



March 14, 2023

Town of Fraser
153 Fraser Avenue
Fraser, CO 80442

RE: GRAND PARK 10W & 11W (W MOUNTAIN FILING 1)

On behalf of Grand Park Development, Terracina Design has reviewed the comments dated February 8, 2023. The following is a response to comments to Merrick & Company's Grand Park 10W & 11W (W Mountain Filing 1) Drainage Review, Merrick & Company's Grand Park 10W & 11W (W Mountain Filing 1) Utility Review and Grand Park 10W & 11W (W Mountain Filing 1) FPDP & Preliminary Plat Submittal Review.

Baseline - Grand Park West Mountain Filing 1 FPDP & Preliminary Plat Review

FPDP

1. Typo: Later pages of the document say "Cutb & Gutter" instead of "Curb & Gutter".
Noted. Typos have been corrected.
2. On the Phasing plan include an anticipated time schedule.
Note has been added to phasing plan.
3. Include quantities in plant schedules.
Landscape plan has been updated to include planting schedule.

Civil and Planning Comment Responses

Merrick - GRAND PARK 10W & 11W (W. MOUNTAIN FILING 1) UTILITY REVIEW

UTILITY REVIEW COMMENTS

General

- 1) The preliminary CDs included in this application are titled "Preliminary Construction Plans for Grand Park – 10W & 11W." However, the planning area known as 10W that is labeled as such in the "Grand Park Master Plan Illustrative" map is not included in this. Please clarify the true coverage of this application in subsequent submittals. General Notes No. 17. Benchmark is referring to Douglas County, please revise to match Town of Fraser benchmark statement on Sheet 1.

Noted.

- 2) Some information is missing for a full review. For final reviews, please include the following
 - a. Plan and profile sheets in the CD set for both water and sewer to verify compliance with Town standards, including slopes and bury depth, and

Plan and profile sheets for both water and sanitary will be provided once the CD set is elevated from Preliminary CDs to Final CDs. Profiles will be produced on the next submittal.

- b. A utility report, to verify the following items. If a historical utility report is the basis for this design, please provide the name of the report, the author, and the date.
 - i. Water demands (average day, maximum day, and peak hour),
 - ii. Wastewater flow rates (maximum day and peak hour),
 - iii. Water pipe sizes (velocity calculations), and
 - iv. Wastewater pipe sizes and minimum slope requirements (d/D calculations).

Please refer to existing master utility reports by others for all water demand, sanitary demand and pipe sizing requirements for the property.

- 3) The geotechnical report does not provide results for corrosivity testing. Please request this testing from the geotechnical engineer to validate pipe materials selection.

Corrosivity is not an issue at this site and not relevant as ductile iron pipes will not be used. Please show where in the Town standards this is a requirement and note that since 1999 this has not been a requirement.

Preliminary Plat

- 1) A utility easement appears to be missing for the looped water main connection from Road E to Grand Park Drive. Please review and include the necessary easement alignments and width for this utility. It appears to be missing in both the preliminary construction drawings and the preliminary plat.

Additional easements and easement information will be provided on the Final Plat.

Potable Water System

- 1) Per the Referral Comment Sheet by Terracina Design dated 10/28/2022, in response to a previous comment from Merrick dated 2/15/2021 that indicates construction of new potable water storage is required to adequately serve the filing, Terracina Design indicates, "Understood. The master utility report and infrastructure layout will be provided in a separate submittal. We are currently working with the Town of Fraser with the locations of the water tanks and meter infrastructure." Merrick has noted that the master utility report and infrastructure layout is forthcoming. Some of the comments provided in this letter may be addressed by that pending information. Please also note that our development reviews are not considered complete until the master utility layout has been provided, reviewed, and found satisfactory. Ensure that there is sufficient information to review the storage capacity for this development.

Noted. The master water study has been provided to the Town.

- 2) This development's water supply is entirely dependent on the 12" water main along Grand Park Drive which is a dead-end line that ties into the existing main on Old Victory Rd. As it is shown in the drawings, this design is not acceptable per Town Standards paragraph 14-3-260(a)(3). Looping must be provided to provide redundancy if the main between Kings Crossing Road and Old Victory Road is out of service. Please provide a schedule and overall map for the

development to verify when a second connection to the Fraser system will be in place prior to occupancy.

Further information will be provided on the next submittal. Water will be supplied to the site from existing water mains and existing water tanks from the Yellow Zone Tank as well as proposed water mains and proposed water tanks in the Green Zone. Adequate looping for redundancy will be provided.

