

I-90/SR 18 Interchange to Deep Creek – Widening and I/C Improvements Project
Preliminary Response to Comments 11/15/21 (to be updated after 11/17 site visit)

JARPA Comments Received from Corps 8/23/21

1. For Ditches – in the header WSDOT calls it a “stream type”, and then label it as a “ditch”. A ditch is not a stream type. We are concerned this will confuse the public, tribes and agencies getting the notice. Please revise the title to not call it a “stream type” and clarify why you are listing all of the ditches. Also what is the distinction with the ditch on sheet 8 that is called jurisdictional JDD91, why are you assuming it is jurisdictional?

WSDOT to updated JARPA table. Ditch assessment updated based on Navigable Waters Protection Rule being vacated in September 2021.

2. On Sheets 6-8, are the Ditches labeled JDD“X” jurisdictional or only the JDD91? The “*” indicates only JDD91, but the blue lines for jurisdictional ditch cover the majority of the ditches. Why is WSDOT listing these as jurisdictional, is it that you are assuming they are jurisdictional for the State (WDFW and Ecology)? If these ditches are only State jurisdictional, please re-label the tables to show only State as these would not be regulated by the Corps. This needs to be clear in the public notice. Also, several of the JDD labeled ditches are only a short distance (10-30 LF) and are not adjacent to the roads so why are they labeled as ditches rather than drainage features? In addition, several of the ditches change names in the middle of the blue labeled arrows (for example ditch 56 becomes 57 on page 33). There is no explanation as to why the change occurs in the middle of the ditches.

Related, in permit drawings submitted to the Corps on 6/30/2021, drawings also dated 6/14/2021 (so it gets confusing), JDD4 and JDD58 were starred as being regulated by the Corps. In the permit drawings submitted 8/16/2021, they are not starred. Please explain why you made this change. Also, in future drawing submittals please change the date of the plan sheets so we can keep track of the most recent set.

WSDOT updated ditch tables appropriately based on Navigable Waters Protection Rule being vacated in September 2021.

3. The Corps had a comment on 6/1/2021 and it has not yet been addressed:
For jurisdictional ditches, please explain why you are calling them jurisdictional. If the ditches are dug in a wetland, the Corps regulates them as wetland. If they are a channelized stream, we regulate as a stream and it would need OHWM. The only time a ditch dug in uplands is jurisdictional on its own is if it has perennial flow and connects to a navigable water at some point down stream. But, if WSDOT can show an OHWM it may be a stream. If WSDOT can demonstrate it is a constructed ditch for the highway and it does not have perennial flow the Corps does not regulate it as a WOUS. More information on ditches can be found on the WSDOT website: <https://wsdot.wa.gov/environment/technical/disciplines/wetlands/recon-assess> and <https://wsdot.wa.gov/environment/technical/disciplines/wetlands/jurisdiction/US-Army-Corps-Engineers>

WSDOT updated ditch tables appropriately based on Navigable Waters Protection Rule being vacated in September 2021.

4. The General Note Project Data Table – The tables are blank for bankfull width, WDFW site ID, and anticipated construction date. They are not needed on the plan sheets for Corps purposes,

and we recommend removing them or filling them in with the information. If needed, please create a general note regarding the WDFW fish window.

WSDOT revised tables on JARPA sheets in new set of drawings.

5. On Sheet 5, please define the stream types, particularly types "O" and "S". Please provide a breakdown of all streams that are type "F" and if any of those culverts/pipes on those streams are not being made fish passable and explain why.

WSDOT updated JARPA sheets to include stream types.

Streams LC-B and LC-C are indicated as type F and the culvert that connects to each is not being made fish passable. This is because water only flows through this culvert at high flows. Each stream (LC-B and LC-C) has a separate connection to Lake creek other than from this crossing (said culvert). The WDFW does not have this mapped as a fish passage barrier.

6. Please submit a complete set of new drawings with a new date.

WSDOT updated drawings with new date.

