



MEMORANDUM

TO: EMILY STEPHENS
WINDSOR ENGINEERS
FROM: MIKE JOHNSON, P.E.
ADAM LYONS
DATE: APRIL 19, 2023
SUBJECT: COWLITZ MEADOWS ENGINEERING
PLAN REVIEW
TOLEDO, LEWIS COUNTY, WASHINGTON
G&O #22240.01

The Applicant proposes to subdivide a 36.62 acre parcel (Parcel No. 011438001000) into a 97-lot single family residential subdivision. The proposed project is located along Toledo-Vader Road and Plomondon Road, south of the intersection. Update preliminary engineering plans were submitted for second review. We have reviewed the submittal for compliance with City standards, codes, and policies. A summary of the comments is as follows:

CIVIL ENGINEERING PLANS

General

1. Details for the park will need to be submitted to the City for approval.
2. Street lighting sheet not provided. General details and a photometric study should be provided.
3. Confirm that there is sufficient separation from the storm sewer pipes to the sanitary sewer and water mains. The profile views show various places where vertical separation appears to be insufficient.
4. The extent of proposed park improvements is unclear. We assume that these will be worked out through the preliminary plat process with a detailed review of parks and open space completed.

Sheet C100

5. Unknown red dashed line shown.



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6. Intersection Sight Distance notes at the top of the sheet, unknown correspondence to intersections.
7. Intersection Sight Distance notes on side of the sheet incomplete and unknown correspondence to driveways.
8. Hammerhead turnaround at lower end of ROAD C, hatched with “ROCK CONSTRUCTION ENTRANCE” and overlaps with pavement of ROAD C.
9. Hammerhead turnaround at lower end of ROAD D, hatched with “ROCK CONSTRUCTION ENTRANCE” and overlaps with the stormwater detention pond.

Sheet C106

10. Sewer service not shown in legend.
11. Fire hydrant locations should be approved by the local fire authority.
12. Some fire hydrants are not called out, but shown on C400 sheets.
13. Blow-offs not called out at the end of Roads B, C, and Plomondon.

Sheet C110

14. It is unclear where any construction runoff control ponds or sediment traps will be located.

Sheets C200 – C209

15. Show utility in corresponding color on plan and profile views.

Sheets C280 – C283, C290 – C293

16. Sheet C281: This sheet includes a detail for downspout drain to the curb. The stormwater report notes that all roof runoff will be sent to splashblocks and the modeling includes credits for this BMP. Any roof drainage directly connected to the street or curb would not qualify for the modeling credit.



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17. General standard details are given for some construction such as sidewalks and curb and gutter, while County and WSDOT standard details are also given. There may be excess standard details.
18. Detail #1 on Sheet C293 needs a title.

Sheets C390, C391

19. Sheet C390: The outfall detail labeled on this sheet is missing. The storm report must include details for sizing the overflow berm. The control structure detail on this sheet is non-standard – please revise per Figure V-12.1 in the Manual.
20. Sheet C391: The leaders on this sheet appear to be pointing to the wrong locations, and elements are missing on both profiles. The tightline profile should indicate any required anchors along the length and an anchor detail must be provided.
21. Use corresponding utility colors.

Sheets C392 – C394

22. Sheet C394: It is unclear what the drywell detail and drain outlet detail are intended to be used for. The outlet structure indicates an 18-inch pipe, while the plan view shows a 12-inch pipe.

Sheets C400 – C411

23. Sewer pipe needs to be specified, see City Standard.
24. Call out and note thrust blocking on bends in water main.
25. Show utility in corresponding color on plan and profile views.
26. The location of water and sewer services to each lot should be shown on the plans.
27. Sheet C407 mis-numbered.



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28. Water connections to main on Toledo-Vader Road and Plomondon Road on profile views appear incomplete and need to be coordinated with the plan views (C400, C403, C405, C407, C409).
29. Water main not shown on profile view of Plomondon Road (C410, C411).
30. On Sheet C402, the water main extends further on the profile view than is shown on the plan view.
31. On Sheet C406, the water main extends further on the profile view than is shown on the plan view.
32. On Sheet C410, the blow-off is not shown at the end of the road and the water main is not shown on the profile view.

Sheets C501 – C515

33. Air-release required on Plomondon Road at 2041+60.
34. City Standard #17 requires DI Class 52 for road crossings.
35. Sewer construction is also shown on C501 and C502, and should be reflected in the title.
36. Show utility in corresponding color on plan and profile views.

Sheets C590, C591, C592

37. Detail #2 on Sheet C590 needs a curb stop.

Sheets C600 – C603

38. Street name signs should be provided.
39. Note #10 references a standard detail for the City of Winlock.
40. Stop signs and stop bars should be shown on the side streets to the collector streets and at the intersection of the collectors.



