and supplies, predicated on the assumption of equilibrium in all product and factor
27 markets. Models assume either perfect foresight market clearing over time or temporary market
28 clearing if expectations are imperfect. Many models assume that the system does not clear product
29 and factor markets continuously, with responses over time determined in the model through a
30 combination of a given model structure with econometrically estimated parameters. As part of their
31 underlying model structure, CGE models can incorporate sector production functions with
32 differing characteristics. These functions may incorporate constant elasticity of substitution
33 (CES), Cobb-Douglas (multiplicative), in addition to the Leontief (linear) production functions
34 used in the basic input-output formulation. CES functions are useful for analyzing capacity
35 restrictions, because they allow a range of substitution elasticities for different pairs of inputs.

36 37 38 **M.1 .1.3 Choice of Modeling Framework for Estimating the** 39 **Economic Impacts of Solar Facility Development** 40

41 The IMPLAN model was chosen as the modeling tool for analyzing economic impacts
42 of solar development in this PEIS. The application of simple input-output models, calibrated to
43 multicounty ROIs, represents an appropriate level of sophistication in the estimation of impacts
44 of the construction and operation of solar facilities. Although local industry and labor market
45 capacity restrictions may be relevant in the short term in some of the ROIs used in the analysis,
46 assumptions made in this PEIS regarding the importation of materials and equipment and the

1 in-migration of construction and operations labor circumvent the limiting assumption that there
2 are no supply constraints in the economy being analyzed. The IMPLAN model was preferred to
3 the RIMS II model, because the former provides input-output baseline data for each ROI, in
4 addition to sector multipliers provided in the RIMS II modeling system. The REMI model was
5 not selected because of its high initial cost and the availability of forecasts of ROI economic
6 variables used in this PEIS from other sources. CGE models are applicable to scenarios in which
7 impacts would be large, in which there may be sector capacity restrictions, and in an economy
8 would require time to adjust to a new equilibrium. However, impacts of solar development are
9 not likely to be large in any of the ROIs being analyzed, with peak construction employment of
10 less than 5 of projected baseline employment in most cases. Additionally, data and
11 considerations germane to the CGE framework mean that these models are usually customized
12 by researchers for specific policy issues and are not widely available. Given the nature of the
13 impacts expected from solar development, the greater degree of accuracy in measuring impacts
14 provided by a CGE modeling framework would therefore not offset the resource cost and time
15 required to calibrate models in sufficient sector and geographic detail for use in this PEIS.

16 17 18 **M.1 .1.4 Fiscal Impacts** 19

20 State income tax revenue impacts were estimated by applying state income tax rates to
21 projected income generated by construction and operations that employees spent within the ROI.
22 State and local sales tax revenues were estimated by applying appropriate state and local sales
23 tax rates to materials, equipment, and supplies that would be purchased for each solar technology
24 within each ROI.
25

26 Although Nevada currently has no state income tax, the ROIs for three SEZs in Nevada
27 (Dry Lake Valley North, Delamar Valley, and East Mormon Mountain) include counties in Utah,
28 where state income taxes would be collected from solar construction and operations workers
29 residing in the state. To estimate state tax revenues collected in Utah, a gravity model was used
30 to assign in-migrating solar workers and their families to individual ROI communities. Gravity
31 models mathematically estimate the interaction between pairs of points (the number of
32 construction and operations workers and family members associated with each solar technology,
33 nominally located at each SEZ centroid, and the population of each community in a state ROI)
34 weighted by the linear distance between each pair of points. With a projected residential
35 distribution estimated by using this method, state income tax rates for Utah were used to
36 estimate income tax revenues based on the projected incomes of solar construction and
37 operations workers who would reside in Utah.
38

39 40 **M.1 .1.5 Economic Valuation of Land Used for Recreation** 41

42 A simple way to quantify the value of recreation on public land would be to measure
43 revenue generated by user fees and other charges for public use. However, visitation statistics are
44 often incomplete, and, in many cases, federal and state agencies do not charge visitors a fee for
45 entrance to recreational resources on public lands; where fees are charged, they may be nominal
46 compared with the value of the visit to recreational users. Recreation undertaken using privately

1 owned facilities, such as golf courses, horse ranches, or fishing on private waters, has a
2 quantifiable market value, with the user paying rates for visiting these facilities, which reflect
3 the value of the resource to its owners and the cost of providing access to it to visitors. With the
4 majority of recreation in the immediate vicinity of proposed solar projects likely to occur on
5 public lands, however, the economic value of these resources is more difficult to quantify, since
6 no valuation of the use of these resources can be made through the marketplace.

