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BUREAU OF LAND MANAGEMENT

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MANUAL TRANSMITTAL SHEET

Subject

9103 – Facility Construction (Public)

1. Explanation of Materials Transmitted: This release revises BLM Manual Section 9103 with the latest updates and current policy on the responsibilities, policies, and procedures for Facility Construction and includes the guidelines for certification of Project Inspectors and Contracting Officer's Representatives.
2. Reports Required: None.
3. Material Superseded: Facility Construction Rel. 9-325
4. Filing Instructions: File as directed below.

REMOVE
All of Facility Construction
(Rel. 9-325)
(Total: 18 pages)

INSERT
All of 9103
(Total 30 sheets)

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NOTE: For Glossary of Terms, See Glossary of Terms; Manual Section 9100 - Facilities Planning, Design, Construction, and Maintenance.

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1. Overview**1.1. Purpose**

This manual section provides the responsibilities, policies, and procedures for the construction of the Bureau of Land Management (BLM) facilities.

1.2. Objective

The objective is to provide a systematic approach to the construction of the BLM facilities.

1.3. Authority

See Manual Section 9100.03 Facilities Planning, Design, Construction, and Maintenance - Authority, and Manual Section 9100 – Facilities Planning, Design, Construction, and Maintenance, for Statutes and Executive Orders - Appendix A.

1.4. Responsibilities

The responsibilities described below are commensurate with the responsibilities identified in Manual Section 9100.04 – Facilities Planning, Design, Construction, and Maintenance - Responsibilities.

A. The Chief, Branch of Engineering and Asset Management Policy (Washington Office), Division of Business Resources has the responsibility for:

1. Developing and maintaining the BLM policies and procedures for the construction of the BLM facilities.
2. Participating in the setting of the BLM priorities for the construction of the BLM facilities.
3. Monitoring the status, quality and acceptability of construction projects through the Engineering Advisory Team.

B. The Chief, Branch of Architecture and Engineering (A&E), Division of Business Services, National Operations Center (NOC) has the responsibility for:

1. Developing and maintaining operational standards and procedures for the construction of the BLM facilities.
2. Providing assistance to the state offices, as requested, to monitor the quality and acceptability of construction.
3. Provide technical assistance to the NOC Contracting Officer's (CO) in the technical review and administration of construction contracts.

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4. Developing training for the project inspectors (PI) and contracting officer's representatives (COR) in cooperation with the Construction, A&E Section; Branch of National Acquisitions; Division of Business Services; NOC.

C. The state engineer (state office) has the responsibility for:

1. Developing and maintaining supplemental policies and procedures for the construction of the state facilities.
2. Participating in the setting of priorities for the construction of the BLM facilities, through the use of the Engineering Five Year Plan for Deferred Maintenance, Annual Maintenance and Capital Improvements.
3. Ensuring certification of the PIs for levels and categories of construction projects.
4. Ensuring the assigned PIs are qualified.
5. Providing technical assistance to the field offices, as requested, to determine if and how contract PIs shall be used, based on the size and complexity of the project.
6. Providing technical assistance to the field offices, if requested, to determine if the PIs are performing at an adequate level determined by the acceptable industry standards for the complexity of the construction project.
7. Ensuring the assigned engineering and architectural designers, who monitor the quality and acceptability of construction within the state, are qualified.
8. Ensuring resolution of construction conflicts by qualified designers and CORs.
9. Providing technical assistance to the field offices, as requested, for the development and administration of construction contracts.

1.5. Policy

It is BLM policy that: (Also see Manual Section 9100.05 – Facilities Planning, Design, Construction, and Maintenance - Policy.)

Sufficient inspections of facilities under construction are made to assure that each facility is completed in accordance with the approved plans and specifications, including authorized changes and extra work.

Only qualified CORs and inspectors are assigned to monitor the construction of facilities.

Facilities are constructed in such a manner as to prevent and/or control pollution from construction operations.

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1.6. File and Records Maintenance

See 4.6 – Final inspection for filing of construction inspection data and chapter 5 – Records and Reports for establishing, maintaining, and disposing of files.

1.7. Relationship to the BLM Planning System

Facilities to be constructed are identified through the BLM Land Use Planning System. The construction process outlined in this manual section normally begins after the activity plan has been approved. Cooperation and coordination between Federal, state, and local agencies, is required for the construction of the BLM facilities (see Manual Section 1785 – Relationships with State and Local Governments).

1.8. Interrelationship of Manual Sections

The relationship of this manual section with other Manual Sections developed by staff specialists for activities such as range management, wildlife habitat management, forest management, recreation management, and watershed management is significant. This manual section provides general direction for constructing the BLM facilities regardless of funding. Specialized guidance for constructing the BLM facilities is provided in other appropriate manual sections.

2. Chapter 2. Methods of Accomplishing

Construction entails the procurement of materials and utilization of personnel and equipment in building a facility in accordance with the design. Facility construction is accomplished by construction contract, timber sale contract, force account, or other sources (including volunteers and permittees).