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STORMWATER TECHNICAL INFORMATION REPORT

Documents Reviewed:

- Cowlitz Meadows Preliminary Stormwater Technical Information Report by Windsor Engineer; January 17, 2023
- Response to Cowlitz Meadows Preliminary Plat Review by Windsor Engineers; January 17, 2023
- Cowlitz Meadows Engineering Plans by Windsor Engineers; February 2023

The Applicant submitted a Preliminary Stormwater Technical Information Report (TIR) describing how stormwater would be managed for the project. The Applicant proposes to collect stormwater from the development and route the runoff directly to an onsite pond. The collection system was not described, but based on the plans, the conveyance system will consist of a stormwater pipe network. Stormwater runoff is proposed to be treated and detained in a combined detention and wetpond located near the southwest corner of the plat. The treated stormwater will be released from the pond via a control structure and outfall to the wetland area on site. It should be noted that in the TIR, the Applicant proposes to use splashblocks to disperse roof runoff at each home in the development. Although Ecology's BMP T5.13: Post-Construction Soil Quality and Depth will be used for all landscaped areas, the consulting geotechnical engineers (Strata Design) recommended throughout their analysis that stormwater should not be disposed of onsite through infiltration, and that roof runoff should be tightlined to the storm conveyance system.

The stormwater system has been designed to comply with the 2019 Department of Ecology Stormwater Management Manual for Western Washington (2019 Manual), and the report has been reviewed with this in mind. Although the City has officially adopted the 2000 version of the Ecology Manual (2000 Manual), the preliminary plat design was reviewed in order to meet present day standards.

Responses to the initial preliminary plat comments were reviewed and are addressed below. The following items will need to be addressed in the final stormwater report and engineering plans:

1. Page 5: The splash blocks require 50-foot flow paths from each downspout with a slope of less than 15%, per page 717 in the 2019 Manual. The plans must demonstrate that this amount of space is



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available if modeling credits will be used based on this BMP. The homes between Road B and Road C look like they have limited space available for this due to the steep slopes at the backs of the lots.

2. Response to comment accepted. The plans must note the provided volume for the wetpool and the overall detention volume.
3. Response to comment accepted.
4. Response to comment accepted.
5. Response to comment accepted. See comment #1 for additional feedback.
6. Response to comment accepted.
7. Response to comment accepted.
8. Response to comment accepted.
9. The slope stabilization analysis will be reviewed in the final submittal.
10. The following must be included with the final stormwater report:
 - Stormwater site plan detailing the collection, conveyance, and discharge systems
 - Stormwater Pollution Prevention Plan
 - Conveyance calculations and wetpool cell sizing calculations
 - Design details regarding Minimum Requirement #8 (Wetland Protection), including a wetland hydroperiod analysis
 - An offsite analysis
11. Page 9: Guidance from the 2019 Manual regarding source control BMPs applicable to all sites or to single family residential developments should be included in the O&M documentation per Minimum Requirement #3.



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12. Appendix C: The detention pond indicates a 100-year water surface elevation of 270.6 feet, which is more than 1 foot above the riser head. It is recommended that the 100-year water surface elevation be fully contained within the pond berm, and adequate freeboard for this must be indicated on the final plans.
13. Appendix C: A wetland hydroperiod analysis must be included in the final storm plan with input from a critical areas professional.
14. Response to comment accepted.
15. Plans: Per the geotechnical engineer's recommendations on pages 7 and 13 of the Geotechnical Report (Appendix B-2), permanent cut and fill slopes should not be steeper than 2H:1V. According to the Pond Plan on Sheet P6 and Section C-C on Sheet P7, the pond's southern berm appears to have a slope of 1.8H:1V.
16. Plans: Per Ecology's BMP T10.40 (and subsequently BMPs T10.10 and D.1) in the 2019 Manual, there are specific planting requirements for combined detention and wetpool facilities. The final plans must incorporate a landscaping plan for the proposed stormwater facilities.
17. Plans: The final plans must include all relevant details for the stormwater system including the pond construction, flow control structure, stabilized overflow route, conveyance structures, outfalls, etc.
18. Plans: An appropriate dispersion method must be used to discharge stormwater from the pond into the natural wetland buffer area. The outfall pipe must be tightlined to a suitable discharge location to prevent erosion of the steep slope, with consultation from the geotechnical engineer.
19. Modeling: The plans show the emergency overflow at 268 ft elevation, while the model notes it at 271 feet, and the model shows the pond exceeding the 268 ft overflow elevation during most storm events. The pond size in the model must be reflected on the plans.

MJ/sp