7
8 A number of methods have been used to determine the use value of nonmarketed
9 recreational goods, or the value of recreational resources on public lands that may be for used
10 for recreation. Because resources on public lands are scarce and recreational activities provide
11 enjoyment and satisfaction, the amount visitors would pay over the actual cost of using these
12 resources represents the value of the benefit of these resources to the public. One method of
13 estimating the net willingness to pay, or consumer surplus, associated with resources on public
14 lands used for recreation is the travel cost method. This method uses variation in the cost of
15 traveling different distances, and the number of trips taken over each distance, as a way to
16 represent the demand for recreational resources in any given location (Loomis and Walsh 1997).

17
18 In addition to use values, a certain portion of the value of resources used for recreation
19 may lie in the passive use of a resource, or the extent of the availability of the resource to current
20 and future generations. Attempts to establish passive use values or the willingness to pay for or
21 accept compensation for the loss of different levels of nonmarketed recreational resources on
22 public lands have used contingent valuation methods, which rely on telephone interviews or
23 questionnaire surveys. Typically, a description of a particular resource is presented to
24 respondents, who are then asked to place a dollar value on their use of the resource or on the
25 preservation of the resource (Loomis 2000). Although the travel cost and contingent valuation
26 methods have weaknesses, particularly with regard to the accuracy of questions asked and
27 respondents' self-reporting errors, both have been used widely by government agencies and
28 academics in cost-benefit analyses of outdoor recreation. The Bureau of Reclamation (BOR), for
29 example, used contingent valuation to place a value on the impact of hydropower activities in
30 Utah and Colorado on fishing and rafting (BOR 1995). The method was used in establishing the
31 value of natural resources damaged by oil spills in Alaska (Carson et al. 2003; DOI 1994), and
32 various state agencies have used travel cost and contingent valuation methods for valuing
33 wildlife-related recreation (Loomis 2000). Contingent valuation methods have also been used to
34 value natural resource amenities, such as improvements in visibility in the Grand Canyon
35 (Schulze and Brookshire 1983) and the value of protecting endangered species (Boyle and
36 Bishop 1987) and wilderness areas (Koontz and Loomis 2005).

37
38 Loomis (2000) reports the results of various studies that used survey data and travel cost
39 and contingent valuation methods to estimate the value of recreation in wilderness areas in
40 Colorado and Wyoming. On the basis of data reported in these studies, the average value per
41 day of visiting a wilderness area for recreation was estimated to be 26 (1996 dollars); that is,
42 a visitor would be willing to pay this amount more than trip travel cost rather than lose a day
43 visiting an area for recreation. Multiplying this number by the number of visitors to a specific
44 wilderness resource would give the value of the resource to the public (Loomis 2000).

Contingent valuation also has been used to establish willingness to pay to preserve existing wilderness areas and additional acreage that might be designated as wilderness. On the basis of two surveys of Colorado and Utah residents, Walsh et al. (1984) and Pope and Jones (1990) found that passive use values varied with the level of wilderness already designated in a state, but at a decreasing rate. Passive use value also was found to represent about half of the economic value of a resource, equaling the use value of the resource to the household as a place for recreation. The same surveys found that residents in Colorado and Utah, and in the rest of the United States, would pay from \$220 per additional acre if 5–10 million acres of wilderness resources were to be preserved in the two states to \$1,246 per acre if only 1.2 million additional acres were preserved. Passive use values in the western United States were estimated to be \$168 per acre, or about \$7.2 billion when applied to all wilderness land in the West. Barrick (1986) estimated the value of the wilderness resources in the Washakie Basin, Wyoming, for future visits (option values) at \$69 (1996 dollars) for on-site users and \$15 and \$13 for urban and rural, nonvisiting U.S. residents.