JARPA Comments Received from Ecology 9/13/21

Water Quality Comments

1. For the information in Question 6.e, will the SR 18 Mainline work and the I-90/SR 18 Interchange work occur at the same time or sequentially? I assume they would occur at the same time but I wanted to verify I was reading the information correctly. It could be read that SR 18 Mainline happens with multiple stages and then I-90/SR 18 happens with its own multiple stages.
The construction schedule will be finalized by the DB but the work is proposed to occur concurrently.

2. This project is design build, correct? Yes

3. The information provided in the JARPA and drawings versus information in the hydraulic reports show two different pictures around the I-90/SR 18 Interchange. In the hydraulic reports, I see a single un-named tributary coming through that location but in the drawings and the JARPA, there are 20 streams listed and for Lake Creek, we have eight un-named tributaries labeled LC-B through LC-J which, as far as I can tell, are all in this interchange area (not to mention a lot of ditches that are called out as jurisdictional and others not). Please clarify why there are multiple streams listed in the interchange in one set of documents but only one tributary in other documents.

There are multiple tributaries to Lake Creek (Streams LC-B – LC-J) but only a few are located in the interchange. In existing conditions, there are two main streams (LC-E and LC-G) that flow through the interchange. Post construction, LC-E is proposed to become a stormwater conveyance system and Stream LC-G will be the main stream flowing through the interchange. The other Lake Creek tributaries are located south of the interchange. We are creating a new figure set that will show this more clearly.

4. Following on that comment, there are multiple culvert listed as fish barriers; are these culverts associated with the un-named tributary or are they drainage features that connect to the un-named tributary?

I think this question is referring to Stream LC-G. If so, the following barriers are associated with Stream LC-G: WDFW Site IDs 934823, 934822, 934821, 934829, 934828, 934820
Other barriers in the interchange are associated with Stream LC-E that is proposed to be a stormwater conveyance system: WDFW Site IDs 934825, 934826, 934827, 934786, 934824.

5. Ecology agrees with the Corps that as far as the JARPA and drawings go, the tables showing streams and ditches are confusing, especially having a stream type assigned to ditches.
WSDOT updating JARPA sheets.
6. Once I have some clarity on the streams and ditches, I would like to discuss how to approach drafting up a WQMPP. Since this project triggers an individual 401 Certification, it might be more efficient to dive right into a WQMPP which should address the following: stream diversions, construction access, concrete work, overwater work at Raging River, and water quality monitoring at a minimum. With the interchange, I am unclear on what is actually in the area and a discussion on how to protect water quality when working in this network of streams/ditches might be more productive.
WSDOT to discuss with Ecology.

Wetland and Stream Assessment Report, dated March 2021 (Wetland Biology Report)

7. Please provide this report with appendices: WSDOT. 2013. I-90/SR 18 Interchange – Westbound Flyover Ramp Wetland and Stream Assessment Report. Olympia, WA.
WSDOT to provide this report. OK. Waiting on report.
Report provided as WSAR Appendix G.
8. Page 15 of the report states: *A wetland and stream assessment was originally conducted by WSDOT in 2005/2006 and 2011/2012 (WSDOT 2013) for the westbound flyover ramp study area. This investigation identified five streams (Lake Creek [Stream LC-A], and Streams LC-B, LC-C, LC-I, and LC-G) and 20 wetlands. The OHWM of these streams and an additional 12 streams, including the Raging River and Deep Creek, in the study area were re-delineated in 2018 and 2019. At this time, the original 20 wetlands delineated in 2011/2012 were re-verified and 23 additional wetlands were also delineated and rated as described above.* Thank you for re-verifying wetlands delineated more than five years ago. Please provide a wetland delineation re-verification memo for all of these wetlands. Please use the attachment I've provided as a template.
WSDOT to provide reverification memo after site visit. OK. Waiting on reverification memo.
Reverification memo provided as WSAR Appendix H.
9. Please provide a figure showing the locations of the wetland and upland data points (from data forms). This can be provided in the appendix. If this is included in the 2013 WSDOT Wetland and Stream Assessment Report then please disregard this comment.
Wetland and upland sampling points are included in Appendix B of the 2013 Wetland and Stream Assessment Report (to be provided). Wetland and upland sampling points from the reverification are provided as separate figures (See Appendix B figure set from 2019 report - Note that not all critical areas are shown on these figures and names/boundaries were updated since this figure set was created – this is provided only to show location of sampling points). OK.
Waiting on this report.
Report provided as WSAR Appendix G.

