

COUNTY OF MIDDLESEX

JOB DESCRIPTION

Title: **ENGINEERING TECHNICAL II**

Reports to: Engineering Supervisor

Department: **ROADS**

Effective Date: _____

JOB SUMMARY

Under the direction of the County Engineer and/or Engineering Supervisor, prepares plans for road reconstruction, carries out/assists with engineering surveys and construction layout, and provides bridge, culvert and contract construction inspection along with miscellaneous office duties.

PRINCIPAL RESPONSIBILITIES

1. Prepares construction plans and related documents.

- a) Interprets field data, land plans, municipal drain files, utility locates and other available information to draw base plans, profiles, and cross-sections.
- b) With the assistance of the County Engineer and/or Engineering Supervisor uses County standards, O.P.S.S. standards, common construction practices, and general engineering principals to prepare preliminary designs for roads and bridges.
- c) Performs mathematical calculations for horizontal curves, spiral curves, vertical curves, etc.
- d) Brings to the attention of the Engineer and/or Engineering Supervisor design or construction problems.
- e) Prepares design profiles, cross-sections, and details in support of detailed drawings.
- f) Prepares detailed drawings for in-house and contract projects.
- g) Prepares quantity estimates from plans, cross-sections, details and standards.
- h) Completes as-built drawings and calculates final earth quantities from cross-sections.

2. Supervises survey crew by:

- a) Ensuring that survey crew employees observe commonly accepted rules of personal conduct, appearance and punctuality while on duty.
- b) Instructing crew members including Summer Students as to the proper methods for carrying out pre-engineering survey and construction layout operations.
- c) Instructing survey crew employees as to proper safety precautions and equipment, and ensuring that these instructions are followed.
- d) Bringing to the attention of County Engineer or Engineering Supervisor any survey crew employee who fails to observe any of the above standards of performance and conduct.
- e) Advising Engineering Supervisor of disciplinary problems.

3. Executing pre-engineering survey operations by:

- a) Obtaining through the office legal plans and "as built" construction drawings to set up the pre-engineering survey.
- b) Ascertaining limits of right-of-way and establishing survey base line.
- c) Picking up cross-sections and topography as directed.
- d) Establishing vertical and horizontal controls.
- e) Conducting volume surveys for granular materials.
- f) Providing neat, clear, checked survey notes and accurate digital plans for all work.
- g) Conducting other surveys as directed.

4. Executing construction layout operations by:

- a) Obtaining up-to-date plans from the office.
- b) Establishing: right-of-way, road alignment, limits of sub-ex, grades for sub-ex, grades for granular, limits of paving, location of structures, grades for pipes and ditch work.
- c) Providing other layout as directed.

5. Survey equipment shall be properly operated by:

- a) Ensuring that County equipment and rented equipment are working effectively and properly maintained.
- b) Advising the Engineering Supervisor when major repairs are required

6. Provides contract inspection on a variety of road construction/repair contracts as assigned by:

- a) Interprets plans, specifications, files, locates and other available information to ensure that contracts are carried in accordance with County standards, O.P.S.S. standards, common construction practices, and general engineering principals.
- b) Brings to the attention of the Engineer, and/or Engineering Supervisor unusual design or construction problems.
- c) Maintains detailed daily log notes regarding contract progress and/or issues.
- d) Maintains detailed records for contract pay items and provides quantities to Engineering Supervisor to support payments to the contractors.
- e) Provides as-built information for file drawings and calculates final earth quantities from cross-sections.
- f) Provides asphalt and granular testing services.

7. Provides services in the role of Instrument Person for obtaining pre-engineering data and for construction layout.

8. Maintains engineering files and performs general engineering office and drafting room duties.

9. Registers deeds, checks property ownership, and searches titles at the Land Registry Offices.

- 10. Carries out bridge and culvert inspections on all structures per O.S.I.M. manual, including:**
- a) Visually inspecting all bridges and culverts in accordance with an established procedure and schedule.
 - b) Preparation/Updating reports as result of field inspections.
 - c) Advising the Engineering Supervisor of unusual situations or problems on bridges and culverts.
- 11. Conducts other related duties as assigned.**

MINIMUM JOB QUALIFICATIONS:

- 1. Thorough knowledge of County Specifications and Standards, O.P.S.S. specifications and O.P.S.D. standard drawings for road and bridge construction, repair and inspection.
- 2. A thorough knowledge of surveying methods, procedures and mathematics required to complete complicated pre-engineering surveys and construction layouts with minimal supervision along with an ability to supervise survey crew personnel.
- 3. A thorough knowledge of Computerized Auto-Cad drafting procedures along with the ability to complete design projects with a minimum of direction.
- 4. Knowledge of the Land Titles Act and Registry Office procedures.
- 5. A valid drivers licence.
- 6. Successful completion of a Civil Technology program at a recognized Community College and a minimum of five years experience in drafting, surveying and inspection, or an equivalent combination of education and experience.