# Position Summary

This summary describes the organization, duties, and requirements of a State of Michigan vacancy. The official position description for this position is available from the HR office for the agency.

**Position Code:** TRNSTCHEA89R

**Civil Service Class and Level:** TRANSPORTATION TECHNICIAN-E

**Working Title (What the agency calls the position):** Transportation Technician - Soils

**Name and Position Code Description of Direct Supervisor:** PUNJABI, ASHOK K; ENGINEER MANAGER LICENSED-3

**Department/Agency:** TRANSPORTATION CENTRAL OFFICE

**Work Area:** Construction & Field Services

**Work Location/Hours of Work:** 35414 Mound Road, Sterling Heights, MI 48310 / M-F 7:30a-4:30p (hours may vary)

**General Summary of Function/Purpose of Position:** This position assists the Senior Technician in the planning, coordinating, and directing of soils investigations within the Metro Region. This position monitors and inspects active construction projects; performing geotechnical quality control and acceptance activities, conducts materials quality control and acceptance sampling and conducts required materials quality control and acceptance activities.

Operate a vehicle or vehicle/trailer combination with a Gross Vehicle Weight Rating (GVWR) of 26,001 pounds or more (e.g., power auger equipment) performing soil borings and subsurface investigations.

**Assigned duties and tasks for each duty.**

**Duty 1** **Percentage: 65**

Assist the senior transportation technician or independently conduct soil and pavement investigations as necessary for the design, construction, maintenance, and operation of Michigan Department of Transportation (MDOT) transportation facilities.

This duty requires operating a vehicle or vehicle/trailer combination with a GVWR of 26,001 pounds or more.

- Conduct soil surveys using the pedagogical classification system when appropriate, noting soil texture, top-soil and ground water depths.
- Make swamp soundings and prepare soils survey reports delineating limits of organic soils and any other usual soil conditions that influence design.
- Assist or perform in making soil borings and subsurface investigations using drilling rig, power auger, cone penetration testing, hand auger, soil sampler and Dynamic Cone Penetrometers (DCP) device, hand-held penetrometer, Global Positioning System (GPS) unit, survey equipment and other soil and materials testing equipment and devices.
- Classify soils according to the unified system and prepare soil borings description logs.
- Assist with utility contacts through Miss Dig to locate underground facilities.
- Review preliminary design plans to verify soil boring requirements and identify boring locations and elevations.
- Prepare bituminous and concrete pavement description core logs to assess existing conditions for rehabilitation and design.
- Assist in performing pavement surveys to identify and record types and levels of distress and cracking for the evaluation of the best rehabilitation treatments.
- Assist or perform pavement coring to access subsurface soils.
- Use gINT or other software to document field work and produce the boring logs.

**Duty 2** **Percentage: 15**

Monitor and inspect active construction projects; perform geotechnical quality control and acceptance activities, conduct materials quality control and acceptance sampling.

- Perform pavement subgrade inspections on projects to identify frost heave materials, unstable soil conditions and high ground water levels, and prepare recommendations for corrective treatment of the project engineer or construction senior inspector.
- Perform foundation inspections to determine allowable bearing capacity of soils supporting bridges, retaining walls and other structures.
- Inspect embankments and cut and fill slopes to determine stability, drainage and erosion problems and make recommendations if necessary for their treatment with bank drains and granular blankets.
- Perform inspection of swamps to be excavated or displaced to assure its proper treatment.
- Inspect pavement bases and subgrade to determine that the material, density and moisture content meets specification requirements.
- Conduct environmental inspection of construction projects for conformance with erosion and sedimentation control practices and make recommendations for corrections or improvements, as necessary.
- Report findings via the appropriate MDOT report forms.

**Duty 3** **Percentage: 15**

Conduct required materials quality control and acceptance activities.

- Assist with Construction and Technology (C&T) laboratory testing and documentation requirements as requested and when other field activities are canceled for the day.
- Conduct gradation tests on aggregates, gravel, sand and soil in accordance with acceptance test procedures.
- Conduct Hot Mix Asphalt (HMA) acceptance testing as required.
- Perform inspection and sampling of concrete, plastic and metal pipe.
- Make concrete cylinders, conduct compressive strength tests, and prepare report of test results.
- Perform pull-out tests on pavement hook bolts, concrete anchors and traffic barrier loops.
- Collect and deliver samples and conduct tests to validate and monitor the certification of construction materials by manufacturers and suppliers.
- Perform required Independent Assurance Tests to provide an independent check on the reliability of results in acceptance testing by construction personnel and testing staff for materials suppliers, local agencies or consultants.

**Duty 4** **Percentage: 5**

Other duties as assigned.

- Other duties as assigned.

