Appendix 15A Natural Resources Conservation Service Land Evaluation and Site Assessment Explanations and Calculations for the Sites Reservoir Project

15A.1 Introduction

This appendix summarizes the results of the land evaluation and site assessment (LESA) for the Sites Reservoir Project (Project). The LESA analysis was performed in compliance with the Farmland Protection Policy Act (FPPA) requirements. The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses (Title 7 U.S. Code § 4201 et seq. and its regulations, Title 7 Code of Federal Regulations [C.F.R.] Chapter VI Part 658). Pursuant to the FPPA, federal agencies are required to follow criteria developed by the Secretary of Agriculture, in cooperation with other federal agencies, as follows:

- To use criteria to identify and take into account the adverse effects of their programs on the preservation of farmland.
- To consider alternative actions, as appropriate, that could lessen adverse effects of their programs on the preservation of farmland.
- To ensure that their programs, to the extent practicable, are compatible with state and units of local government and private programs and policies to protect farmland.

This appendix provides an explanation for assessment points for the Project in Part VI of the Natural Resources Conservation Service (NRCS) AD-1006 forms (Appendix 15A1, *Farmland Conversion Impact Ratings*) prepared for Colusa, Glenn, and Yolo Counties. Although the Project includes facilities in Tehama County, none of these features would affect farmland.

Section 15A.3, *Land Evaluation and Site Assessment*, describes each of the 12 criteria and explains the methods used to assign points to each criterion. Section 15A.4, *Site Assessment Scoring*, explains the rationale behind the points assignment for each criterion for each alternative (Alternatives 1 and 3 and Alternative 2) within each county (Colusa, Glenn, and Yolo). Appendix 15A2, *Site Assessment Calculations*, provides the full details of the point calculations that were used to fill out the AD-1006 forms and are also referenced throughout this appendix.

15A.2 Project Site

The Project site is located in Colusa, Glenn, Yolo, and Tehama Counties. The Project would involve the use of existing infrastructure to divert unregulated and unappropriated flow from the Sacramento River at Red Bluff and Hamilton City and convey water to a new offstream Sites Reservoir west of the community of Maxwell, California. New and existing facilities would move water into and out of the reservoir. Releases from Sites Reservoir would ultimately return to the Sacramento River system via existing canals and a new pipeline located near Dunnigan. Construction of the Sites Reservoir would necessitate building a bridge across the reservoir and realigning a segment of Huffmaster Road with a gravel road to residents at the south end of the reservoir. Additional components would include development of new recreational facilities at the reservoir. The Project is being jointly implemented by the Sites Project Authority (Authority), the lead agency under the California Environmental Quality Act, and U.S. Department of the Interior, Bureau of Reclamation (Reclamation), the lead agency under the National Environmental Policy Act (NEPA).

15A.3 Land Evaluation and Site Assessment

15A.3.1 Methods

As required by the FPPA implementing regulations (7 C.F.R. Part 658), LESA calculations were performed using NRCS Form AD-1006 for noncorridor projects to determine an overall farmland conversion score. ICF agricultural specialist Diana Roberts coordinated with Authority and Reclamation staff on October 19, 2022, to complete Part I, Part IV (Land Evaluation), and Part V of Form AD-1006.

The site assessment was prepared primarily using geographic information system (GIS) software (California Natural Resources Agency 2019) and Google Earth. Both the land evaluation and the site assessment were prepared using the *Part 523 – Farmland Protection Policy Act Manual* (FPPA Manual) (Natural Resources Conservation Service 2013). The FPPA Manual provides scoring criteria for each of the 12 factors used for site assessment of noncorridor projects. These criteria are listed in an outline form without detailed definitions or guidelines, and therefore the criteria are subjective in nature. To provide a rationale for scoring each of the 12 factors, ICF has included a description of how each factor was analyzed, as well as graphics where relevant.

The total LESA rating for the Project was determined by adding the land evaluation score (up to 100 points) and site assessment scores (up to 160 points). Once the LESA score is computed, the NRCS recommends the following:

1. Sites with the highest combined scores be regarded as most suitable for protection under these criteria and sites with the lowest scores as least suitable.

2. Sites receiving a total score of less than 160 need not be given further consideration for protection, and no additional sites need to be evaluated.

