ENGINEER II

NATURE OF WORK IN THIS CLASS:

This is moderately complex professional civil, mechanical, electrical, telephone, traffic, environmental or architectural engineering work.

Employees in this class perform moderately complex professional engineering work independently on an ongoing basis and participate in the field on more complex professional duties under closer supervision. Employees often serve as team or group leaders over less experienced professional and technical staff.

ILLUSTRATIVE EXAMPLES OF WORK:

(These examples do not list all the duties which may be assigned; any one position may not include all the duties listed.)

(CIVIL)

Prepares roadway designs involving a variety of conflicting and moderately complex design features; resolves moderately complex problems and writes special specification and provisions; reviews design plans for technical, accuracy and completion.

Coordinates and participates in the preparation of construction cost estimates.

Formulates highway policies and procedures for administration of utility contracts; leads and participates in the review and approval of construction contract documentation; reviews and analyzes contract claims.

Supervises and reviews construction projects and inspection work resolving moderately complex problems; confers with contractors on moderately complex problems; interprets, plans and specifications and develops and recommends change orders.

Prepares designs, plans, estimates and specification for moderately complex projects concerned with construction or maintenance of structures such as buildings, roads, airports, bridges, harbors, channels, irrigation projects, pipelines, water and sewage system and disposal units.

Prepares plans, estimates and specification describing location, character and cost of roads including necessary cuts, fill-ins, culverts and bridges.

Performs materials research and complex, non-routine testing of soils, cements, aggregates, highway chemical, paints and butuminous materials.

Analyzes and reviews technical material reports and reviews field material test reports.

Performs complex structural steel inspection, conducts ultrasonic penetrant dye and other complex inspection work.

Writes and reviews technical reports outlining research methodology, results conclusion and recommendation.

Designs, builds and modifies specialized research equipment for use in field and laboratory studies.

Reviews plans and specifications for conformance to established standards and the inspection of structures under construction or repairs.

Reviews, analyzes and computes field data for construction crews; consults with public and private engineers, contractors and owners relative to construction and maintenance of sewers, streets and structures.

Maintains records and reports.

Performs related duties as required.

(MECHANICAL)

Prepares designs, plans, estimates, specifications and oversees construction plans of irrigation, channels, conducts and mains to transport and distribute water, reserviors, pressure valves, and booster stations to obtain water pressure at all levels.

Checks field recommendation and final design for engineering structures and bridges; cooperates with other officials for problems relating to adequacy, economy and design of hydraulic structures; checks and advises subordinates as to methods and performance field studies; advices on and analyzes hydraulic problems pertaining to highway, and structures that arise and are referred to the section for review; meets contractor on other agencies to discuss hydraulic problems and solutions concerning design and structures; handles owner agreements for canal modifications.

Acts as a project engineer in solving problems encountered with aspects to controlled maintenance program.

Designs mechanical engineering systems for small or large construction and modeling projects.

Reviews moderately complex mechanical engineering plans and specifications submitted by contractors to verify adequate design and insure compliance with requirements of all regulatory codes; prepares written critiques of all plans and specifications reviews.

Develops preliminary plans and studies; develops engineering plans and specification.

Performs related duties as required.

(ELECTRICAL)

Prepares designs involving a variety of conflicting and moderately complex design features; resolves moderately complex problems and writes special specifications and provisions.

Evaluates and reviews design projects and resolves moderately complex design problems; coordinates activities of records and inspection unit and a computer applications unit; researches, writes and reviews new plans, designs and specifications not covered by standards specifications with other structural engineers.

Supervises and reviews construction projects and inspection work; confers with contractor on moderately complex and unusual problems; interprets plans and specifications and develops and recommends change order.

Reviews complex electrical engineering plans and specifications submitted by contractor to verify adequate design and to insure compliance with the requirements of all regulatory codes; prepares written critiques of all plans and specifications.

Conducts investigations, evaluations and surveys and prepares feasibility reports and construction cost estimates on special studies of complex design problems.

Designs electrical engineering systems for construction and remodeling projects.

Advises and consults architects and contract engineer on local or departmental policies, standard and technical data related to building programs.

Prepares designs, plans and specifications for the construction and maintenance of Island wide power system transmission, distribution lines and control systems.

Plans construction and coordinates operations of power stations, transmission lines, distribution systems; plans layout of generating plants and distribution lines; plans equipment installation and inspects completed work for efficient operations and compliance with specifications and safety standards.

Prepares cost estimates for materials to be used in the installation, maintenance, repairs and alteration of electrical systems, facilities and associated components; power and lights distribution systems; cathodic protection systems; generators; meters; transformers, electrical control devices and instruments; antennas; wiring and supporting structures and similar equipment.

Maintain records and prepares reports.

Performs related duties as required.

(TELEPHONE)

Prepares designs involving a variety of conflicting and moderately complex design features; resolves moderately complex problems and writes special specifications and provisions.

Evaluates and reviews design projects and resolves moderately complex design problems; coordinates activities of records and inspection unit and a computer applications unit; researches, writes and reviews new plans, designs and specifications not covered by standards specifications with other structural engineers.