2.1. Construction by Contract.

Construction under a construction contract is the recommended method of accomplishing most appropriation financed construction because generally the BLM does not have the necessary equipment or sufficiently qualified employees to perform the construction work. Construction contracting procedures are found in Manual Sections 1510 - Acquisition and 1511 – Assistance Agreements.

2.2. Construction Under Timber Sale Contract.

In providing for construction under this procedure, the timber sale contract is the basic document. Timber sale contracting procedures are found in Handbooks H-5460-1 Sales Administration, H-5470-1 Contract Modification – Extension – Assignment, H-5480-1 Contract Violation – Suspension – Cancellation, and H-5490-1 Contract Termination.

2.3. Construction by Force Account.

Construction by force account is accomplished by personnel and equipment under the direct control of the BLM. This method of construction is normally used when contracting is impractical because of the size of the facility, its location, relative cost, or other factors. This type of construction requires specifications, construction drawing, supervision, and inspection to ensure that the facility is completed in accordance with the design.

2.4. Construction by Other Sources.

Some facilities may be constructed by other agencies, such as the Federal Highway Administration (FHWA), special employment programs, lessees, and permittees. Facilities constructed by other sources require specifications, construction drawings, and inspection to ensure that the facility is completed in accordance with the design.

3. Chapter 3. Special Construction Requirements

During construction of the BLM facilities, many special considerations or requirements must be adhered to. These are found in the special contract requirements, contract clauses, technical specifications, or contract drawings (see Manual Section 9102 – Facility Design).

3.1. Protection of Cultural Resources.

The National Historical Preservation Act of 1966, as amended, requires that the effects of facility construction upon cultural resources be considered. The Archaeological and Historic Preservation Act of 1974 provides for the recovery of cultural resources. When cultural resources are found on the site during construction, the work must be stopped at the location of discovery until the find has been evaluated and investigated by a cultural resource professional. Consultation with the Advisory Council for Historic Preservation and the State Historic Preservation Officer may be necessary. Standard stipulations should be included in the construction documents to meet this requirement (see Manual Section 8100 – Cultural Resource Management).

3.2. Protection of Threatened and Endangered Species.

The Endangered Species Act of 1973 requires that agencies take no action which jeopardizes the continued existence of threatened and endangered species or their critical habitats. When such a species is found on the site during construction, the work must be stopped at the location of discovery until the find has been evaluated by qualified personnel. Consultation with the United States (U.S.) Fish and Wildlife Service and/or the National Marine Fisheries Service may be necessary (see Manual Sections 6740 – Wetland – Riparian Area Protection and Management and 6840 – Special Status Species Management).

3.3. Preservation of Cadastral Monumentation.

Survey monuments, witness corners, reference monuments, and bearing trees must be located and marked so they may be protected against destruction, obliteration, or damage by the construction crews.

3.4. Identification Markers.

Identification markers must be placed in accordance with Manual Section 9100 – Facilities Planning, Design, Construction, and Maintenance.

3.5. Easement.

When the BLM facilities are constructed on an easement, special precautions are taken to comply with the terms of the easement and protect private property from damage by the construction activity. These requirements may be ascertained by reading the easement case file (see Handbook H-2100-1 Acquisition).

3.6. Safety and Health Requirements.

All facilities under construction, regardless of the method of accomplishment, must comply with the provisions of the Occupational Safety and Health Act of 1970, as amended, which apply to the type of work being performed. The inspector of the work must be familiar with the safety standards found in 29 CFR 1910 and 1926 which apply

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to the particular type of work being done (see Manual Sections 1112 – Safety and 1510 - Acquisition). In addition to construction personnel, inspectors and all personnel visiting a construction site must comply with all safety requirements as needed (i.e., wear hard hats, hearing protection devices, etc.).

3.7. Permits.

Applicable permits such as 404 permits from the U.S. Army Corps of Engineers, are required prior to beginning construction. Section 404 of the Clean Water Act of 1977, as amended, requires a permit from the U.S. Army Corps of Engineers for a proposed facility involving disposition of dredged or fill materials into the waters of the United States (see 33 CFR 323 and Handbook H-9188-1 - Nonpoint Source Pollution Control Recommended Management Procedures).

3.8. Value Engineering Change Proposals (VECP).

The VECPs are post-award value engineering proposals made by construction contractors during the course of construction under a value engineering clause in the contract. The result of an implemented VCEP is intended to reduce the contract price or improve value or service at no increase or minor increase in cost.

4. Chapter 4 Construction Inspection

Facilities being constructed, regardless of the method of accomplishment, require inspection to assure safety, coordination, and compliance with construction drawings and specifications. Inspect the work while it is in progress and before it is concealed by further work. The term "project inspector" applies equally to persons assigned as inspectors to projects regardless of funding.