3. Sites receiving scores totaling 160 or more be given increasingly higher levels of consideration for protection.

4. When making decisions on proposed actions for sites receiving scores totaling 160 or more, agency personnel consider:

    a. Use of land that is not farmland or use of existing structures.

    b. Alternative sites, locations, and designs that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a lower relative value.

    c. Special siting requirements of the proposed project and the extent to which an alternative site fails to satisfy the special siting requirements, as well as the originally selected site.

    d. Federal agencies may elect to assign the site assessment criteria relative weightings other than those shown in Section 658.5 (b) and (c).

    e. It is advisable that evaluations and analyses of prospective farmland conversion impacts be made early in the planning process before a site or design is selected, and that, where possible, agencies make the FPPA evaluations part of the NEPA process.

15A.3.2 Summary of Farmland Conversion Impact Rating Results

As summarized in Table 15A-1 and shown on Form AD-1006 in Appendix 15A1, the three counties received farmland conversion impact rating scores ranging between 143 and 168 points for Alternatives 1 and 3 and between 148 and 185 for Alternative 2. As shown in Table 15A-1, for Alternatives 1 and 3, the average score of all three counties combined is 158. As described in Section 15A.3.1, *Methods*, the NRCS recommends that sites receiving a total score of less than 160 need not be given further consideration for protection, and no alternative sites need to be evaluated (7 C.F.R. Part 658). Because Alternatives 1 and 3 both encompass the footprint of the primary alternative and their average score is less than 160, no additional consideration would be required.

Table 15A-1. Farmland Conversion Impact Rating Results

Alternatives 1 and 3	Land Evaluation Score	Site Assessment Score	Total LESA Score
Colusa County	46	118	164
Glenn County	35	108	143
Yolo County	40	128	168
Average Score of All Three Counties Combined			**158**

Alternative 2	Land Evaluation Score	Site Assessment Score	Total LESA Score
Colusa County	46	118	164
Glenn County	40	108	148
Yolo County	57	128	185
Average Score of All Three Counties Combined			**166**

Refer to Appendix 15A1.
LESA = land evaluation and site assessment.

15A.4 Site Assessment Scoring

According to the FPPA, the site assessment criteria is designed to assess important factors other than agricultural value (relative value) of the land when determining which sites should receive the highest level of protection from conversion to nonagricultural uses (7 C.F.R. § 658.5(b)). As described in Section 15A.3.1, *Methods*, the site assessment was prepared using the FPPA Manual (Natural Resources Conservation Service 2013). Twelve factors are used for site assessment of noncorridor projects. Each of the 12 factors is listed in an outline form in the following subsections with definitions or guidelines to follow in the rating process. As described in the FPPA Manual, a numbered rating system is used for each of the 12 factors to determine which sites should receive the most protection from conversion to nonfarm uses. The higher the number given to a proposed site, the more protection it should receive (Natural Resources Conservation Service 2013).

The site assessment analysis is provided in the following subsections. Scoring for each of the 12 factors is provided in Appendices 15A1 and 15A2. Refer to Section 523.61, Part VI, of the FPPA Manual to view a description of how each factor should be scored.

15A.4.1 Criterion 1: How much land is in nonurban use within a radius of a 1.0 mile from where the project is intended?

According to the FPPA Manual, the purpose of this factor is to ensure that the most valuable and viable farmlands are protected from development projects sponsored by the federal government. For this factor, the more agricultural lands surrounding the parcel boundary, the more protection from development the site should receive (i.e., the more points a project site should receive). For Criterion 1, a 1-mile buffer was applied to the Project boundary to assess urban versus nonurban lands (Table 15A-2) within the buffer. If 90% or more of the land within the 1-mile buffer is nonurban land, a maximum of 15 points is assigned.

Points were assigned according to NRCS criteria:

- More than 90%—15 points
- 90% to 20%—14 to 1 point(s)

- Less than 20%—0 points

As detailed in Appendix 15A2, all three counties (Colusa, Glenn, and Yolo) were assigned the maximum number of points (15) for Criterion 1 because the nearest urban areas to the Project footprint are 11 miles, 7 miles, and 12 miles, respectively.

Table 15A-2. Examples of Nonurban and Urban Land

Nonurban Land	Urban Land
Agricultural land (crops, fruit trees, nuts, oilseed)	Houses (other than farmhouses)
Rangeland	Apartment buildings
Forest land	Commercial buildings
Golf courses	Industrial buildings
Nonpaved parks and recreational areas	Paved recreational areas (i.e., tennis courts)
Mining Sites (Surface Mining Control and Reclamation Act of 1977 [Public Law 95-87] exempted from FPPA)	Streets in areas with 30 structures per 40 acres
Farm storage	Gas stations
Lakes, ponds, and other waterbodies	Equipment and supply stores
Rural roads and through roads without houses or buildings	Off-farm storage
Open space	Processing plants
Wetlands	Shopping malls
Fish production	Utilities and services
Pasture or hayland	Medical buildings

15A.4.2 Criterion 2: How much of the perimeter of the site borders on land in nonurban use?