10. There are no existing conditions plan sheets showing delineated wetland boundaries. Please provide plan sheets with wetland boundaries.

WSDOT to provide updated critical areas plans. OK. Waiting on these plans.

Plans provided as WSAR Appendix A.

11. Wetland rating LC-01: This rating states that this wetland doesn't have an outlet. No existing culvert is shown. Wetland LC-28 is not shown as part of the drainage basin (and no culvert is shown on the LC-28 rating as well). JARPA plan sheet 44 shows an existing culvert that connects LC-01 and LC-28. And the *I-90/SR 18 I/C to Deep Creek – Interchange Improvements and Widening Conceptual Level Type A Hydraulic Report, dated June 2021 (Hydraulic Report)* states that a culvert connects these two wetlands west to east. If a culvert connects these two wetlands then the rating scores, and possibly the overall rating of LC-01 will change. During our site visit I would like to visit wetland LC-01 to confirm presence or absence of the culvert.

Wetland does have a culvert (outlet). WSDOT will update all corresponding documentation as needed after the site visit. This is correct. This wetland has an outlet. Please update the wetland rating for this wetland.

Wetland rating form updated.

12. Wetland rating LC-01: The rating states that LC-01 receives stormwater discharges. Wetland boundary is approximately 75 feet from the edge of pavement. Is stormwater really getting into the wetland by discharge pipes or road runoff? During our site visit I would like to visit wetland LC-01 to confirm if stormwater is being discharged to this wetland.

Wetland LC-01 in its existing condition does not receive direct stormwater discharges. However, it is proximate to SR-18 and likely receives some stormwater runoff flowing through the vegetated buffer (less than 50 feet away at the narrowest point). Groundwater has been identified as the main source for Wetland LC-01. This is correct.

13. Wetland rating LC-02: JARPA plan sheet 42 shows that this wetland is connected to Wetland LC-28. The Hydraulic Report states that LC-02 is connected to LC-28 west to east. The wetland summary sheet (page 26) states that water leaves the wetland through a constricted outlet at a culvert flowing east under SR 18. The wetland rating says that this wetland doesn't have an outlet. If this wetland has an outlet then the rating scores, and possibility the overall rating of LC-02 will change. During our site visit I would like to visit LC-02 to confirm presence or absence of the culvert.

Wetland LC-02 has an outlet that drains to the east side of SR 18. This wetland has an outlet. Please update the wetland rating for this wetland.

Wetland rating form updated.

14. Wetland rating LC-02: The rating states that LC-02 receives stormwater discharges. The wetland boundary is approximately 50 feet from the edge of pavement. Is stormwater really getting into the wetland by discharge pipes or road runoff? I need to visit wetland LC-02 to confirm if stormwater is being discharged to this wetland.

Wetland LC-02 in its existing condition does not receive direct stormwater discharges. However, it is proximate to SR-18 and likely receives some stormwater runoff flowing through the vegetated buffer. This is correct.

15. Wetland rating LC-03: The summary sheet in the Wetland Biology Report (page 27) states that this wetland has no outlet. The mitigation plan states that it is a closed system. The Hydraulic Report states that this wetland is hydrologically connected to Wetlands LC-04 and Wetlands LC-28. Page 52. If this wetland flows into Wetlands LC-04 and LC-28 then the rating scores, and possibly the overall rating of LC-03 will change. During our site visit I need to see this wetland to confirm presence or absence of hydrologic connection.

Wetland LC-03 is a closed depressional wetland, meaning that it has no defined channel or outlet contributing surface flows to other wetlands. The existing culvert to the north under Gate 817 is too high to likely drain the wetland and to hydrologically connect it to Wetland LC-04. The depressional wetland LC-03 whose primary source is groundwater, may fill during large precipitation events and result in sheet flow towards the culvert and eventually to Wetland LC-04. This is correct.