4.1. PI Qualifications.

Both BLM and contract personnel nominated to be PIs must be qualified (certified) before they can be appointed as a PI. Certifications are valid for a three-year period; will be by level and category of construction projects, and; is based on the ability to perform, past performance, and completion of necessary training (see Appendix 1). When qualified inspectors are not located at the office responsible for the inspection of the facility, a qualified inspector may be requested through the appropriate official to another office having a qualified inspector (e.g., another district or field office in the same state or another district or field office in an adjoining state) or the NOC. Certification requirements are included in Appendix 1 - Guidelines for Certification of Construction Project Inspectors and Contracting Officer's Representatives.

4.2. PI Duties.

Responsibility for the quality of the completed work rests directly with the PI. The inspector, by improper or unwarranted action or by failure to act when required, can seriously harm the government. The inspector's duties vary, depending on the method of construction being used.

A. Specific duties:

1. Inspect the work for compliance with the specifications and construction drawings.
2. Ensure field tests are conducted for quality control.
3. Maintain the PI's log or Form 1510-57 - Contract Diary.
4. Recommend changes to the COR in the design to meet on-the-ground situations.
5. Check the construction-related plant and equipment to be sure that they comply with applicable safety standards.
6. Check camp areas for sanitation and compliance with applicable safety requirements.
7. Check construction operations for compliance with applicable safety requirements.

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8. Report problems anticipated or encountered and remedies taken or recommended.
9. Make on-site interpretations of specifications and drawings.
10. Inspect material delivered to the project for compliance with design requirements and reject in writing defective material.
11. Review invoices.
12. Conduct labor interviews.
13. Review submittals.
14. Collect certificates of compliance for material delivered to the facility as required.
15. Schedule survey assistance, when needed, to layout work to be done, if required by the contract, or make measurements for payment. (Usually layout work is the responsibility of the contractor).
16. Prepare progress reports as required and review contractor requests for progress payments and initial approval.
17. Schedule final inspection and lead the inspection team.
18. Assure completion of as-built drawings.

B. Construction by Contract. PI duties for facilities completed by construction contract are found in Manual Section 1510 – Acquisition and Handbook H-1510-3 – Contracting for Construction.

C. Construction Under Timber Sale Contract. Contract sale administrative duties are found in Handbook H-5460-1 – Sales Administration. The PI has certain oversight responsibilities for work completed by a timber sale purchaser.

D. Construction by Force Account. Even though force account construction is accomplished by BLM employees, it must be inspected to ensure compliance with design. The inspector's specific duties are outlined in 4.2.

E. Construction by Other Sources. Normally, the BLM does not participate in the direct inspection of construction work accomplished by a retained agency, such as the FHWA. The BLM does, however, reserve the right to participate in the final inspection and acceptance of the work. Facilities completed under the terms of the Taylor Grazing Act, Sections 4 and 15, Range Improvement Permits and Cooperative Agreements, for

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range improvement projects are inspected as though they were being constructed under a construction contract. Work performed by special employment program personnel is inspected as though it were being performed by the force account.

4.3.Frequency of Inspection.

The frequency of inspection depends upon the amount and type of activity occurring and the type of contract. Inspection is conducted in a timely manner, especially when approval of an action is required prior to continued activity. Inspection should not cause delay in the construction schedule. Continuous inspection may be required on facilities if the specifications require certain procedures to be used (e.g., inspection of concrete placement which cannot be adequately inspected after completion).

4.4.Construction Follow-up.

In the construction process, the design intent must be carried out. Construction must be in accordance with the drawings and specifications. The construction process should be flexible to allow changes and modifications resulting from differences in design assumptions and actual field conditions. Proposed changes should be coordinated with the program staff specialists involved in the facility development. A specific schedule of inspection by the designers should be identified in the action plan developed in accordance with Manual Section 9101 – Facility Planning.

4.5.Shop Drawings.

Shop drawings, when required, are forwarded to the designer of the facility for review and approval. The designer indicates approval or disapproval of the shop drawings to the CO and, if disapproving, indicates the reasons. The shop drawings are then transmitted to the contracting office. Approval or disapproval may be made by facsimile transmission, telephone, or other rapid communication, when necessary.

4.6. Final Inspection.

When the construction has been deemed completed by the PI, the PI will schedule a final inspection for constructed facilities regardless of whether accomplished by construction contract, timber sale contract, force account, or by any other means. The final inspection determines whether or not the facility has been completed in accordance with the design, including approved modifications.

A. Inspection Team. The inspection team, which personally visits the facility, should include, the designers, the PI, the contracting officer's representative (COR) and the individual responsible for maintenance of the facility, as determined by the size and complexity of the project. If constructed by a contractor or timber sale purchaser, a representative of either party should be a member of the inspection team. When work has been done by force account or by special employment program personnel, the superintendent or foreman should be a member of the inspection team. For work completed under Taylor Grazing Act Sections 4 and 15 permits, the permittee or cooperator should be represented on the final inspection team.

B. Project Non-Acceptance. If the inspection team determines the work is not constructed

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in accordance with the plans and specifications, they must prepare a written list of the specific deficiencies evident in the work and submit this list to the CO (for non-contract work, submit to the foreman, superintendent, cooperator, or permittee) by the most expeditious manner available. A letter outlining the deficiencies should be provided to the contractor by the CO. Re-inspection must be by the same inspection team or team representative originally identifying the deficiency

C. Comments regarding deficient work should be specified as to exact location, nature, scope, extent, and specification or contract document section not in compliance. A copy of the comments should be placed in the project file.