**Types of decisions made independently and whom or what those decisions affect:** Decisions on where soil surveys and borings should be conducted. Recommendations for environmental and erosion control. Effected by these decisions are the Design, Maintenance and Construction staff and Contractors.

**Types of decisions that require the supervisor's review:** When there is a deviation from an established procedure.

**Physical effort used to perform this job and environmental conditions of this position:** Position requires ability to transport heavy objects up to 100lbs. Ability to work in dangerous traffic or construction areas, walk long distances, traverse slopes and rough terrain, climb stairs, ramps, or aggregate stockpiles, traverse a watercourse in waders or from a boat and operate power auger equipment in all weather conditions. Exposure to dust and noise and must be able to stand for extended periods of time. Position may require availability outside normal working hours based on operational needs.

This position is required to operate a vehicle or vehicle/trailer combination with a GVWR of 26,001 pounds or more.

**Names and classes and levels of employees whom this position immediately supervises:**

**Essential functions of this position:** This position assists the Senior Technician in the planning, coordinating, and directing of soils investigations within the Metro Region. This position monitors and inspects active construction projects; performing geotechnical quality control and acceptance activities, conducts materials quality control and acceptance sampling and conducts required materials quality control and acceptance activities.

Operate a vehicle or vehicle/trailer combination with a GVWR of 26,001 pounds or more (e.g., power auger equipment)

performing soil borings and subsurface investigations.

**Function of the work area:** Primarily, this unit is responsible for providing geotechnical and pavement recommendations to Design, Construction, Operations/Maintenance, Project Development, Utilities and Permits, and Traffic and Safety. This position assists, performs, and participates in the field work necessary to gather geotechnical data on which to base these recommendations.

**Education, experience, and credentials typically needed to perform the position's essential functions [Equivalent combinations of education and experience can also be evaluated on an individual basis for applications providing sufficiently detailed descriptions of the other experience.]:**

**EDUCATION:**
Possession of an Associate's degree in concrete technology, civil technology, construction technology, surveying technology, construction management, mathematics, or computer science.

**EXPERIENCE:**

**Transportation Technician 8**
No specific type or amount is required.

**Transportation Technician 9**
One year of experience equivalent to a Transportation Technician 8.

**Transportation Technician E10**
Two years of experience equivalent to a Transportation Technician, including one year equivalent to a Transportation Technician 9.

**Alternate Education and Experience**

**Transportation Technician 8 - 12**
Possession of a Bachelor's degree or higher in an Applied Science or Science with 16 semester hours (24 term) credits in job specific or related course work qualifies for the Transportation Technician E10 level.

OR

Completion of 60 semester (90 term) credits including 24 semester (36 term) credits in any combination of course work in the following areas: structures, materials, soils, hydrology, surveying, design, drafting, bituminous, concrete, aggregate, chemistry, physics, geology, environmental science, computer science, highway or traffic technology, construction management, engineering, or mathematics may be substituted for the associate's degree.

OR

Four years of technician level experience consisting of quality control inspections, drafting, materials and testing, surveying, or traffic may be substituted for the Associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and one year of technician level field experience may be substituted for the associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and three years experience equivalent to a Transportation Maintenance Worker 9 may be substituted for the associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and two years experience equivalent to an Engineering Assistant may be substituted for the associate's degree.

OR

Current certification in bituminous (hot mix), concrete, density testing, or aggregate gradation and completion of 16 semester (24 term) credits in any combination of course work in the following areas: structures, materials, soils, hydrology, surveying, design, drafting, bituminous, concrete, aggregate, chemistry, physics, geology, environmental science, computer science,

highway or traffic technology, construction management, engineering, or mathematics may be substituted for the Associate's degree.

**KNOWLEDGE, SKILLS, AND ABILITIES:**

Knowledge of:

- Soil classifications.
- Material sampling.

Ability to:

- Work independently without direct supervision.
- Communicate effectively.
- Maintain records.
- Direct and work with people.
- Handle multiple assignments and constantly changing priorities.

**CERTIFICATES, LICENSES, REGISTRATIONS:**

- Possession of a Commercial Learner’s Permit (CLP) permit upon appointment to the position. Continuing employment requires possession of a Commercial Driver’s License (CDL) Group A with either an N or X endorsement and no air brake restrictions which must be obtained within six months from the date of hire into the position and must maintain throughout employment in the position.
- This position is a Test-Designated Position. The employee is subject to random drug and alcohol testing while employed in this position.
- Possession of the following within 12 months of the date of hire into the position and must maintain throughout employment in the position:
    - Michigan Concrete Technician Level 1 certification.
    - Bituminous QC/QA Technician certification.
    - Michigan Certified Aggregate Technician certification.
    - Nuclear Density Safety Certification.
    - Density Technology certification.
    - Comprehensive Soil Erosion Sedimentation Control (SESC) certification