Wetland LC-03 does not appear to contain a direct hydrologic connection to Wetland LC-28. The confusion may have come from the phrasing in the Hydraulic Report: "South of WDNR Gate 817, stormwater sheet flows off of the west side of SR 18 through MFDs toward Wetlands LC-29, LC-01, and LC-03. These wetlands are hydrologically connected to Wetland LC-04 and Wetland LC-28" (page 52). Wetland LC-01 and Wetland LC-02 are wetlands with an apparent direct hydrologic connection to Wetland LC-28 via two existing culverts crossing SR 18. This is correct.

16. Wetland rating LC-03: The summary sheet in the Wetland Biology Report (page) states that this wetland gets stormwater runoff from SR -18. The rating form also states it gets stormwater discharges. The wetland boundary appears to be at least 50 feet from the edge of pavement. During our site visit I need to visit wetland LC-03 to confirm if stormwater is being discharged to this wetland.

Wetland LC-03 in its existing condition does not receive direct stormwater discharges. However, it is proximate to SR-18 and likely receives some stormwater runoff flowing through the vegetated buffer. This is correct.

17. Wetland rating LC-29: The rating form states that this wetland receives stormwater discharges. The wetland boundary appears to be at least 50 feet from the edge of pavement. During our site visit I need to visit wetland LC-29 to confirm that stormwater is being discharged to this wetland.

Wetland LC-29 in its existing condition does not receive direct stormwater discharges. However, it is proximate to SR-18 and likely receives some stormwater runoff flowing through the vegetated buffer. This is correct.

18. Wetlands DC-06 and DC-07: Both of these wetlands are shown as Category III in the JARPA form, JARPA plan sheets, and pages 41 and 43 of the mitigation plan. These wetlands are rated as Category II. Please correct.

Correct, these are Cat. II wetlands. WSDOT to update relevant documentation. OK.

19. Figures 6, 7, and 8 provide existing conditions wetland boundaries. Wetland boundaries on these sheets are difficult to see. I also noticed that many wetlands have boundaries that look different in the wetland rating form figures than these boundaries and the JARPA plan sheet boundaries. Please provide updated existing conditions wetland boundaries that are easier to read.

Wetland boundaries on the wetland rating figures were documented with a GPS and any portion of the wetland boundary that extends offsite was estimated. Wetland boundaries were surveyed and those are the boundaries shown in the JARPA sheets. WSDOT to provide updated existing conditions wetland boundaries sheets as requested. OK. No follow-up with this needed.

JARPA Drawings

20. Sheet 33: Wetland LC-25 should have indirect impact to the south side of the wetland too. I need to look at this area during our site visit.

Indirect impacts should be shown on south side of wetland.

Indirect impacts added to JARPA and mitigation plan.

21. Sheets 35, 40 and 42: There should be indirect impacts to Wetlands LC-04 (Cat I PFO) and LC-27 (Cat II PEM/PSS/PFO with habitat score of 9) for removing 25-75 feet of mature forest buffer adjacent to SR-18, especially since LC-04 is a Category I wetland because it contains a mature forest. Most temporary impacted areas in these impacted buffers appear to be seeded or planted with shrubs, not trees. A very small strip of trees will be planted (Sheets 82 and 83).

Please revised drawings to include indirect impacts to these wetlands.

Indirect impacts added to JARPA and mitigation plan.

22. Sheets 35, 40, and 42: The wetland boundaries for Wetland LC-04 and LC-27 on these JARPA sheets don't match the shape and size of the wetland in the wetland rating figures of the wetland delineation report.

Wetland LC-04 – Boundary in JARPA drawings is surveyed wetland boundary. Wetland boundary in wetland rating figures was created using GPS data and includes an estimated portion of the wetland that extends outside the project limits (this portion was not included in the JARPA drawings).