M.1 .2 Social Impacts

M.1 .2.1 Population

An important consideration in the assessment of impacts of solar development is the number of workers and their families (including children) that would migrate into the ROI, either temporarily or permanently, with the construction and operation of solar facilities. The capacity of regional labor markets to provide sufficient numbers of workers in the occupations required for solar development construction and operation is generally related to the occupational profile of the ROI and occupational unemployment rates. In the context of these considerations, the PEIS analysis assumed that the number of in-migrating solar facility workers would be related to population size in each SEZ. SEZs were placed into three population-size groups: less than 125,000 people, 125,000 to 750,000 people, and more than 750,000 people, with the percentage of in-migrants in each SEZ assumed for various labor categories—construction workers and managerial/supervisory workers for construction, and field, administrative, and managerial workers for operations. Based on other analyses of energy project labor in-migration (Fahys-Smith 1983), it was assumed that 28% of the workers in-migrating into each ROI would bring their family members with them. The national average household size (2.6 people) was used to calculate the number of additional family members accompanying direct in-migrating workers.

Impacts on population are described in terms of the total number of in-migrants arriving in the region in the peak year of construction. The relative impact of the increase in population in the ROI was calculated by comparing total solar development construction in-migration over the period in which construction is projected with baseline ROI population forecasts over the same period. Forecasts were based on data provided by individual state demography agencies.

M.1 .2.2 Housing

The in-migration of workers during construction and operation associated with solar facility development could affect the housing market in each ROI. The analysis considered these impacts by estimating the increase in demand for vacant housing units in the peak year of construction and in the first year of operation that would result from the in-migration of direct solar facility workers into each ROI. The relative impact on existing housing in the ROI was estimated by calculating the impact of solar related housing demand on the forecasted number of vacant housing units in the peak year of construction and in the first year of operation.

M.1 .2.3 Public Services

Population in-migration associated with construction and operation of solar facilities would translate into increased demand for educational services and for public services (police and fire protection, health services, etc.) in each ROI. The impacts of in-migration associated with solar facilities on county, city, and school district employment were estimated on the basis of publicly available data. Impacts on public service employment were calculated by using the existing levels of service (the number of employees required to provide each community service per 1,000 people) to estimate the number of new police officers and firefighters required in the peak year of construction and in the first year of operations. Similarly, the number of teachers in each school district required to maintain existing teacher-student ratios across all student age groups was estimated. Impacts on health care employment were estimated by calculating the number of physicians in each county required to maintain the existing level of service, based on the existing number of physicians per 1,000 people.

M.1 .2.4 Energy Development and the Potential for Social Change in Small Rural Communities

The relative economic importance of solar facilities in smaller rural communities is likely to create an influx of temporary population both during construction and at the start of the operation phases of each project. Because population increases are likely to be rapid, in the absence of adequate planning measures local communities may be unable to cope quickly with the large number of new residents; social disruption and changes in social organization are likely to occur. Community disruption can also lead to increases in social distress, in particular, increases in drug use, alcoholism, divorce, juvenile delinquency, and deterioration in mental health and perceived quality of life. Changes in cultural values may also occur as the resident population is exposed to, and may be required to at least partially adapt to, the cultural values of the in-migrant population.

Social problems associated with rapid population growth related to energy development and power generation projects in small rural communities were first studied extensively in the 1970s and 1980s. Gilmore and Duff (1975) and Gilmore (1976), for example, found that rapid growth led to higher divorce and school dropout rates, suicide attempts, social alienation and isolation, juvenile delinquency, and crime, while Gold (1982) found that resource developments

1 led to a weakening of social ties in the local community. Other studies suggested that boomtown
2 growth was responsible for deterioration in the mental health of existing long-term residents and
3 of in-migrants (Lantz and McKeown 1977; Dixon 1978; Weisz 1979; Freudenburg et al. 1982).
4 Increases in crime, violence, and deviance were reported by Lantz and McKeown (1977),
5 Little (1977), and Dixon (1978). Changes in the level of community integration were also
6 studied (Little 1977; Jirovec 1979; Boulding 1981), as were changes in community satisfaction
7 (Murdock and Schrinier 1979). On the basis of the ideas of Ferdinand Toennies on the transition
8 of small rural communities through industrialization and urbanization (Toennies 1887), it was
9 often suggested that these changes occurred as a result of the breakdown of established informal
10 social structures in small rural communities and the inadequacy of new, formal social institutions
11 to provide social integration and social control (Cortese and Jones 1977; Little 1977;
12 Cortese 1982).

