



Ground Anchors

Revision and Approval

Revision	Date	Nature of Changes	Approved By
0	11-16-2018	Original issue.	Steve Altman

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Background

This process establishes Structure Construction (SC) responsibilities and procedures for review and authorization of quality assurance testing, materials, and construction of ground anchors.

Review and authorization of specific submittals for ground anchors is usually performed in conjunction with the general submittals identified in [BCM 46-1](#), *Ground Anchors and Soil Nails – General*.

Process Inputs

1. Authorized shop drawings per BCM 46-1, *Ground Anchors and Soil Nails – General*.
2. Revised shop drawings when necessary

Procedure

1. All work associated with this process is charged as [Project Direct – Construction](#).
2. [Inspection](#) of field work for this process is:
 - a. Intermittent for Material Field release.
 - b. Intermittent for drilling holes for ground anchors.
 - c. Continuous for insertion and grouting of ground anchors.
3. Before construction begins:
 - a. Review authorized shop drawings.
 - b. Coordinate material inspection for ground anchor with Materials Engineering and Testing Services (METS):

- c. Coordinate a pre-operation meeting with the Contractor to discuss the construction of ground anchors. Consider inviting the METS Representative, Geotechnical Engineer, and Bridge Design Engineer to the pre-operation meeting.
 - d. Verify the Contractor submitted certified calibration chart for each jack and gauge system proposed for use by the Contractor.
 - e. Review [Foundation Manual](#), Section 11-2, *Sub Horizontal Ground Anchors*.
 - f. Review [Foundation Manual](#), Appendix K-6, *Ground Anchor Wall Construction Checklist*.
4. During construction:
- a. Verify construction methods are in accordance with contract documents:
 - i. Water and grout control methods
 - ii. Drilling methods and contingencies for caving and hard drilling.
 - iii. Ground anchor or soil nail installation methods:
 - 1. Use of centralizers
 - 2. Installation adjacent to traffic if applicable
 - 3. Grouting methods and contingencies for secondary grouting.
 - b. Verify ground anchor materials delivered to the job site have been released for construction:
 - i. Match orange tags to [Form TL-29](#), *Report of Inspection of Material*.
 - c. For load testing:
 - i. Review certified calibration chart for each jack and gauge system proposed for use by the Contractor and verify contract requirements are met.
 - ii. Verify jacking equipment and movement measuring system are stable.
 - iii. Verify load increments are held for the specified time frames and measurements taken per the requirements of the contract documents.
 - iv. Request and review test data in accordance with the requirements of the contract documents.
 - d. Accept or reject ground anchors based on the results of load testing:
 - i. For rejected ground anchors, do not allow a retest until post-grouting has been performed.
 - ii. For rejected ground anchors where post-grouting does not result in a passing load test, consult the Structure Design Engineer and Geotechnical Engineer for possible solutions.

- e. When research investigation is specified, coordinate research equipment installation with the Contractor's operations.
 - f. Document all inspections, construction, and quality assurance activities in the daily reports per [BCM C-7](#), *Daily and Weekly Reports*.
5. Following construction:
- a. File all submittals in the project records as specified in the *Construction Manual*.
 - b. Record information necessary for final completion records:
 - i. Any as-built changes
 - ii. Project final report

Process Outputs

- 1. As-built shop drawings
- 2. Reports and testing results for accepted ground anchors (material and function)
- 3. Daily reports
- 4. Project final records

Attachments

None