This factor evaluates the general location of the proposed site and the perimeter of the site using the definition of urban and nonurban uses provided in Table 15A-2. If nonurban land uses border 90% or more of the project's perimeter, a maximum of 10 points is assigned. 100% of the Project perimeter is characterized as nonurban land use. The Project site was assigned 10 points out of 10 total points possible for Criterion 2.

Points were assigned according to NRCS criteria:

- More than 90%—10 points
- 90% to 20%—9 to 1 point(s)
- Less than 20%—0 points

As detailed in Appendix 15A2, all three counties, Colusa, Glenn, and Yolo, were assigned the maximum number of points (10) for Criterion 2 because there are no adjacent urban uses. The nearest urban areas to the Project footprint are 11 miles, 7 miles, and 12 miles, respectively.

15A.4.3 Criterion 3: How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than 5 of the last 10 years?

According to the FPPA Manual, land is considered farmed when it is used or managed for food or fiber, including timber products, fruit, nuts, grapes, grain, forage, oilseed, fish and meat, and poultry and dairy products. Land that has been left to the growth of native vegetation within management or harvest is considered abandoned and therefore not farmed.

Points were assigned according to NRCS criteria:

- More than 90%—20 points
- 90% to 20%—19 to 1 point(s)
- Less than 20%—0 points

The Project site was evaluated and rated according to the percent of the site farmed. ICF visually reviewed Google Earth historical aerial imagery between 2007 and 2017 to identify whether there were any substantial changes in agricultural land use over those years. Because no substantial changes were identified over the 10-year period, ICF evaluated the acreage in agricultural production through calculating the percentage of cropland in the study area in the NRCS Cropland Data Layer (CDL) data layer (Natural Resources Conservation Service 2022a, 2022b).

As detailed in Appendix 15A2, the Project footprint within Colusa and Glenn Counties had 1.9% and 1.7%, respectively, of the acreage actively farmed more than 5 of the last 10 years and received 0 points. Yolo County was estimated to have approximately 91.3% actively farmed within the last 5 to 10 years and therefore received the maximum score of 20 points.

15A.4.4 Criterion 4: Is the site subject to State or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

The list of state and local policies and programs to protect farmland that are considered in this factor include the following:

1. Tax Relief—Differential Assessment, Income Tax Credits, and Estate and Inheritance Tax Benefits
2. “Right to Farm” Laws
3. Agricultural Districting
4. Land Use Controls: Agricultural Zoning
5. Development Rights
6. Governor’s Executive Order

7. Voluntary State Programs

8. Mandatory State Programs

Points were assigned according to NRCS criteria:

- If the project site is subject to one or more of the above programs—20 points
- If the project site is not subject to the above programs—0 points

As detailed in Appendix 15A2, all three counties contain Williamson Act–contracted land (#1 in the list above). The Project footprint within Colusa County has 11,861 acres (Alternative 1) or 11,521 acres (Alternative 2); Glenn County has 2,007 acres (Alternative 1) or 1,816 acres (Alternative 2); and Yolo County has 0 acres (Alternative 1) or 3 acres (Alternative 2) of Williamson Act–contracted land. Accordingly, all three counties are assigned the maximum score of 20 for Criterion 4 due to the presence of protected land.

15A.4.5 Criterion 5: How close is the site to an urban built-up area?

According to the FPPA Manual, an urban built-up area must have a population of at least 2,500. The measurement should be made from the point in the built-up area at which the density is 30 structures per 40 acres to a point on the site's perimeter, and there should be no open or nonurban land use between the major built-up area and this point. Suburbs adjacent to cities or urban built-up areas should be considered part of that urban area.

Points were assigned according to NRCS criteria:

- The site is 2 miles or more from an urban built-up area—15 points
- The site is more than 1 mile but less than 2 miles from an urban built-up area—10 points
- The site is less than 1 mile from, but is not adjacent to, an urban built-up area—5 points
- The site is adjacent to an urban built-up area—0 points

As shown in Appendix 15A2, the Project footprint within Colusa County is approximately 11 miles from the town of Williams; the Project footprint in Glenn County is approximately 7 to 8 miles from the town of Willows; and the Project footprint in Yolo County is approximately 12 miles from the town of Woodland. Therefore, the maximum score of 15 is assigned to all three counties for Criterion 5.

15A.4.6 Criterion 6: How close is the site to water lines, sewer lines, or other local facilities and services whose capacities and design would promote nonagricultural use?