D. Project Acceptance. The inspection team should make a plan-in-hand inspection of the facility conducted by the PI. Final acceptance for construction contract work is made by the CO. Final acceptance for work completed by timber sale contract is accepted by the authorized officer. Force account work or work accomplished by other sources is accepted by the district office manager, field office manager, or a designated representative. When the facility is found to be completed, a formal acceptance containing the following information is prepared and placed in the project file.

1. Date of Acceptance. Record the date of the acceptance inspection and identification of the facility by name, system number, section, and contract number.
2. Inspection Personnel. Note the names and titles of personnel on the inspection team.
3. Remarks. Include pertinent remarks appropriate for the permanent record.

4.7. Construction Inspection Training.

The BLM's construction inspectors training program may be used to help qualify BLM employees as construction inspectors and CORs. Training requirements are attached in Appendix 1 – Guidelines for Certification of Construction Project Inspectors and Contracting Officer's Representatives.

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5. Chapter 5. Records and Reports

One of the important functions of construction management is compiling a complete, accurate, and current record of each facility constructed.

5.1. Construction File.

Construction work must be fully documented regardless of method of completion (contract or force account). This documentation includes materials, processes, field exploration tests, material testing results, inspection reports, contract diary (inspector's log), as-built drawings, shop drawings, equipment brochures, and records of decisions to adapt the design to actual field conditions. Additional requirements and procedures for contract work are found in Manual Section 1510 - Acquisition. Upon completion of the facility, the construction file is made a part of the project file described in Manual Section 9100 – Facilities Planning, Design, Construction, and Maintenance.

5.2. As-Built Drawings.

A. Preparation. A set of as-built drawings is prepared by the PI or the Contractor on a daily basis upon completion of each day's work. Each set of marks or notations made on a drawing are initialed and dated.

1. Recording Design Modifications. Design modifications are recorded by the designer on the original drawings at the time the design modification is prepared. A revised block is added to the original drawing at this time in accordance with Manual Section 9102 - Facility Design.
2. Recording As-Built Conditions. Field changes and corrections or deviations made during construction are recorded on a full-size set of the drawings by the PI. As equipment and materials are incorporated into the facility, the appropriate schedules should be marked to reflect the items completed.

Dimensions of panel boxes or similar installed equipment are placed on the drawings. Supplemental dimensions, in addition to those shown on the construction drawings, may be added for clarity. Underground utilities are correlated with permanent surface features for ease of location. Valves, junctions, and termination points are related to distances from at least two permanent surface features. Final lengths of culvert, fences, limits of special work, changes in alignment and grade, corrected right-of-way width, location of reference monuments, and any other information pertinent to the completed facility are shown. As-built data should reflect as-built conditions in the same detail and manner as the construction drawing. However, if the drawing indicates an underground utility without dimensions, if directed by the COR, the as-built drawing routing should be shown with dimensions.

Disposition. After recording of the as-built information has been completed by the PI, the as-built drawings are forwarded to the design office. The contractor is required to

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keep the “red line” as-built drawings and provide a copy to the design office. The design office staff uses these drawings to update the original construction drawings and make copies of the final as-built drawings. At least one set of the final as-built copies should be sent to the field office having administrative responsibility over the completed facility for placement in the project file. A set of the final as-built copies may be required to be forwarded to the appropriate state office for record purposes. The location of the project marker should be indicated on the as-built drawings.

5.3. Final Construction Report.

A final construction report should be prepared by the COR for major building facilities, major recreation facilities, major earthwork facilities, and major transportation facilities. It should be a narrative with pertinent information only, avoiding information already in the project file.

A. Format. A suggested format is described below.

1. Title Sheet. Use this to indicate the agency, office, project name, project number, contract number, county, and state.
2. Approval Sheet. Include the agency, office, project name, project number, contract number, county, state, and signature blocks for the preparer and approving officials.
3. Description. Include a brief narrative of the location of the facility, description of work performed, historical background of the project, survey, design, construction staking, and construction engineering cost.
4. Government Contract Administration. Discuss how the work was administered, including problems and recommendations for improving contract administration on future facility work.
5. Advertising and Award of Contract. Provide a brief summary of state advertising problems, number of amendments issued, and any extensions of bid opening. Give a comparison of high bid, low bid, government cost estimate, and final contract construction cost. Identify the contractor, contractor's bid and the date the contract was awarded.
6. Contractor's Operation. Discuss briefly when construction was started, when it was completed, contract time allowed, and contract time used. Also, a brief discussion of the contractor's operation may be added.
7. Construction Features. Provide a brief discussion of the contractor's activities as they relate to each contract bid item.
8. Explanation of overruns and under-runs. Provide a brief narrative of contract overruns and under-runs.

