6. Photographs. Photographs are helpful and often necessary to determine suitable designs cost estimates, and monitoring for many types of facilities for both a feasibility design and a specifications design. Photographs should be submitted in the format agreed upon: prints, digital files, negatives, etc. If possible, prints should be 8 inches by 10 inches.

A. **Ground Level and/or Aerial Photographs:**

(1) **Feasibility and Specifications Design.** Ground level photographs are helpful for all facilities to be constructed. The photographs should show:

(a) Existing facilities or structures in the vicinity of the proposed facilities and closeup views of any features that may affect designs.

(b) Proposed structure/facility locations marked in ink.

(c) Areas that present any form of hazard or that may have restricted access before, during, or after construction.

(d) Location of possible access points to the site from existing routes.

(e) For buildings and other features where aesthetics are important:

- Favorable offsite views, which should be preserved and considered when locating and arranging buildings
- Unfavorable onsite features, which should be screened from view or otherwise considered when locating and arranging facilities

(f) Geology

- Representative or particular geologic conditions
- Photographs of sources for locally obtained construction materials

(g) Wetlands

- Historic photographs
- Existing wetlands within the general vicinity or reference wetlands

(h) Monitoring

- Photographs may be required for comparing how conditions change or do not change from the feasibility design (or earlier)

through post construction conditions for monitoring and evaluation programs.

B. **Aerial Photographs**

(1) **Feasibility Design.** Aerial photographs, if available, should be provided for design of large or special features.

(a) Dams - Aerial photographs or mosaics of the dam site and reservoir area. Aerial coverage should extend beyond the reservoir area to include geologic and terrain features that would influence water-holding capability of reservoir.

(b) Transmission lines - Aerial photographs are desirable of major river and highway crossings.

(c) Recreational facilities - At a scale which allows discerning the nature of the vegetation.

(2) **Specifications Design.** Aerial photographs and orthophotos are normally required for the following features: large dams, significant bridge sites, powerplants and pumping plants, canals, pipelines, and roadway alignments. Oblique imagery as required for facilities requiring any type of architectural consideration or treatment (buildings, some dams, some bridges). The purpose of the oblique views is to permit early preparation of an artist's rendering and to permit a study of the aesthetical and environmental impact of the facilities. Later, such renderings or drawings may be included in specifications or for other purposes.

Where possible, indicate known tie points to the topographic maps.

These oblique imagery photographs should be taken from locations that would best show the proposed structure and from a vertical angle of approximately 20 to 30 degrees above the horizon. These photographs should be taken between 11 a.m. and 2 p.m., to avoid showing the principal area of the proposed structure in shadow.

In addition to items listed under feasibility design, aerial photographs should include:

(a) Mosaics of the proposed alignment of canals, pipelines and roads; and of major structure sites.

(b) Show river, highway, railroad and canal crossings.

(c) Unusual or problem topographic features.

C. **Satellite Photographs.** Commercially available material on the Internet and may be most useful for use on appraisal studies.

D. **Orthorectified Imagery.** Desired for contour overlay mapping, as it is distortion free.