- 3) On Sheet 9, the water main configuration at the existing wetlands is confusing. Please clarify. The callouts labeled "End of existing 12" water line" and "Beginning of future 12" water line" exclude the connecting water main between them. It's assumed that the water main would continue along Grand Park Dr. Please explain the distinction between these call-outs.

Further information will be provided on the next submittal to better differentiate between the existing infrastructure and what is being proposed in the master water layout.

4) Pipes

- a. On sheet 7, running two, smaller parallel water mains in lieu of a larger water main is not acceptable. Please revise so that the proposed mains on roads B, C, and D connect to a single water main that serves the other roads in this development.

There are two different water lines due to the different pressure zones serving the site. Further information about the master water layout will be provided when the initial master water plans have been submitted.

- b. On sheet 8, Connect the two water main alignments shown on Road A between Road B and Road E, as shown in the drawing markups, to improve pressure in this planning area

Each water main is in a different water zone. Adequate pressure will be provided via looping and additional master water infrastructure. Further information about the master water layout will be provided when the initial master water plans have been submitted.

- c. Indicate the pipe material on the construction drawings, either in the General Notes sheet or in plan and profile drawings. Note that AWWA C900 PVC is required if soils are determined to be corrosive.

Additional water note will be added to the plans on the next submittal.

- 5) Hydrants: Add hydrants at the end of the cul-de-sacs on Roads C and D. Note that hydrant placement and density must be verified with the fire department, in addition to access conditions and fire flow requirements.

Additional hydrants will be placed at the end of the cul-de-sacs on the next submittal.

- 6) Valves: Review valve spacing along Grand Park Drive to confirm valves meet industry standard spacing of 600'. Also, please confirm whether a hydrant, tee, and valves are proposed at the location of the existing wetland.

Additional valves will be placed adequately throughout the site on the next submittal.

Sanitary Sewer System

- 1) As shown in the Referral Comment Sheet by Terracina Design dated 10/28/2022, Merrick provided a comment on 2/15/2021 that indicated full build-out of Filing 1 will overload the existing sewer. Merrick recommends the Town use the information provided in that memorandum to determine a course of action. Terracina Design provided a response stating, "Understood. We will work with the Town of Fraser to figure out the best course of action for the full sanitary buildout for this and future projects that utilize the infrastructure mentioned above."

Based on this response, it is Merrick's understanding that there is currently no schedule or plan for upsizing the interceptor to meet future conditions. Please include the course of action derived from meetings with the Town in the next submittal and use the information provided in the February 2021 Merrick letter as a starting point. The February 15, 2021 letter is included as an Enclosure. In addition, please ensure that the latest parcel/lot information and Town Standards are used in determining the wastewater flow rates – for these two planning areas and all others for the development. Updated standards and lot/parcel information may change from what was originally laid out in the February 2021 Merrick letter.

The Town of Fraser Town Manager and our client are working together to track down and find the existing sanitary sewer study for the Town. We are working with our client and the Town Manager to determine the best course of action moving forward with addressing the potential infiltration problem, full buildout demand conditions and if upsizing existing sanitary pipes will be necessary.

- 2) Review and clarify the sanitary sewer alignment on Grand Park Drive. The infrastructure is missing and unlabeled in several areas. In particular, it is unclear where the tie-in manhole is located and where the existing sewer line is. Flow arrows appear incorrect in some locations, as evidenced by flow arrows ending at the MH at the end of Road F.

Additional clarification and information will be provided on the next submittal. Sanitary profiles will be provided, and flow arrows will be corrected based on pipe flow direction.

- 3) Please review the sanitary sewer and water alignments to look for opportunities to reduce the number of manholes in each sanitary sewer reach. It appears efforts have been made to use them sparingly, however, moving water main bends nearer to the curbline in some areas may allow the SS line to move nearer to the middle of the street while maintaining the required 10-foot separation.

Adjustments to the sanitary alignment will be made on the next submittal. Thank you for the recommendations.

TRANSPORTATION REVIEW COMMENTS

Final Development Plan

Sheets 3, 4 and 5 of 16.

- Cross-section of local road (36' ROW) shows 10' wide driving lanes. Town standard is 11'. Sidewalk on local road is shown as 4-foot wide. Town Standard (14-3-80) requires a 5-foot sidewalk.

Local road has been updated to reflect 11' wide driving lanes and 5' sidewalks on plans and on the cross-section.

- Sheets 9, 10 and 11 note the local road cross-section has mountable curb and gutter. That should be made clear on the roadway cross-section. The curb and gutter on the cross-section should be dimensioned.