Wetland LC-27 – Boundary in JARPA drawings is surveyed wetland boundary. Wetland boundary in wetland rating figures was created using GPS data and includes an estimated portion of the wetland that extends outside the project limits. JARPA drawings (sheets 35, 40, and 42) will be updated to show that wetland LC-27 extends beyond project limits – this does not change any impact calculations. OK.

23. Sheets 42 and 44: Wetland LC-03 is a Category I wetland. Indirect impacts should be at least 50 - 75 feet wide.

Please change indirect impact width to be 50-feet from edge of wetland.

Indirect impacts added to JARPA and mitigation plan.

24. Sheets 42 and 44: The wetland boundary for Wetland LC-28 doesn't match the shape and size of the wetland in the wetland rating figures of the wetland delineation report.

Boundary in JARPA drawings is surveyed wetland boundary. Wetland rating figures for LC-28 will be updated. OK.

JARPA drawings updated to show that wetland continues outside of project limits. No change to wetland impacts. Note added to wetland rating form regarding estimated wetland boundary.

25. Sheets 42 and 44: Wetland LC-28 should have indirect impacts on the north side and southwestern tip of the wetland due to permanent buffer impact.
Please include indirect impacts adjacent to areas where permanent and temporary impacts will occur.
Indirect impacts added to JARPA and mitigation plan.
26. Sheet 51: It appears that the buffers of wetlands RR-05 and RR-06 extend to the west of SR 18. Wetland buffers should not extend over a roadway and should end at the road edge of pavement. Are the buffer impacts proposed on the west side of the roadway for wetlands RR-05 and RR-06 buffers? Or should these wetland buffer impacts be stream buffer impacts instead? Or is the wetland buffer here because it extends under the bridge?
The buffer impacts are for Wetland RR-05 and RR-06. The wetland buffer extends to the west at this location under the bridge since there is no road prism to split the wetland buffer and it is still providing buffer functions. OK.
27. Sheet 54: The shape and size of Wetland RR-08 on this JARPA sheet doesn't match the shape and size of the wetland in the wetland rating figures of the wetland delineation report.
Wetland boundary is being verified by WSDOT and JARPA sheets will be updated if needed. OK.
JARPA drawings updated.
28. Sheet 58: The shape and size of Wetland DC-01 on this JARPA sheet doesn't match the shape and size of the wetland in the wetland rating figures of the wetland delineation report.
Boundary in JARPA drawings is surveyed wetland boundary. Wetland boundary in wetland rating figures was estimated. Boundary is only slightly different so wetland rating figures will not be updated. OK.
29. Sheet 59: The wetland boundaries for Wetlands DC-04 and DC-05 are different than the wetland boundaries in the wetland rating form figures and the wetland boundaries shown on Figure 8.
DC-04: Boundary in JARPA drawings is surveyed wetland boundary. Wetland boundary in wetland rating figures was estimated and includes portion outside of the project limits (not included in JARPA drawings). JARPA sheet 59 will be updated to remove eastern boundary line as wetland does extend beyond project limits, no change to impacts. OK.

DC-05: Boundary in JARPA drawings is surveyed wetland boundary. Wetland boundary in wetland rating figures was estimated and includes portion outside of the project limits (not included in JARPA drawings). JARPA sheet 59 will be updated to remove eastern boundary line as wetland does extend beyond project limits, no change to impacts. OK.
30. Sheet 59: The impacted buffer of Wetland DC-03 contains very mature coniferous trees and is mapped as suitable marbled murrelet nesting habitat. The area of indirect impact should be larger than what is proposed. I need to look at this impacted area during our site visit.
We were unable to access this wetland during our site visit. Regardless, indirect impacts should be shown for the two small isolated triangles on the northeast side of the wetland.
Indirect impacts added to JARPA and mitigation plan.
31. Sheets 65 and 66: It appears that all of wetland DC-07 is being impacted. Is this true? Impacts are shown to be 0.028 ac of 0.05 ac wetland.

Yes, all of wetland DC-07 is being impacted (permanent impact and wetland to stream conversion). Wetland area is 0.029 acres (0.028 acres of permanent impact and 0.001 acres of wetland to stream conversion). Wetland report will be updated with correct area. OK.