13
14 The relationship between rapid energy boomtown growth and social disruption came
15 under closer scrutiny in the early 1980s. It was suggested that many of the earlier studies relied
16 on poorly documented or unreliable data and assertions on the nature and extent of boomtown
17 social problems, preferring to accept the presence of social disruption largely in the absence of
18 reliable evidence (Wilkinson et al. 1982). Problems with research design in many of the earlier
19 studies also were highlighted, in particular, the tendency to base research findings on data
20 collected in single communities rather than in numerous communities affected by energy
21 developments (Krannich and Greider 1984), and the use of cross-sectional rather than
22 longitudinal data to chart community social change over time (Brown et al. 1989).

23
24 Subsequent work replaced the widespread sense of “alarmed discovery” prevalent in
25 earlier research by more cautious and systematic approaches to the analysis of social change
26 (Smith et al. 2001). Much of the focus shifted to the study of multiple communities in order to
27 separate and understand social change affecting boomtowns and change affecting communities
28 outside energy development regions (England and Albrecht 1984; Freudenburg 1984; Krannich
29 and Greider 1984; Greider and Krannich 1985; Brown et al. 1989; Berry et al. 1990).

30
31 Numerous studies have found that rapid growth led to certain forms of social disruption.
32 Brown et al. (1989) found that boomtown growth led to community dissatisfaction, while
33 England and Albrecht (1984) and Greider and Krannich (1985) found evidence of dissatisfaction
34 with community facilities and services. Freudenburg (1986) and Brown et al. (1989) found
35 higher fear of crime in boomtown communities than elsewhere. Brown et al. (1989) also found
36 a reduction in local friendship ties and increases in residential transiency. Greider et al. (1991)
37 found increased isolation, while Greider and Krannich (1985) found a decline in social support
38 among residents of boomtown communities compared with more stable communities. The
39 conclusions of these studies are quite different from those of earlier work on boomtowns, and
40 indicate that periods of rapid population growth are not necessarily associated with social
41 disruption and change in small rural communities.

42
43 In addition to studies of impacts across multiple communities, various longitudinal
44 studies of social change also were made. Data collected in communities experiencing rapid
45 growth indicate that divorce and crime rates did not increase significantly (Brookshire and
46 D’Arge 1980; Wilkinson 1983; Wilkinson et al. 1984), although there were increases in

1 delinquency during boom years (Wilkinson and Camasso 1984). Freudenburg and Jones (1991)
2 showed increases in victimization rates in some communities, although Krannich et al. (1989)
3 found no increases in victimization during boom years in several energy communities.
4

5 While it is clear that some level of social disruption seems to have occurred during boom
6 years, underlying social structures may not have fundamentally changed. England and
7 Albrecht (1984), for example, found no evidence of the replacement of informal social ties
8 common in rural areas with formal associations found in urban areas. Informal and external ties
9 may actually strengthen with length of residence, and boomtown development may facilitate
10 rather than diminish informal social ties. England and Albrecht (1984) found no dramatic shift in
11 community perceptions during years of population growth, and Seyfrit and Sadler-Hammer
12 (1988) found only a limited connection between rapid growth and changing youth attitudes
13 toward community and family. Berry et al. (1990) suggested that interactions among neighbors
14 during rapid growth periods are relatively stable, while Greider et al. (1991) reported no large
15 increases in the level of distrust among neighbors. Greider and Krannich (1995) found that
16 increasing heterogeneity accompanying rapid population growth does not significantly decrease
17 neighboring interaction. Residents of rapidly growing communities may experience expanded
18 opportunities for obtaining social support beyond their local neighborhood, while at the same
19 time maintaining adequate relations with their neighbors.
20