The callouts have been updated on the cross-section.

Preliminary Construction Plans

Sheet 1 of 18.

- Show width of ROW for Grand Park Drive (80')

The ROW width for Grand Park Drive will be shown on the next submittal.

- Cross-section of local road (36' ROW) shows 10' wide driving lanes. Town standard is 11'. Sidewalk on local road is shown as 4-foot wide. Town Standard (14-3-80) requires a 5-foot sidewalk.

The cross-section for the local roads will be updated to 11' wide driving lanes and 5' sidewalks on the next submittal.

Sheet 4 of 18.

- Length of "Road C" exceeds town standard (14-3-40) of 500' for the maximum length of streets ending in turnarounds.

A cul-de-sac for Road C will be shown on the next submittal.

Sheet 5 of 18.

- Length of "Road D" exceeds town standard of 500' for the maximum length of streets ending in turnarounds.

A cul-de-sac for Road D will be shown on the next submittal.

- Length of "Road E" exceeds town standard of 500' for the maximum length of streets ending in turnarounds.

A cul-de-sac for Road E will be shown on the next submittal.

- Verify minimum length of tangent sections between horizontal curves on "Road A" during final design.

Minimum tangent lengths between horizontal curves will be verified with the addition of road plan and profile sheets on the next submittal.

- Verify sight distance triangles at "Road A"/"Road F" intersection during final design.

Road A / Road F sight distances will be verified on the next submittal.

Sheet 5 of 18.

- Length of "Road F" exceeds town standard of 500' for the maximum length of streets ending in turnarounds.

A cul-de-sac for Road F will be shown on the next submittal.

Sheets 10-12 of 18.

- Town standards limit roadway grades at local intersections to 4% and at collectors to 2% (Section 14-3-70(4)). The preliminary grading plans shows intersections that may be exceeding this standard are Road F/Road A, Road A/Grand Park Drive, Road A/Road E, Road A/Road B, Road B/Grand Park Drive.

Road grades at intersections will be verified with the addition of road plan and profile sheets on the next submittal.

Preliminary Plat Narrative (two pages)

- Under "f. Code Conformance", section 3., Roadway Standard, the narrative states "The plan complies with the Town's roadway standards and PDPD standards." As noted above in the comments on the Preliminary Construction plans, the proposed local street cross-section does not conform with Town roadway standards.

The road section has been updated.

- Under "g. Comprehensive Plan Conformance," item 4 Transportation states "The extension of Grand Park Drive past the underpass will provide the.... This statement needs to be completed.

The sentence will read, " The extension of Grand Park Drive past the underpass will provide the second point of access to the site, with Kings Crossing extension being the other point of access."

Final Plan development Plan Narrative (two pages)

- Under "f. Code Conformance", section 3., Roadway Standard, the narrative states "The plan complies with the Town's roadway standards and PDPD standards." As noted above in the comments on the Preliminary Construction plans, the proposed local street cross-section does not conform with Town roadway standards.

The road section has been updated.

- Under "g. Comprehensive Plan Conformance," item 4 Transportation states "The extension of Grand Park Drive past the underpass will provide the.... This statement needs to be completed.

The sentence will read, " The extension of Grand Park Drive past the underpass will provide the second point of access to the site, with Kings Crossing extension being the other point of access."

Traffic Report

The traffic report included with this submittal package is dated January 2013. Please update recommendations, particularly concerning off-site traffic requirements.

A compliance letter will be provided. The density for the filing is consistent with the 2013 TIA.

DRAINAGE REVIEW COMMENTS

Drainage Report

1) For the proposed drainage improvements along the western side of Grand Park Drive, we have the following comments:

- a. The elevation of the proposed sidewalk along the northwestern side is typically higher than the existing tie-in grades, which is creating a swale along the toe of slope which appears to prevent runoff from the northwestern portions of the basin from reaching the inlets at Design Points C01 and D01. Add inlets on the northwestern side of the trail at both design points to intercept runoff in the swale so runoff will not overtop the trail

Grading will be revised, or additional inlets/swales will be added to the next submittal so that storm water will enter the proposed storm infrastructure appropriately.

- b. Revise the C01 and D01 basin boundaries to separately analyze the runoff to the swales and to the roadway valley pans

The basin boundaries will be separated in the next submittal so that the swales and valley pans can be analyzed separately.

- c. At Design Point C01, provide a wide berm in the swale to create a sump at the new inlet.

A wide berm in the swale at Design Point C01 will be added to provide a sump condition at the new inlet with the next submittal.