32. Sheet 82: Wetland LC-04 restoration sheet shows small area of wetland restoration but the impact plan sheet 35 doesn't show any temporary wetland impact.

WSDOT to correct JARPA sheets. OK.

33. Restoration sheets: I don't see western red cedar in the planting plan for wetland mix. Why is this?

No western red cedar is included in Mix C – Tree and Shrub Wetland Mix, as we have found western red cedar difficult to establish in fully saturated soils or areas of standing water. We have included western red cedar in both Mix G – Tree and Shrub Wet Buffer Mix and Mix F- Tree and Shrub Buffer Mix. OK.

34. Legend hatching on sheets 100 and 101 should be in color to match plan sheets.

WSDOT updating JARPA sheets. OK.

35. Pink hatching in revegetation sheets doesn't match pink hatching in legend. I can't tell the difference between the wildflower mix or tree and shrub mix wet buffer.

WSDOT updating JARPA sheets. OK.

36. Sheets 102, 117, 118, 119 and 127: Why is the tree and shrub wet buffer mix proposed instead of the tree and shrub mix – wetland to temporary impact areas of Wetlands LC-04, LC-03, LC-12, LC-29, and RR-08?

Mix G – Tree and Shrub Wet Buffer Mix is specifically designed for wetland buffers. Although, there is very little difference between Mix F Tree and Shrub Buffer Mix and Mix G – Tree and Shrub Wet Buffer Mix.

Mix G contains Western hemlock and Indian plum, these two species are not included in Mix F Mix F contains Douglas fir and red flowering currant, these two species are not included in Mix G OK.

Wetland mitigation plan

37. Wetland LC-2: The wetland delineation report states that this wetland is 0.020 acre in size. The wetland mitigation report and JARPA plan sheet table state that this wetland is 0.015 acre in size. What size is accurate? The mitigation report states that the entire wetland will be permanently impacted.

Wetland size is 0.015 acres (660 SF). Wetland report will be updated with correct size. OK.

38. Wetland LC-7: The JARPA drawings and tables in the mitigation report show 0.358 ac of permanent impact but in the summary of impacts in the mitigation plan it says all of wetland is being impacted (0.38 acre). Total impacts should change to 0.38 acre.

Wetland size is 0.358 acres. Wetland report will be updated with correct size. OK.

39. Wetland LC-23: In JARPA plan sheets and tables in mitigation report show 0.054 acre of permanent impact but in the summary of impact in the mitigation plan it says that all of the wetland is being impacted. So the total permanent impact should be 0.060 acre.

Wetland size is 0.054 acres. Wetland report will be updated with correct size. OK.

40. Pages 9 and 10 of the mitigation plan states: “We assumed the following wetlands would not be impacted by stormwater design changes and were precluded from further hydroperiod analyses: Wetlands that receive stormwater but are greater than 1 acre in size (Wetlands LC-04 and LC-28) because these wetlands are groundwater-driven systems and are not likely to be affected by changes in stormwater runoff.” Please provide specific information on proposed stormwater inputs to these two wetlands. LC-04 is large but it is also a Category I mature forest wetland, and changes to hydroperiod due to changes in stormwater runoff may cause mature coniferous trees to die. LC-28 is also a Category I wetland with a PFO component that may be impacted by changes in stormwater.

Wetland LC-04 and Wetland LC-28 are large wetlands (greater than 1+ acre). Based on coordination with WSDOT environmental review lead, the design team anticipates that the wetlands would be able to attenuate the potential increase in stormwater flows due to the widening of SR 18 in their vicinity because of their large size and would likely pass the wetland hydroperiod analysis described in Ecology SWMMWW Method #2. The stormwater flows on the west side of SR 18 that contribute to these wetlands, will also be treated by the proposed MFDs, representing an improvement in stormwater entering the wetlands over the existing condition. Both wetlands also either contain streams or serve as headwaters for streams that flow parallel to SR-18. Most stormwater inputs to these wetlands would likely collect and flow out of these streams as described below.