According to the FPPA Manual, facilities or services that could promote nonagricultural use include the following:

1. Water lines

2. Sewer lines
3. Power lines
4. Gas lines
5. Circulation (roads)
6. Fire and police protection
7. Schools

Points were assigned according to NRCS criteria:

- None of the services exist nearer than 3 miles from the site—15 points
- Some of the services exist more than 1 but less than 3 miles from the site—10 points
- All of the services exist within 1/2 mile of the site—0 points

The distance to public facilities was measured from the perimeter of the parcel to the nearest sites where the facilities are located. Where more than one distance existed (i.e., from site to water and from site to sewer), the average distance was used. For all three counties, aerial imagery and GIS databases were searched for evidence of services. No services promoting agricultural use were identified within 3 miles of the Project footprint in Glenn, Colusa, or Yolo Counties; therefore, the maximum score of 15 was assigned to all three counties for Criterion 6.

15A.4.7 Criterion 7: Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the County?

This factor is designed to determine the agricultural use value the land possesses, according to its size in relation to the average size of farming units within the county. The larger the parcel of land, the more agricultural use value the land possesses.

Points were assigned according to NRCS criteria:

- As large or larger—10 points
- Below average, deduct 1 point for each 5% below the average, down to 0 points if 50% or more below average—9 to 0 points

To establish average farm size in each county, ICF looked up each county in the 2017 Census of Agriculture. The average farm size for each county in 2017 was as shown in the following list (National Agricultural Statistics Service 2019a):

- Colusa County: 608 acres
- Glenn County: 398 acres
- Yolo County: 484 acres

To determine the average size of farms in the area that would be affected by the Project, Reclamation defined a farm as adjacent parcels of cropland in active use that are owned by the same entity (National Agricultural Statistics Service 2019b). Parcels must be adjacent and owned by the same entity to constitute a farm.

In Colusa County, the average farm size within the Project footprint is 752.7 acres, which is larger than the average farm size in Colusa County (608 acres) and the maximum score of 10 points was assigned. The average farm size in Glenn County within the Project footprint is 342.7 acres, which is smaller than the average farm size in Glenn County (398 acres); thus a score of 7 points was assigned. Lastly, the average farm size in Yolo County within the Project footprint is 77.9 acres, which is significantly smaller than the average size farm in Yolo County (484 acres). Deducting 1 point for each 5% below the average, Yolo County receives a score of 0 for Criterion 7.

15A.4.8 Criterion 8: If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Conversions that make the rest of the property nonfarmable include any development that blocks accessibility to the rest of the site. Examples of these developments are highways, railroads, dams, and development along the front of the site that restricts access to the rest of the property.

Points were assigned according to NRCS criteria:

- Acreage equal to more than 25% of acres directly converted by the Project—10 points
- Acreage equal to between 25% and 5% of the acres directly converted by the Project—9 to 1 point(s)
- Acreage equal to less than 5% of the acres directly converted by the Project—0 points

Real estate data for planned land acquisition was used in this criterion for parcel identification, with parcels used as proxy for farm size. Project footprint by parcel was used to determine estate easement. Using this methodology, Table 15A-3 illustrates the average percentage of unfarmable land.

Table 15A-3. Percentage of Unfarmable Land

Property ID	Total Parcel Area	Estate Easement Totals	Percentage of Unfarmable Land
1	234.936	218.406	**93%**
2	653.804	596.826	**91%**
3	238.170	120.578	**51%**
4	635.462	101.316	**16%**
5	482.659	443.845	**92%**
6	319.318	119.558	**37%**
7	39.664	19.154	**48%**

Property ID	Total Parcel Area	Estate Easement Totals	Percentage of Unfarmable Land
8	297.787	288.863	**97%**
9	228.756	228.756	**100%**
10	80.542	77.747	**97%**
11	481.101	278.821	**58%**
12	576.479	25.784	**4%**
13	9.639	0.000	**0%**
14	619.528	0.045	**0%**
15	651.820	40.967	**6%**
16	651.227	52.130	**8%**
17	488.582	20.541	**4%**
18	554.139	23.132	**4%**
19	378.054	148.759	**39%**
20	368.529	224.770	**61%**
21	23.648	0.031	**0%**
Average Percent			**43%**

Based on Table 15A-3, all three counties were assigned a score of 10 points for Criterion 8.

15A.4.9 Criterion 9: Does the site have available adequate supply of farm support services and markets (i.e., farm suppliers, equipment dealers, processing and storage facilities, and farmer's markets)?