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9. Specification Changes Made in contract. Provide a brief narrative explaining the need for each contract modification made to the contract.
10. Recommend Specification Changes. Discuss any recommended changes to the specifications. This is to assist the designer in future work.
11. Warranty Inspection. Provide a brief discussion of the warranty information.
12. Appendix. Include photographs, modifications, and any other pertinent information about the contract.

B. Disposition. A copy of the complete final construction report is forwarded to the design office and the original is placed in the project file. The design office staff should use the report as feedback from the constructing office.

5.4. Job Documentation Report.

For renewable resource projects, separate Rangeland Improvement Project System forms, should be submitted for every job completed on public lands. If applicable, a copy of the completed form should also be placed in the project file.

5.5. Construction Project Completion Report.

A Construction Project Completion Report (Form 1310-11) must be completed for building facilities, recreation facilities, and transportation facilities immediately after the facilities are placed in use. This report is made by the COR and a copy must be forwarded to the NOC. The original should be placed in the project file.

5.6. Real Property Record.

Complete a Real Property Record with the necessary 1530 forms for all BLM Real Property as defined in Handbook H-1530-1 – Real Property General Operating Procedures Handbook (Internal). Place a copy of this report in the project file.

5.7. Inventory Record.

The appropriate inventory record forms for the completed facility must be completed and placed in the project file upon completion of the work. If applicable, the inventory should also be entered into BLM's Facility Asset Management System. The inventory summary must also be revised to reflect the completed work. The inventory record is completed by the PI. (See Manual Section 9100.45 – Facilities Planning Design, Construction, and Maintenance - Inventory.)

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Appendix 1

**Guidelines for Certification
of Construction
Project Inspectors
and
Contracting Officer's Representatives**

I. Purpose

This appendix sets forth the guidelines to certify Contracting Officer's Representatives and Project Inspectors (COR/PI) for construction contracts and establishes a uniform BLM-wide level of education, training, and work experience required to perform inspection and contract administration.

II. Implementation

All COR/PI shall comply with the direction set forth in this document.

These guidelines supplement and comply with the COR certification requirements contained in the Department of Interior Acquisition Regulations (DIAR) and BLM Acquisition Manual. To be certified as eligible to serve as a COR, the DIAR 1401.670 requires the candidate to complete:

- a. 40 hours training in general contract administration, and
- b. 40 hours additional training every 2 years in order to keep current with changes in procurement regulations and best practices or to develop additional expertise in relevant contracting topics. 24 of the 40 hours must be in contract administration, with the remaining 16 hours in the technical field supporting technical and professional development as a PI or PM

III. Certification Process

COR certification is valid for two years from the date of approval.

STEP 1 - Each COR/PI candidate documents relevant education, training, and work experience on the Education, Training, and Work Experience Summary (ETWES) Form and submits the form through their supervisor, to the Field Office Engineering Program Lead, (State Office staff submit to the State Engineer). The candidate is responsible for updating the ETWES Form to show current experience and training accomplishments.

STEP 2 - The Field Office Engineering Program Lead reviews the ETWES Form and past COR/PI performance, recommends by signature that the employee be certified at the appropriate COR/PI level, and submits the ETWES Form to the State Engineer.

STEP 3 - The State Engineer reviews the ETWES Form and past COR/PI performance, either approves the certification by signature or documents specific reasons for disapproval, and then notifies the Field Office Engineering Program Lead, who notifies the employee's supervisor. For COR certifications, the State Engineer notifies the State Procurement Analyst to ensure that individual's COR certification information is entered into the BLM Web-based COR certification monitoring system as required by BLM Manual 1510-1.670.2.

PI certification is valid for three years from the date of approval.

STEP 1 - Each COR/PI candidate documents relevant education, training, and work experience

on the Education, Training, and Work Experience Summary (ETWES) Form and submits the form through their supervisor, to the Field Office Engineering Program Lead, (State Office staff submit to the State Engineer). The candidate is responsible for updating the ETWES Form to show current experience and training accomplishments.

STEP 2 - The Field Office Engineering Program Lead reviews the ETWES Form and past COR/PI performance, recommends by signature that the employee be certified at the appropriate COR/PI level, and submits the ETWES Form to the State Engineer.

STEP 3 - The State Engineer reviews the ETWES Form and past COR/PI performance, either approves the certification by signature or documents specific reasons for disapproval, and then notifies the Field Office Engineering Program Lead, who notifies the employee's supervisor. For COR certifications, the State Engineer notifies the State Procurement Analyst to ensure that individual's COR certification information is entered into the BLM Web-based COR certification monitoring system as required by BLM Manual 1510-1.670.2.

COR/PI must update their training on ACMIS. This will assure that the State Engineer, CO, or Procurement Analyst in the State Office of their continued certification.

Designation of COR/PI

COR/PI certification does not constitute automatic suitability for assignment to specific projects.

The State Engineer or Procurement Analyst is responsible for determining project classification and for recommending a COR/PI in writing to the Contracting Officer on every construction project. The recommendation must be based on a thorough assessment of each candidate's ability to successfully perform in the capacity of COR/PI on the project. The individual's education, training, and work experience shall be relevant to the type of project work to be performed.

