

CHAPTER I INTRODUCTORY AND GENERAL DESIGN INFORMATION

- I-01 Introduction
- I-02 Use of Manual
- I-03 Effective Dates and Revisions

Appendix I-03A Proposed Revision/Addition To NDDOT Design Manual

- I-04 State Highway System
- I-05 Organization/Responsibilities of Design and Bridge Divisions Responsibilities
- I-06 Design Philosophy, Investment Strategy, and Guides
- I-07 Plan Sheet Order
- I-08 Final Plan Submittal Process

Appendix I-08A Electronic Plan Sheet Submittal Checklist

- I-09 Project Selection, Development Scheduling and Control
- I-10 Plan Reviews

Appendix I-10A Plan Review Notification, Distribution, and Attendance List

- I-11 Plan Revisions and Change Orders
- I-12 Design Records, Identification, Retention

Appendix I-12A Guidelines for Use of the 409 File Stamp

- I-13 FHWA Involvement in the Design Process

Appendix I-13A Partnership Agreement

Appendix I-13B Stewardship Agreement Interaction Between NDDOT and FHWA

- I-14 Design/Plan Preparation By Others
- I-15 Reference Publications
- I-16 Definitions
- I-17 Abbreviations and Symbols
- I-18 Manual Revisions

CHAPTER II
PROJECT CONCEPTS AND ENVIRONMENTAL STUDIES

II-01 Introduction

II-02 Milestone Program

Appendix II-02A Table of Milestone Activities/Tasks and Responsible Division

II-03 Coordination

Appendix II-03A Railroad Crossing Review

Appendix II-03B Mitigation Criteria for Ditch Wetlands

Appendix II-03C Distribution List

II-04 Public Involvement

II-05 Environmental Documentation

Appendix II-05B Cultural Resource Procedures Outline

Appendix II-05C Project Concept Report Outline

Appendix II-05G Life Cycle Cost Effective Tables

Appendix II-05H Project Cost History

Appendix II-05I Certification Page

II-06 PCR (Categorical Exclusion) Approval Process

II-07 Distribution of Environmental Documents

CHAPTER III ROADWAY DESIGN

III-01 Plan Preparation

Appendix III-01A Plan Preparation: Detailed Plan Design and Development Checklists

Appendix III-01B Plan Preparation: Plan Review

Appendix III-01C Plan Preparation: Final Office Plan Review Checklist

III-02 Design Speed and Geometric Guides

III-03 Alignments and Roadway Geometry

III-04 Earthwork

III-05 Bases, Edge Drains, and Prime

III-06 Surfacing

III-07 Pedestrian and Bicycle Facilities

III-08 Utility Relocation, Adjustments, and Accommodation Policies

III-09 Permanent Signing

Appendix III-09A Permanent Signing Details

Appendix III-09B North Dakota Department of Transportation Interchange Numbering on I-94

Appendix III-09C North Dakota Department of Transportation Interchange Numbering on I-29

Appendix III-09D Sign Support Design

III-10 Marking

Appendix III-10A Pavement Marking Material Selection

Appendix III-10B Left-Turn Lane, Stop Bar, Cross Walk Lines and Bicycle Lane Markings

Appendix III-10C Bicycle Lane Details

III-11 Lighting

III-12 Traffic Control Signals

III-13 Guardrail

Appendix III-13A Various Guardrail Layouts and Details

III-14 Safety Reviews

Appendix III-14A Figures

Appendix III-14B Clear Zones, Horizontal Curve Adjustment

III-15 Safety Clear Zones

Appendix III-15 A Foreslopes and Backslopes for Basic Ditch Configurations

Appendix III-15B Deep Fill Areas

- III- 16 Driveways and Access Management
- III-17 Airport Clearances
- III-18 Plan Notes
- III-19 Work Zone Traffic Control
- III-20 Special Provisions
- III-21 Cost Estimates

CHAPTER IV STRUCTURAL DESIGN

- IV-01 General Guidelines
- IV-02 Bridge Division Operating Policies and Procedures
- IV-03 Railroad Structures
- IV-04 Appendices

Appendix IV-04A Prestressed Girder Design

Appendix IV-04B Flared Back Parapet Wall and Safety Shape Transition

Appendix IV-04C Approach Slab Details

Appendix IV-04D Predetermination of Pile Lengths Based on Analysis of Soil Properties

Appendix IV-04E Installation of Utilities on Highway Structures

Appendix IV-04F Integral Abutment Design

Appendix IV-04G Installation Details of Precast RCB's

Appendix IV-04G 1 Skewed Precast RCB Installation Guidelines

Appendix IV-04G 2 Normal Precast RCB Installation Guidelines

Appendix IV-04H Checklist for Bridge Plans (SFN 17180)

Appendix IV-04I Pedestrian & Shared Use Facilities on Structures

CHAPTER V HYDRAULIC STUDIES AND DRAINAGE DESIGN

- V-01 Hydrology
- V-02 Bridges and Box Culverts
- V-03 Urban Storm Drainage Systems

- Appendix V-03A Rational Method - Runoff Coefficients*
- Appendix V-03B Time of Concentration of Small Drainage Basins*
- Appendix V-03C Rainfall Intensity – Duration – Frequency by District*
- Appendix V-03D Drainage Studies - Procedural Guide (Urban Design)*
- Appendix V-03E Standard Drawings for Inlets*
- Appendix V-03F City Participation*
- Appendix V-03G Hydraulic Computation Forms*

- V-04 Small Drainage Structures for Rural Projects
- V-05 Pipe Material Selection

Appendix V-05 A Pipe Culvert Backfill Heights

- V-06 Permit Requests/ Drainage Reviews

CHAPTER VI CADD MANUAL

<http://www.dot.nd.gov/manuals/design/caddmanual/caddmanual-welcome.htm>