GUIDANCE FOR MERGER
CONCURRENCE POINT 4B MEETING AND PLANS
Preliminary Hydraulic Design Review

The purpose of this meeting is to review preliminary drainage design. The hydraulic designer can then consider the agencies' input when completing the final hydraulic design. The Hydraulic Design Engineer is responsible for circulating a sign-in sheet, leading the meeting and producing meeting minutes. This requires at least two people: a presenter and a note-taker.

It is recommended that field work at all jurisdictional crossings/features should be complete.

The Hydraulic Design Engineer should notify the Hydraulics Reviewer well in advance (two months minimum) of the preferred month for the CP4B meeting to ensure availability of a date, and verify that the CP4A meeting has or will have been held by the requested date.

Unless directed otherwise, the Hydraulic Design Engineer should submit plans to the Hydraulics Unit (including PMU and EAU-ECAP for Centrally-managed projects) or Division (for Division-managed projects) for review at least five (5) weeks prior to the scheduled CP4B meeting. The CP4B plans should be distributed to the Merger Team members at least two weeks in advance of the meeting. ***It is the PEF's responsibility to resubmit with adequate time for review (and revisions, if necessary) prior to posting, to avoid delay of the meeting.***

DISCUSSION ITEMS

Review all plan sheets with focus on jurisdictional features
Deficiencies of existing structures, such as perched, buried culverts, etc.
Degraded streams, such as eroded banks, scour holes, etc.
Watershed characteristics (buffer zones, hazardous spill basins, etc.)
Any design or site constraints that may affect drainage design in or near jurisdictional features
Review any Green Sheet commitments and discuss how these will be addressed as they relate to the hydraulic design

PLAN SET

1. Title sheet with "CP4B Plans" label and date
2. All plan sheets (including sheets without jurisdictional features)
3. All profile sheets

Plan Sheets

1. Sketch conceptual proposed drainage design. Include system layout with approximate inlet locations and outlet location, cross pipes, and major drainage structures. Pipe sizes are not required but preliminary pipe sizes may help with discussion.
2. Include preliminary layout of any drainage design feature that may impact jurisdictional features, such as filling/draining ponds, filling/relocating streams or other channel work, unavoidable ditches through wetlands, pipe outlet rip rap, toe protection in wetlands, etc.
3. If drainage design is complete, design elements that are not essential to the conceptual drainage layout should be limited if drainage design has not been approved by the Hydraulics Unit. This may include ditch details, computations, etc.
4. Contours should be legible on each plan sheet. Do not include plan sheets without contours.
5. Sketch approximate proposed ditch locations. A single series of arrows may be used to represent a ditch if design and drafting of the proposed ditch have not been finalized.

6. Show all rip rap that may be required such as standard pipe outlet rip rap pads, toe protection, energy dissipators, keyed-in rip rap into the bed of the channel due to anticipated velocities or for scour hole stabilization, etc.
7. Do not number potential sites, nor quantify or hatch potential impacts. This will be done at the Concurrence Point 4C meeting.
8. Ensure wetlands, jurisdictional streams, and endangered plant boundaries are identified and shown with the correct symbology. Turn off JS lines from the wetland file to avoid confusion with stream lines from the FS file. Wetlands should include WLB line style boundaries with appropriate marsh symbols inside. Marsh symbols should not be inside streams. Wetland boundaries should be shown open if the wetland continues beyond the survey area. If the FS file doesn't show appropriate JS line style for jurisdictional streams, identify each jurisdictional stream as necessary (adding a large "JS" text next to the stream will suffice). The Hydraulic Design Engineer should report any problems or discrepancies with the wetland or final survey file to the Hydraulics Reviewer and Project Manager so they can be corrected and should be prepared to seek clarification during the meeting of potential discrepancies among wetland file, FS file, and field observations.
9. Show top of bank lines at all major stream crossings.
10. When riparian buffer zones are applicable, show the buffer zones and top of banks.
11. If structural BMPs are being considered, label approximate location as "Potential structural BMP Site" and briefly discuss the reason for consideration of a structural BMP such as SELDM modelling results and other relevant data. Also discuss site conditions needed to incorporate BMP. Do not show details unless the site has been investigated and agreed to by the Hydraulics Unit.

Profile Sheets

1. Ditch grades are not required to be shown.
2. For bridges over jurisdictional features, at a minimum, show preliminary bridge layout.

SUPPLEMENTAL INFORMATION

The following information should be available at the meeting for reference but is not required to be a part of the plan set:

1. Cross sections
2. Roadway typical sections
3. Existing drainage patterns, ditch descriptions, etc. (Existing Drainage Pattern Level)
4. Site photos
5. Field notes
6. Information that may be needed to evaluate appropriate burial depths, need for sills/baffles, expected stream stabilization measures or correction of existing problems, etc. at culvert crossings. This may include information such as stream slope, scour hole depths, proposed culvert length, stream condition, perched height, existing burial depth, etc.

DELIVERABLES

First Submittal (recommended at least 5 weeks prior to CP4B meeting):

An electronic copy (PDF) of the CP4B plan set will be provided to NCDOT for review. PDF should *not* be configured to allow individual layer display to be toggled on/off as this greatly increases screen load times. PDF should also be set to print to scale on 11"x17" paper.

Second Submittal (approx. 3 weeks prior to CP4B meeting)

A Final Submittal at least two weeks prior to the CP4B meeting may be required if all comments have not been satisfactorily addressed in the Second Submittal.

An electronic copy (PDF) of the final CP4B plan set will be provided to NCDOT after review comments have been addressed, and will be uploaded to the appropriate location by the Hydraulics Reviewer or Project Manager, as appropriate, for distribution at least two weeks prior to the meeting date.

FOLLOW-UP

On-screen PDF presentation of plans should agree with the final PDF reviewed by NCDOT and posted online. If major changes are presented, then half-size hard copies should be made available at the meeting to all attendees. After the meeting, the posted CP4B package should be updated to reflect the plans that were presented during the meeting, if applicable.

Draft meeting minutes should be forwarded to the Hydraulics Unit, as well as PMU and EAU-ECAP (Centrally-managed) or Division (Division-managed) for internal review prior to distribution to attendees. Ensure that draft minutes are labeled “draft”, and contain both the dates of the meeting and the minutes. After distribution to attendees, and a 2-week comment period, minutes should be finalized with any applicable comments and redistributed.