For Wetland LC-04, the only potential increase in stormwater flows directly contributing to the wetland is from the sheet flow from the SR 18 roadway via the vegetated wetland buffer north of Gate 817, by the start of Stream LC-C. As described above, Wetland LC-03 may overflow and contribute to this wetland, but it will be highly unlikely in the proposed condition. Since Stream LC-C flows adjacent to the west side of SR 18 and within Wetland LC-04, the majority of the stormwater from SR 18 will likely flow into the stream without affecting the wetland.

For Wetland LC-28, the stormwater flows anticipated to Wetland LC-28 are indirect. There are no substantial roadway changes on the east side of SR 18 by the wetland. Most of the SR 18 widening will be on the west side, opposite from Wetland LC-28, with indirect flows contributing to the wetland via cross culverts and the anticipated sheet flow path from Wetlands LC-01, LC-02, and RR-01/LC-29. As the headwater wetland for Stream LC-B, which is adjacent to Wetland LC-27 and flows along the east side of SR 18 roadway, potential increases in stormwater flows would collect and drain to Stream LC-B. OK.

41. Page 10 of the mitigation plan states: “Wetlands that showed an increase in stormwater input but drain to a larger wetland or stream because the increase in stormwater will be passed on to the larger wetland/stream and not detained in the smaller wetland (LC-01).” This wetland is rated Category I and the rating states that this wetland doesn’t have an outlet (up for debate – see comment #5). If this wetland doesn’t have an outlet then an increase in stormwater will negatively impact the wetland and will not be allowed. Please provide specific details about proposed stormwater discharges to this wetland.

As noted in the response to comment 5, Wetland LC-01 does have an outlet and is hydrologically connected to Wetland LC-28. Wetland LC-01 may receive stormwater discharges (sheet flow) from the roadway immediately adjacent to the wetland area. The stormwater discharge will be

treated by the proposed MFDs. The project intends to replace and extend an existing cross-culvert to the edge of the new roadway embankment to preserve the hydrologic connectivity between Wetland LC-01 and Wetland LC-28. As Wetland LC-01 fills with stormwater discharge, the cross-culvert will carry overflows to Wetland LC-28, a large wetland greater than 1 acre that drains to Stream LC-B (described above). OK.

42. There are wetland and buffer impacts to four Category I wetlands and one Category II wetland with high habitat score: LC-1 (habitat score 8), LC-2 (habitat score 7), LC-3 (habitat score 8), LC-4 (habitat score 7), LC-27 Category II with habitat score of 9). I need more specific information on how impacts to these wetland and their buffers were avoided and minimized. How much were the slopes steepened? Did WSDOT look at realigning the road to avoid impact? Could the road an shoulder be narrowed? Etc.

LC-1

- Existing - The existing roadway in this location has a 2H:1V side slope and does not have a ditch conveyance system. Wetland LC-1 in this location has slopes that vary between flat ground and an approximately 10H:1V slope.
- Proposed - The proposed side slopes will have a 4H:1V side slope followed by a 3H:1V side slope that will catch at the existing ground line. These side slopes will be less steep than the existing conditions, with the purpose of providing a media filter drain (MFD) for stormwater treatment.

LC-2:

- Existing - The existing roadway in this location has a 2H:1V side slope and is at the outfall of an existing culvert. Wetland LC-2 in this location has slopes that vary between flat ground and an approximately 10H:1V slope.
- Proposed - The proposed side slopes will have a 4H:1V side slope followed by a 3H:1V side slope that will catch at the existing ground line. The existing culvert will be extended here. These side slopes will be less steep than the existing conditions, with the purpose of providing a MFD for stormwater treatment.

LC-3:

- Existing - The existing roadway in this location has a 2H:1V side slope and does not have a ditch conveyance system. Wetland LC-3 in this location has slopes that vary between flat ground and an approximately 10H:1V slope.
- Proposed - The proposed side slopes will have a 4H:1V side slope that will catch at the existing ground line. These side slopes will be less steep than the existing conditions, with the purpose of providing a MFD for stormwater treatment.

