1. GENERAL - ALL PROJECTS

1.1 Title Block

___ “Design For (xx Skew) (RA)(LA)” “Design For Repair To (xx Skew (RA)(LA)).”

___ Structure Type and Size (Ex.: “Twin 12’ x 12’ x 240’-0 RCB Culvert” “10’ x 10’ x 320’-0 RCB Culvert”).

___ Sheet Title (Ex.: “General Notes & Culvert Quantities”).

___ Station of culvert (mainline). Mainline culvert station should agree with T.S. & L. for new structure or previous plans for repair. Verify that Project Scheduling System (PSS) matches.

___ Turn In to Contracts Date (Ex.: “December 2013”).

___ County

___ “Iowa Department of Transportation - Highway Division.”

___ “Design Sht. No. x of x”, “File No.”, “Design No.”

___ Box around title block.

1.2 General

___ Check plan constructability. Sufficient details included to guide contractor. Staging sequence provided if required.

___ Scale not shown on situation plan or any details.

___ Details consistent with culvert standard sheets.

___ Non-standard details reviewed with appropriate personnel.

___ Cadd files drawn with the correct levels for printing color plans.

___ Project number in the border all sheets for each design. For routes that are not three digits include the leading zero(s) before the route number (e.g. BRF-063-3(46)—38-62).

___ Standard abbreviations used. See [LRFD BDM 13.1.4].

___ Precast culvert alternate is included for culverts meeting the alternate criteria. See [LRFD BDM 7.3].

___ Bent bar details include the note, “Note: All dimensions are out to out. D = pin diameter.”

2. TITLE SHEET - ALL PROJECTS

2.1 General

___ Title sheet conforms to current DOT format posted on Bridges and Structures Bureau web site.

___ Correct Project Number (upper right side, right lower border and top left border of sheet).

___ Correct PIN Number (upper right side of sheet).

___ Correct File Number and Project Directory Name (lower border).

___ “Letting Date” filled in with the letting date (upper left border).

___ Culvert Standard Plan Box.

___ Boxed note referencing Road Standards on road sheets.

___ Index of Seals (sheet number seal is located on, name and expertise).

2.2 Location Map

___ Remove references to scales on plans.

___ North arrow, North is up

___ Map Township/Range (Ex.: “T-87N”, “R-2W”).

___ For larger scale urban map, “Part of City of xx.”

___ Leader to Culvert location with text “Design No. xx”, and “FHWA No. xx” if applicable. (arrowhead should be larger than normal)

2.3 Index of Sheets

___ Sheet containing ‘Estimated Culvert Quantities’ tabulation referenced (tabulation containing total culvert quantities).

___ Sheet containing ‘Estimated Roadway Quantities’ referenced

___ Any tabulations summarizing pay quantities not included in the culvert and road tabulations above referenced.

___ Typically need not itemize RCB culvert sheets: Just indicate “Design No. xx”

3. ESTIMATE SHEET AND GENERAL NOTES – ALL PROJECTS

3.1 Estimate Sheet

3.1.1 Estimated Quantity Tabulation

___ Quantity tabulation for design provided on this sheet.

___ Tabulation title “Estimated Culvert Quantities”

___ Column in tabulation for ‘As-Built’ quantities.

___ All Item Codes and Descriptions agree with Project Scheduling (in-house projects) or Bid Items Application (consultant projects). - OK to use ‘short’ description.

___ Estimated quantities reflect addition of itemized tables in plans.

___ Roadway quantities note, in box.
3.1.2 Estimate Reference Information Notes

3.1.2.1 All Projects

- Estimate reference notes listing includes all applicable default notes stored in Project Scheduling (in-house projects) or Bid Items Application (consultant projects).

3.2 General Notes Sheet

3.2.1 General

- Traffic Control Note, in box.
- Pollution prevention plan note. See [LRFD BDM 13.2.2] note E40_.
- Repair/Extension Project: Design history tabulation (see standard sheet 1038/M1038). New projects should not include a "design history at this site" tab.

3.2.2 Specifications 'Note'

- Correct 'Specifications' note. See [LRFD BDM 13.7.2] note E601_.
- Supplemental specifications, developmental specifications and special provisions listed by name.
- Electronic copy of special provisions (if necessary) placed in the special provision turn in folder.
- If Standard 'G1' applies, do not duplicate.

3.2.3 Design Stresses ‘Note’

- Correct 'Design Stresses' note. See [LRFD BDM 13.2.2] note E50_.
- If Standard 'G1' applies, do not duplicate.

3.2.4 General Notes

3.2.4.1 All Projects

- All applicable 'standard' general notes (per design manual) provided. 'Non-standard' notes checked for need and do not conflict with standard specifications and standard plan details.
- If Standard 'G1' applies, do not duplicate General Notes.