This factor is used to assess whether there are adequate support facilities, activities, and industry to support the farming business.

Points were assigned according to NRCS criteria:

- All required services are available—5 points
- Some required services are available—4 to 1 point(s)
- No required services are available—0 points

Farm suppliers, agricultural equipment dealers, and agricultural inspection stations are available in the town of Williams (Colusa County) approximately 12–13 miles southeast of the Project site. Therefore, the Project site was assigned 3 points out of 5 total points possible for Criterion 9 because some agricultural services are available, but they are more than 10 miles away.

15A.4.10 Criterion 10: Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

This factor assesses the quantity of agricultural facilities in place within the Project footprint.

Points were assigned according to NRCS criteria:

- High amount of on-farm investment—20 points
- Moderate amount of on-farm investment—19 to 1 point(s)
- No on-farm investment—0 points

On-the-ground surveys and inspections were not utilized. Instead, using Google Earth Pro, Reclamation reviewed aerial images of the area underlying the Project footprint to identify on-farm investments for a qualitative analysis. Analysts delineated the buildings in Google Earth Pro and GIS analyzed the area by county and alternative. It was assumed that irrigation existed on all parcels that were mapped with any of the irrigated crop types in the NRCS 2021 CDL data layer (Natural Resources Conservation Service 2022b).

Based on the review of both aerial imagery and GIS databases, it was conservatively estimated that Colusa County's Project footprint contained approximately 35 structures, with 10 estimated to be residences and the remaining 25 likely being ancillary agricultural structures such as barns or storage buildings. Therefore, Colusa County was determined to have a high amount of on-farm investment and was assigned the maximum 20 points.

Glenn County is estimated to include approximately 13 structures, with four appearing to be warehouse-type buildings ranging in size from ~3,000 square feet to ~9,000 square feet, along with nine smaller ancillary structures and stock tanks of varying size and type. Therefore, Glenn County was considered to have a moderate amount of on-farm investment and was assigned 13 points.

As shown in Criterion 3, approximately 91.3% of the Project footprint within Yolo County is irrigated cropland. As the irrigation infrastructure is considered to be on-farm investment, Yolo County is considered to have a high amount of on-farm investment and received the highest score of 20 points for Criterion 10.

15A.4.11 Criterion 11: Would the project at this site, by converting farmland to nonagricultural use, reduce the support for farm support services so as to jeopardize the continued existence of these support services and thus the viability of the farms remaining in the area?

This factor determines the extent to which agriculture-related activities, businesses, or jobs are dependent upon the Project site to remain in production. The more people and farming activities rely upon the land, the more protection it should receive from conversion. Scoring for this factor is based on the reduction (i.e., percentage reduction of agricultural support services) in agricultural support services that would result by converting this Project site to nonagricultural use.

Points were assigned according to NRCS criteria:

- Substantial reduction in demand for support services if the site is converted—10 points

- Some reduction in demand for support services if the site is converted—9 to 1 point(s)
- No significant reduction in demand for support services if the site is converted—0 points

Based on the discussion and analysis in Chapter 30, *Environmental Justice and Socioeconomics*, the expected decrease in agricultural production value for support services is less than 0.1% for all three counties. Because the Project would not jeopardize the continued existence of these support services in the area, 0 points were assigned for Criterion 11.

15A.4.12 Criterion 12: Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

This factor determines whether conversion of the proposed agricultural site will eventually cause the conversion of neighboring farmland as a result of incompatibility of adjacent uses. The more incompatible the proposed conversion is with agriculture, the more protection the site receives from conversion.

Points were assigned according to NRCS criteria:

- Project is incompatible to existing agricultural use of surrounding farmland—10 points
- Project is tolerable to existing agricultural use of surrounding farmland—9 to 1 point(s)
- Project is fully compatible with existing agricultural use of surrounding farmland—0 points

Reclamation reviewed each Project feature in context to determine whether the individual feature would contribute to future conversion of surrounding farmland to nonagricultural use. For the Sites Reservoir, a GIS analysis was done to determine the presence of agricultural land as identified through the NRCS 2021 CDL data layer (Natural Resources Conservation Service 2022b) located near planned recreation features on the reservoir. Any active cropland within 0.5 mile of the planned recreation features on the reservoir was considered potentially vulnerable to future conversion to nonagricultural use.

It was assumed that the Project itself, which would increase agricultural water supply reliability, is consistent with agricultural use and would not in itself induce conversion of surrounding farmland. Therefore, for Criterion 12, the Project received a score of 0 points for all three counties and for all alternatives because the Project is fully compatible with existing agricultural use of surrounding farmland.

15A.5 References

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