Supervises and reviews construction projects and inspection work; confers with contractor on moderately complex and unusual problems, interprets plans and specifications and develops and recommends change order.

Prepares, designs, plans and oversees the engineering work in the construction of lines and operation of central office system and outside plant systems.

Prepares designs, plans and provides engineering assistance in the installation, re-arrangement, removal, and maintenance of telephone equipment such exchange, manual and dial, private branch exchange, testing facilities and power equipment and conduit systems.

Analyzes traffic and engineering estimates to determine types, locations and layouts of equipments.

Prepares equipment specifications and cost estimates; conducts research to determine materials, selection, construction estimates and line routes.

Plans, schedules and coordinates projects and oversees the installation of system.

Designs mechanical engineering systems for small or large construction and remodeling projects.

Reviews complex mechanical engineering plans and specifications submitted by contractors to verify adequate design and insure compliance with requirements of all regulatory codes; prepares written critiques of all plans and specifications review.

Develops preliminary plans and studies; develops engineering plans and specification.

Performs related work as required.

(TRAFFIC)

Performs traffic engineering design; field studies, preparation of signing plans and traffic analyses or projection.

Prepares detailed traffic engineering plans and assembles and analyzes basic data and field information.

Conducts special traffic engineering studies, special research or investigation.

Prepares and reviews technical traffic engineering reports.

Supervises preparation of contract signing plans; develops or updates existing standard and specifications.

Performs related duties as required.

(ENVIRONMENTAL)

Prepares designs involving a variety of conflicting and moderately complex design features; resolves moderately complex problems and writes special specifications and provisions.

Evaluates and reviews design projects and resolves moderately complex design problems; coordinates activities of records and inspection unit and a computer applications unit; researches, writes and reviews new plans, designs and specifications not covered by standards specifications with other structural engineers.

Supervises and reviews construction projects and inspection work; confers with contractor on moderately complex and unusual problems, interprets plans and specifications and develops and recommends change order.

Investigates and prepares reports and recommendations on environmental engineering related areas, such as air and water pollution, water resources, sewage collection, wastewater treatment, water supply, solid waste disposal, and noise control; and general environmental quality engineering.

Gives advice to operators of water and wastewater treatment plants, air pollution control facilities, noise control facilities, and solid waste disposal operations; participates in investigation of environmental problem related to air, water, noise and land pollution.

Confers with local and industry official and general public relative to environmental engineering problems and recommends appropriate measures for prevention and control of air, water, noise and land pollution.

Conducts surveys and examines plans and specifications for new or modified structures of water supply and purification works, sewage works, industrial waste treatment processes, water and air pollution control projects, noise control, or solid waste control facilities to detect the presence of sanitary or other defects affecting public health or air, water, noise, and land resources.

Advises officials, builders and engineers on the application and interpretation of modern engineering practices and on state and local laws and departmental requirements with respect to sanitary or environmental engineering problems.

Gives instruction in advance and specialized sanitary, public health and environmental engineering.

Performs related duties as required.

(ARCHITECTURAL)

Reviews difficult structural engineering plans and specifications to verify adequate design and to ensure compliance with the requirements of all regulatory codes; prepares written critiques of all plans and specifications.

Conducts investigations, evaluations and surveys and prepares feasibility reports and construction cost estimates on special studies of complex design problems.

Coordinates the function, form and cost elements of architectures with the structural, mechanical and electrical system of building.

Cooperates with the construction/maintenance section in scheduling mechanical, electrical, structural or architectural inspection.

Performs related duties as required.

MINIMUM KNOWLEDGE, ABILITIES, AND SKILLS:

Knowledge of the principles and practices of civil, mechanical, electrical, telephone, traffic, environmental or architectural engineering.

Knowledge of a variety of construction materials, and their characteristics relating to engineering.

Ability to apply local and national building or traffic safety regulatory codes.

Ability to estimate building, labor and material costs.

Ability to interpret and apply regulations, laws and ordinances pertaining to the engineering specialty.

Ability to make computations and calculations involving the applications of engineering principles.

Ability to prepare, interpret and utilize plans, designs and specifications.

Ability to analyze and present technical data in clear, concise engineering reports.

Ability to test the quality and suitability of new methods of construction and various types of materials.

Ability to work effectively with the public and employees.

Ability to communicate effectively, orally and in writing.

Ability to maintain records.

MINIMUM EXPERIENCE AND TRAINING:

a) Two years of experience in the applicable field of engineering and graduation from a recognized college or university with a Bachelor's degree in the particular field of engineering; or

b) Current registration as a Professional Engineer by any state or territory of the United States; or

c) Two years of experience in the applicable field of engineering and possession of a current Engineer-in-Training (EIT) certificate from any state or territory of the United States; or

d) Three years of progressively responsible experience in the applicable field of engineering acquired under professional engineering supervision and graduation from a recognized college or university with an Associate's degree in the particular field of engineering; or

e) Two years of experience in the applicable field of engineering and graduation from a recognized college or university with a Bachelor's or higher degree in engineering technology, physics, architecture or closely related field.

Amended: April, 1986

PAY RANGE: 36

J. C. BORJA, Executive Director,
Civil Service Commission

5/86