If the Contracting Officer (CO) concurs with the recommendation, the CO issues a letter designating the individual as a COR/ PI on the project and listing the principle responsibilities and limitations of authority. If the CO does not concur with the recommendation, written documentation will be issued to the State Engineer detailing the specific reasons for rejection and requesting another individual be recommended.

IV. COR/PI Certification Levels

COR/PI CERTIFICATION LEVELS	
PROJECT CLASSIFICATION	TYPICAL PROJECTS
Level I - Projects that are not complex and have minimal effect on public health or safety.	Fences, landscaping, irrigation systems, culverts 36 inches in diameter or less, catchments, signs.
Level II - Projects that are not complex and moderately affect public health or safety.	Cattle guards, well drilling & equipping, local functional class roads, vault toilets, guardrails, parking lots, boat ramps/docks, livestock/wildlife water systems, trails, utility lines (other than potable water & sanitary sewers), storm water systems, drainage structures with an open area that totals less than 35 square feet, kiosks, retaining walls 10 feet high or less, minor and low hazard dams (See BLM Manual 9177.21), levees/berms.
Level III - Projects that are complex and have a major impact on public health or safety.	Arterial and Collector functional class roads, potable water systems, well plugging, septic/sanitary sewer systems, HVAC systems, major culverts (drainage structures with an open area that totals 35 square feet or greater), restrooms w/flush toilets or showers, pre-engineered/modular buildings, electric systems, small/intermediate, and low hazard dams (See BLM Manual 9177.21), retaining walls up to 25 feet high, portable bridges (not a permanent installation), pedestrian bridges 30 feet & less in length, fish ladders, blasting, fire protection systems.
Level IV - Projects that are highly complex and have substantial impact on public health or safety.	Large and low/significant/high hazard dams (See BLM Manual 9177.21), visitor contact stations and interpretive centers over 1,000 square feet, fire guard stations with or without barracks, office complexes, retaining walls higher than 25 feet, vehicular bridges, pedestrian bridges greater than 30 feet in length.

V. Project Inspector Certification Guidelines

PROJECT INSPECTOR CERTIFICATION GUIDELINES			
LEVEL	EDUCATION	TRAINING	WORK EXPERIENCE
PI - I	High school diploma or equivalent.	Basic Construction Inspection Course – 9100-01 Contract Administration for PI - 24 hour initial class and 8 hour PI Refresher class every 3 years. 24 hours OSHA construction training. 8 hours safety refresher class every 3 years. Successful completion of the following engineering training or comparable experience. - Surveying Fundamentals 40 hrs - Interpreting Construction Specifications & Drawings 24 hrs	Assist a PI for the duration of one construction contract.
PI - II	A two year Associates of Applied Sciences degree in civil engineering technology (or other architectural - engineering discipline directly applicable to the type of work) or course work equivalent, or completed the first two years of civil engineering studies at an accredited four year university.	Same as PI Level I. Technical training commensurate with the type of project work to be performed.	Assist a PI for the duration of two Level II, III, or IV construction contracts.
PI - III	Same as PI Level II.	Same as PI Level II.	Assist a PI for the duration of one Level III or IV construction contract and perform successfully as a Level II PI on three construction contracts.
PI - IV	Same as PI Level II.	Same as PI Level II.	Perform successfully as a Level III PI on three construction contracts.

VI. Contracting Officer's Representative Certification Guidelines

CONTRACTING OFFICER'S REPRESENTATIVE CERTIFICATION GUIDELINES¹			
LEVEL	EDUCATION	TRAINING	WORK EXPERIENCE
COR - I	High school diploma or equivalent.	Construction Contract Administration for COR - 40 hour initial class and 40 hour COR Refresher class every 2 years. 24 hours OSHA Construction Safety training and 8 hours Safety Refresher class every 3 years. Technical training commensurate with the type of project work to be performed.	Perform successfully as a PI on three construction contracts.
COR - II	A two year Associates of Applied Sciences degree in civil engineering technology (or other architectural-engineering discipline directly applicable to the type of work), or course work equivalent, or completed the first two years of civil engineering studies at an accredited four year university.	Same as COR Level I.	Perform successfully on three construction contracts as a Level II, III, or IV PI.
COR - III	Same as COR Level II.	Same as COR Level I.	Perform successfully on three construction contracts as a Level III or IV PI and on three construction contracts as a Level II COR.
COR - IV	Professional registered ² Architect or Engineer, with a four year degree (bachelors or higher) in architectural or engineering discipline directly applicable to the type of work from an accredited university.	Same as COR Level I.	Perform successfully on three construction contracts as a Level III COR.

¹The COR shall involve the appropriate professional architect - engineering disciplines (typically the project designers) in site condition verifications, submittal reviews, and quality assurance inspections including near-final and final inspections.

² Professional [State] registration only required in OR/WA, however the four year degree requirement applies to all states.