3.2.4.2 Repair Project

- 'Removals, As Per Plan' [LRFD BDM 13.5.2] note E440 provides complete listing of work included in item.

4. SITUATION PLAN (Placed after Estimated Quantities sheet and General Notes sheet)

4.1 New Construction

4.1.1 General

- Location information near title block. Example:
  (Relocated) US 151 Over Maquoketa River
  T-87N R-2W
  Section 36
  Cascade Twp.
  Dubuque County
  FHWA # _________ - on all RCB culverts > 20’ along roadway
  Latitude XX.123456°
  Longitude XX.123456°
  Bridge Maintenance No. (if replacing existing bridge)

  - Traffic estimate shown.
  - Hydraulic data
  - Profile data, check for coordination with roadway design.

4.1.2 Plan

- Shoulder and approach pavement widths and slopes (include foreslope) shown for main and crossing roadway, check for coordination with roadway design.
- Horizontal curve data, check for coordination with roadway design.
- Alignments and stationing along CL of approach roadway (and equations), check for coordination with roadway design. Label profile grade line.
- Proposed ditches and pipes shown, check for coordination with roadway design.
- Any removals to be performed by culvert contractor designated.
- 'Back to back of parapets' dimension shown.
- Length from centerline roadway left to back of parapet dimension shown.
- Length from centerline of roadway right to back of parapet dimension shown.
- Lengths of individual sections dimension shown.
- Angle of skew tangent from centerline of roadway dimension shown.
- Label headwall size and skew angle. Indicate "Inlet" and "Outlet".
- Existing structure(s) shown.
- Highway name.
- Pertinent structures and features close enough to influence construction shown (utilities, old structures, etc.).

4.1.3 Longitudinal Section

- Channel excavation limits with slopes, dimensions and elevations.
- Following elevations labeled and shown:
  Profile grade at centerline of roadway or at centerline of survey or at office relocation centerline.
  Shoulder elevations.
  Flowlines at inlet and outlet.
- Foreslopes labeled (6:1, etc.) (additional slopes when applicable (e.g. flumes and drop inlets)).
- Benchmark
- Dimension fill height (Use 1’ increments). See Culvert Design Manual for metric conversion.
- "Anticipated settlement = ___" below view title.
- Bell joints standard note, if necessary.
4.2 Repair/Extensions Projects

4.2.1 General

Location information near title block. Example:
US 151 Over Maquoketa River
T87N R2W
Section 36
Cascade Twp.
Dubuque County
City of __________
Bridge Maint. No. 3609.9S137 - on all RCB culverts > 20’ along roadway
FHWA # _______ - on all RCB culverts > 20’ along roadway
Latitude XX.123456°
Longitude XX.123456°

Traffic counts for current year.

4.2.2 Plan

Alignments and stationing.
‘Back to Back of Parapets’ dimension shown.
Highway name shown.
Legend of work to be performed.

5. DETAILS - REPAIR/EXTENSION PROJECTS

5.1 General

For an existing culvert that is being extended and the headwall is at a skew to the culvert (not perpendicular) the culvert is “not” to be squared up. The headwall is to be removed but the proposed culvert is to be attached along the skew line.

If an existing culvert is being extended at a different skew, for spans less than 8’, a minimum 3’ section (on the shortest wall) is to be attached to the existing culvert prior to the proposed bend. For spans 8’ or longer, a minimum 5’ wall section is to be used.

If an existing culvert is non-standard, it is to be extended with the same size non-standard culvert (assuming an RCP would not work).

Adequate details provided to define location and scope of concrete repair work.

5.2 Temporary Barrier Rail

Reduced width signing plan provided if lane width less than 14’-6.
See [LRFD BDM 12.1.8.2].

‘F-Shape’ used for min. lane 12-5 interstate mainline, 10’-6” primary. H-Pile section used when these minimums cannot be provided.

Traffic lane and work area widths shown on rail layout plan. Correct lane width shown on standard sheet 1049 note. Traffic lane width should be noted as ‘minimum’.

6. RCB CULVERTS

If fill exceeds maximum used for standards, check that culvert program has been run and output matches values on plan. If metric culvert, check that program output has been converted properly.
CULVERT PLAN REVIEW CHECKLIST

___ Erosion control, including seeding and mulching, bid items (all projects) - do not include as incidental items.

___ Traffic control bid items (all projects where required by traffic control plan).

___ Traffic control plan current and acceptable to Design Bureau.

___ PPP current, consistent with grading plan and acceptable to Design Bureau.

REFERENCE ABBREVIATIONS

BDM – Bridge Design Manual

CADD M – CADD Memo