LC-27:

- Existing - The existing roadway adjacent to this wetland has a 2H:1V side slope and is bounded by stream LC-B. Wetland LC-27 in this location has slopes that vary between flat ground and an approximately 10H:1V slope.
- Proposed - The proposed side slopes will have a 4H:1V side slope followed by the relocated stream LC-B with 2H:1V side slopes that will catch at the existing ground line. These side slopes will be less steep than the existing conditions, with the purpose of providing a MFD for stormwater treatment. OK.

Did the design team look at realigning the road to avoid impact?

Yes. During the Practical Design Process, the design team evaluated several baseline and contextual needs that would influence the preferred alternative. Amongst these needs were

impacts to the natural environment and Category 1 wetlands. Each of the alternatives was evaluated and scored based on their ability to meet each of the baseline and contextual needs. SR 18 is constrained with Category 1 wetlands on both sides of the roadway, as well as forested uplands with potential marbled murrelet habitat. The design team balanced realigning the roadway with reusing the existing alignment fill prism to avoid and minimize overall wetland, stream, and forested upland (including potential marbled murrelet habitat) impacts. OK.

Did the design team look at narrowing the roadway and/or shoulder to avoid or minimize the impact?

Yes. The current cross section configuration of the roadway is as narrow as is allowed per the WSDOT Design Manual. The design team was required to provide a solution that would increase traffic capacity, improved safety, and reduce congestion. These solutions required constructing additional lanes in each direction and adding a median barrier along SR 18. Furthermore, the side slopes were designed to minimize the impacts to wetlands while minimizing excessively steep slopes that would require extensive guardrail and barrier protection. OK.

43. Another avoidance question - LC-01 is a Category I forested wetland dominated by large, mature, coniferous trees. Some permanent wetland impacts are due to roadway widening. On the east side of SR 18, the buffer and wetland LC-28 are dominated by a few deciduous trees and the wetland in this area is mostly PSS/PEM. Did the design team consider moving the alignment to the east to avoid impacts to LC-01?

During the practical design phase, the design team did consider alternatives that would have widened SR 18 on the east side of the existing roadway. However, widening on the east side of SR 18 was excused for various reasons. In this particular location, widening towards Wetland LC-28 (also a Category 1 wetland) would have resulted in more impacts to a Category 1 wetland. Wetland LC-28 also contains permanently inundated and seasonally inundated areas adjacent to the roadway. In addition to this design challenge, filling those areas would affect hydrologic connectivity and function for Wetland LC-28 as well as flows to Stream LC-B.

Widening on the east side of SR 18 would have had additional negative impacts to other baseline and contextual needs that would have adversely impacted other environment issues and raised the project budget. For this section of the project, there were already two lanes in the eastbound direction and one lane in the westbound direction. Adding new pavement on the west side of SR 18 was seen as beneficial for constructability, traffic control, and budgetary standpoint. Furthermore, this approach allowed for the optimal placement of the new bridge crossing over the Raging River, that would minimize additional right-of-way acquisition and impacts to slopes immediately south of the Raging River, where a history of slope instability was identified. OK.

44. Table 7 shows that indirect impacts are being mitigation for at a ratio lower than ½ the standard ratio. Typically, indirect impacts should be mitigation for at ½ the standard mitigation ratio. So if the standard ratio is 2:1 then the indirect impact ratio should be 1:1. Please adjust ratios accordingly. We can also look at areas of indirect impacts during our site visit to discuss proposed ratios.

Indirect impacts should be mitigated for at ½ the standard mitigation ratio.

Mitigation plan updated with new ratio for indirect impacts.

45. Table 7 shows 2:1 ratios are proposed for Category I impacts. I'll need to review specific impacted areas of Category I wetlands to determine if a 2:1 ratio is appropriate, especially for any areas where mature coniferous trees will be removed.

A 2:1 mitigation bank ratio is appropriate and consistent with what we have required for other projects.

46. I'll review Table 7 in more detail after I get a revised plan (and after our site visit).

I'll review this table after I get a revised plan.