21 Rapid population growth seems to have had differential effects across social groups.
22 Freudenberg (1984) found no differences in attitudes among adults in boomtowns and in
23 neighboring communities, but noted higher levels of dissatisfaction and alienation among
24 boomtown adolescents. Krannich and Greider (1984) noted deterioration in perceived social
25 integration among temporary mobile home residents in boomtown communities.
26

27 Studies of the long-term effects on community attitudes and perceptions show varying
28 levels of community social disruption during the different phases of energy development,
29 including the boom, decline, and post-boom recovery periods. The disruptive effects associated
30 with boom growth may not have been permanent in some communities, dissipating in the years
31 after the boom phase ended (Smith et al. 2001), while community satisfaction often has
32 rebounded after declining during boom growth periods, producing an improvement in the
33 sense of community well-being at the end of the boom period (Brown et al. 2005). The decline
34 in the sense of community identity and solidarity during periods of instability caused by rapid
35 population growth rebounded fairly quickly with the return to more stable growth
36 (Greider et al. 1991).
37

38 Although construction and operation of solar facilities is unlikely to lead to a “boom
39 and bust” development scenario in most of the ROIs because of the relatively minor population
40 increases associated with in-migration, some social disruption and resulting community
41 adjustment may occur in small, relatively self-contained communities. These surges in
42 population size may have a number of components (Figure M.19-1). An initial stimulus provides
43 new jobs that bring growth in population size and change the demographic composition of the
44 community. Social change resulting from the need to accommodate new residents changes the
45 perceived quality of life and leads to changes in social relations. Social problems, such as
46 divorce, substance abuse, and crime, can occur. Social problems may be mitigated by community

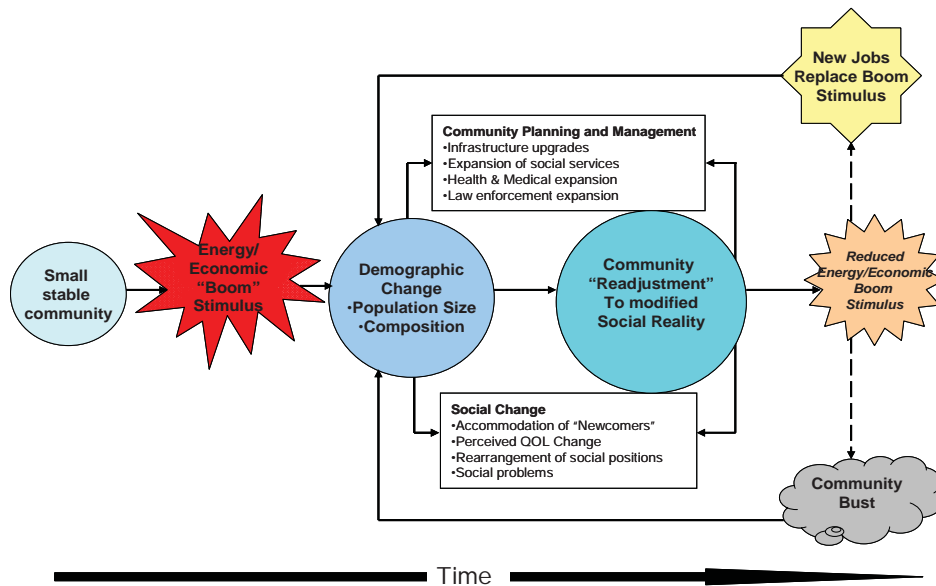


FIGURE M.1 -1 The Cycle of Social Adjustment to Boom and Bust

planning and management of growth, allowing the community to more easily adjust to new residents. After some period of time, employment associated with the initial economic stimulus may decrease, whereby the community may replace the jobs afforded by the initial stimulus, or employment is reduced in size, with the cycle of adjustment mitigated to a greater or lesser degree by community planning efforts.

M.2 REFERENCES

Note to Reader This list of references identifies Web pages and associated URLs where reference data were obtained for the analyses presented in this PEIS. It is likely that at the time of publication of this PEIS, some of these Web pages may no longer be available or their URL addresses may have changed. The original information has been retained and is available through the Public Information Docket for this PEIS.

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