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Construction COR and PI Education, Training, and Work Experience Summary Form				
Revision 3-28-00				
Part 1 _____ Employee Name	_____ Office	_____ State	Was the employee certified as PI or COR prior to March 3, 2000? _____ Yes _____ No	
Recommended for Category: Enter an X in the appropriate boxes.	Level I	Level II	Level III	Level IV
Project Inspector				
Contracting Officer's Representative				
Notes: State Office Use Only.				

Part 2	Print Name and Title	Signature	Date
Reviewed by Field Office Engineering Program Lead			
Approved by State Engineer			

Category	Requirement	EDUCATION - Part 3		
PI - I and COR - I	High School Diploma or Equivalent - Enter Year in the box at right.			
PI - II, III, IV and COR - II, III	Two Year A-E or Civil Technology Degree.	Type of Degree and Field of Study	School Name	Year
	If course work equivalent, so indicate and fill out Part 7 of this Form.			
COR - IV	Architect or Engineering Degree; Bachelors or higher from an accredited university.			
	Professional Registration - Required only in OR/WA for consistency with engineering delegation of authority.	Type	State	Year

Category	Requirement	TRAINING - Part 4		
PI - I, II, III, IV	24 Hours PI Contract Administration with 8 Hour PI Refresher Every 3 Years.	Vendor	Course Name and Hours	Date
COR - I, II, III, IV	40 Hours COR Contract Administration with 40 Hour COR Refresher Every 2 Years.			
PI - I, II, III, IV and COR - I, II, III, IV	24 Hours OSHA Construction with 8 Hour Safety Refresher Every 3 Years.			
	40 Hours Surveying Fundamentals or comparable experience.			
	24 Hours Interpreting Construction Specifications and Drawings or comparable experience.			
PI - II, III, IV and COR - I, II, III, IV	Technical training commensurate with the type of project work to be performed. The training categories listed below are not an exhaustive list. Completion of training in these categories may be required prior to being assigned as a PI or COR on a project, but are not required for certification .			
	Training Category	Vendor	Course Name and Hours	Date
	NEPA Process and Compliance			
	Traffic Control Plans and Methods			
	Quality Control/ Quality Assurance Processes: Sampling, Testing, Inspections, Specialist Consultation.			
	Contract Documentation: Time/Equipment, Shop Drawing Review, Submittal Review, Correspondence.			
	Cost Estimating			
	Landscape Architecture Fundamentals			
	Technical training commensurate with the type of project work to be performed. (Part 4 Continued)			
	Training Category	Vendor	Course Name and Hours	Date

Universal Accessibility (ADA)			
Fences			
Land Treatments (Spray, Seed, Etc.)			
Erosion Control Mats, Hydro Seeding, Mulch, Tackifiers			
Road Maintenance (Blade Surface, Pull Ditch, Brushing)			
In-Stream Culverts			
Water Well Drilling			
Well Plugging			
Livestock Water Systems			
Potable Water Systems			
Sanitary Disposal Systems			
Underground Utilities			
Earthwork: Excavation/ Embankment Methods, Soil Classification, Compaction, Sampling and Testing			
Asphalt and Seal Coat Inspection			
Geotextiles and Fabrics			
Retaining Walls			
Rock Anchors			
Blasting / Hydro Hammers, High Pressure Water Demolition			
Horizontal Drilling/ Jacking Sleeves/ Tunneling.			
Dam Construction			
Reinforced Concrete Inspection (Precast and Cast in Place)			
Driven Piles and Other Deep Foundation Systems			
Masonry - Stone, Block, Brick			
Concrete/ Masonry - Sand Blasting, Water Repellants, Water Proofing, Joint Fillers, Other Surface Treatments			
Wood: Light and Heavy Timber Framing, Grading Standards,			
Technical training commensurate with the type of project work to be performed. (Part 4 Continued)			
Training Category	Vendor	Course Name and Hours	Date
Pressure Treatment, Connections, Trusses, Glue Laminated Beams,			

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Sheet Products			
Wood Finishes - Painting Staining			
Metals: Welding, Bolting, Galvanizing, Preparation and Painting			
Insulation, Vapor Barriers, Roofing, Caulking and Sealants			
Interior Treatments and Finishes.			
Door Hardware			
Piping Systems Uniform Plumbing Code and Uniform Mechanical Code.			
Fire Sprinklers, Uniform Fire Code.			
Uniform Building Code and Life Safety Code			
HVAC Systems			
Electrical Systems - Power, Lights, Signal, Data systems.			
National Electrical Code			
Photo Voltaic Systems			
Bridges			
Other:			

Category	Requirement	WORK EXPERIENCE - Part 5 Classify Projects According to the Table for COR/PI Certification Levels			
PI - I	Assist a PI for the duration of one construction contract.	Contract Name	Type of Work (e.g., Fence, 60" Culvert, Replace Roof)	Level (I, II, III, or IV)	Year
PI - II	Assist a PI for the duration of two Level II, III, or IV construction contracts. Prior experience as a Level I PI is not required.				
PI - III	Assist a PI for the duration of one Level III, or IV construction contract.				
	Perform successfully as a Level II PI on three construction contracts.				
PI - IV	Perform successfully as a Level III PI on three construction contracts.				

Category	Requirement	WORK EXPERIENCE - Part 6 Classify Projects According to the Table for COR/PI Certification Levels			
		Contract Name	Type of Work (e.g., Fence, 60" Culvert, Replace Roof)	Level (I, II, III, or IV)	Year
COR - I	Perform successfully as a PI on three construction contracts. See Note 1.				
COR - II	Perform successfully on three construction contracts as a Level II, III, or IV PI. Prior experience as a Level I COR is not required. See Note 1.				
COR - III	Perform successfully on three construction contracts as a Level III, or IV PI. See Note 1.				
	Perform successfully on three construction contracts as a Level II COR.				
COR - IV	Perform successfully on three construction contracts as a Level III COR.				
Note 1. Applicable PI experience from prior PI certification may be used to fulfill this requirement.					

COURSE WORK EQUIVALENT WORK SHEET - Part 7

Only fill out Part 7 if substituting course work equivalent for a formal two year post high school civil engineering degree (referenced in Part 3). The following 25 subjects are typical of those required by two-year post high school civil engineering technician schools. The curriculum of a specific school would not necessary match the following subjects exactly.

Number	Subject	Description and Duration of Course Work Equivalent	Dates	Reviewer	
				Accept	Reject
1.	Computer Fundamentals - Skills needed to become computer literate.				
2.	Introduction to Civil Computer Aided Design - Their application with emphasis on the application of CAD commands to generate drawings and text.				
3.	Advanced Civil Computer Aided Design - Extensive and practical application of engineering software packages designed for engineers and surveyors.				
4.	Technical Math - Review of basic math concepts followed by extensive of algebra.				
5.	Applied Technical Math - Intensive study of geometry and trigonometry and their applications to surveying and civil engineering problems.				
6.	Plan Reading - Introduction to reading of architectural and engineering plans.				
7.	Drafting - Practical experience in the use of drafting instruments to develop orthographic projections and sectional views.				
8.	Surveying Theory - Introduction to the practices, methods, and surveying instruments common to the civil engineering field and application of math skills to surveying practices.				
9.	Field Surveying - Practical application in surveying methods and practices. Use of surveying instruments and tools to complete level and transverse closures, circular curve layouts and topographic surveying.				
10.	Advanced Surveying - Application of field and office practices required for roadway and road-type surveying. Emphasis will be on horizontal and vertical curves, slope staking, cross sectioning, construction staking, and road design.				
COURSE WORK EQUIVALENT WORK SHEET - Part 7 Continued					

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Number	Subject	Description and Duration of Course Work Equivalent.	Dates	Reviewer	
				Accept	Reject
11.	Physical Geology - An introduction to physical geology, including geologic processes and land forms. There is an emphasis on practical application using case history studies involving engineering and environmental problems as they relate to geologic settings.				
12.	Statics - Introduction to the effect of forces acting on rigid objects at rest, including the study of vectors, reacting forces, disturbed forces and forces in truss members.				
13.	Strength of Materials - Stresses in structural materials caused by forces. To include normal, shear, bearing and bending stresses, design and analysis or connections and shear moment diagrams.				
14.	Applied Technical Writing - Advanced technical writing forms with written assignments selected by faculty from a menu, including such topics as short forms (catalog searches, requisitions memorandums, etc.), technical reports, job search exercises, the proper use of graphics, research skills, and revision skills.				
15.	Advanced Applied Communications - Concepts that focus on resume writing, job interviewing, team building, problem solving and presentation skills.				
16.	Hydraulics 1 - Introduction to hydraulics and its relationship to the engineering field. Static water, flow in pressure pipes, open channels, pumps and storm water.				
17.	Structures - The study of structural design of beams and columns in wood and steel with a review of building types.				
18.	Construction Materials I - Theory and practical application in the testing and use of construction materials including aggregate and soils.				
19.	Construction Process I - Introduction to the construction industry with discussion of the relationships between owner, contractor, and design team.				
COURSE WORK EQUIVALENT WORK SHEET - Part 7 Continued					

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Number	Subject	Description and Duration of Course Work Equivalent.	Dates	Reviewer	
				Accept	Reject
20.	Construction Process II - Continuation of Process I with emphasis project scheduling using the critical path method. Practical applications will include the use of computer software to develop construction project schedules.				
21.	Hydraulics II - A continuation of the concepts introduced in Hydraulics I with emphasis on the hydraulics of open channel flow and Manning's equation, hydrology and storm water management topics.				
22.	Construction Materials II - A continuation of the theory and application presented in Materials I with emphasis on the use and testing of asphalt and masonry.				
23.	Concrete - An introduction to concrete as a construction material. Construction specifications and plan reading pertinent to the International Council of Building Code Officials (ICBO) Special Inspector Exam.				
24.	Design Project- Team design project including all designs and drawings necessary for a specified engineering or surveying project.				
25.	Special Problems - Faculty supervised independent study by a student on a subject agreed to by the instructor and student. The student could write a technical paper, work advanced engineering problems, or design and draft a survey or structural project.				