- d. Near the southern end of Lot 35, the swale that is discussed in Comment 1a becomes shallow and may not have sufficient capacity. Analyze the swale capacity to verify that it can contain at least the 10-year runoff without overtopping the trail. Revise the design to provide additional inlets and storm sewer outfalls if sufficient capacity is not available.

Additional inspection of the swale discussed in Comment 1a will be provided in the next submittal.

- e. At the intersection of Grand Park Drive and Road A, eliminate the concrete crosspan and revise the grading to create a sump at the inlet at Design Point D01 to intercept surface runoff in the valley pan, instead of allowing it to flow across the intersection.

A cross pan will be maintained at the intersection of Road A and Grand Park Drive. Additional inlets will be added to the design to reduce the amount of flow entering the intersection.

2) Grading and layout for Type C inlets along roadways are not detailed in the drainage report or construction drawings. Provide a detail or typical grading plan that shows that runoff from valley pans will be completely collected into the inlet and that the calculated ponding depth is contained. Since Road A is very steep at Design Point B04, it is suggested to consider an alternative to modify the valley pan to slope away from the road, remove the Type C inlet and provide a riprap rundown to route runoff to the swale to aid in turning the flow from the street to the swale.

Thank you for the recommendation. Further inspection of the grading and Type C inlet layouts will be provided on the next submittal.

- 3) With the final design, provide sizing calculations, including hydraulic grade lines, for all storm sewer pipes including pond outlet pipes, inlet lateral pipes, and culverts.

Sizing calculations and hydraulic grade lines will be provided on the next submittal.

- 4) On the Proposed Drainage Map and construction plans, label the existing culvert across Grand Park Drive with diameter and material

The existing culvert will be labeled on the next submittal.

- 5) In the detention pond calculations:

- a. For each pond design, revise the rainfall values to match the NOAA Atlas 14 data for the 1-hour storm.

Rainfall values will be updated accordingly on the next submittal.

- b. In the Pond B calculation worksheet, the invert of the rectangular vertical orifice does not match the invert elevation on construction drawing 16. Revise either the worksheet or drawing to match.

The necessary revisions will take place on the next submittal.

- c. In each of the worksheets, the water quality orifice diameter does not match the orifice diameter on the construction drawings. Revise either the worksheets or drawings to match

The necessary revisions will take place on the next submittal.

- d. The outfalls for each pond do not outfall directly into Leland Creek or a drainage swale. In addition to the proposed energy dissipation at these outfalls, the pipe flows will be concentrated and are proposed to discharge to undisturbed land. The concentrated flows have a high potential to create erosion and must be designed to be non-erosive by spreading out the flows to reduce the velocities and flow depth using a low tailwater basin

Low tailwater basins will be added to the pond outfalls on the next submittal.

- 6) As previously commented, details and calculations must be provided for all drainage elements in the Phase II documents. These include but not limited to storm pipe profiles, detention pond grading, swales, valley pans, inlets, and culverts.

This is a preliminary submittal, additional information regarding the proposed storm infrastructure will be provided with the Final CDs.

Construction Plans

- 7) On Sheet 1, revise the Grand Park Drive typical cross section to correctly reflect the typical proposed grading to slope down from the trail to tie into existing grades.

The slope from the trail down to existing will be shown on the next submittal.

8) On the construction drawings for the detention ponds:

- a. The outlet structure design details show that the outlet pipe inverts are set at the micropool elevations. Revise the design and analysis to provide at least a 3-inch elevation difference from the micropool elevation to the outlet pipe invert per the MHFD criteria.

The necessary revisions will take place on the next submittal.

- b. MHFD does not have a standard detail for a Type C grate. Revise the note for the Type C grate to refer to a CDOT Type C Close Mesh Grate.

The note revision will take place on the next submittal.

- c. Revise the elevations on the Section B-B details to show the correct elevations for each pond.

The necessary revisions to Section B-B elevations will take place on the next submittal.

- d. MHFD criteria for soil riprap mix ratio is 65% riprap and 35% soil. Revise the note on spillway sections B-B, C-C, and D-D to use this criteria. On section B-B, revise the riprap thickness to be 24 inches or greater.

The soil riprap mix ratio callout will be updated on the next submittal.

- e. The slope of the maintenance access road for each pond shall not exceed 10%. Revise the maintenance access road grading and label the road slope at the steepest section.

The pond access roads will be adjusted to 10% and the necessary revisions will take place on the next submittal.

9) As previously commented on Sheets 7, 8, and 9 Utility Plans, label the inlets with their unique identifying number to correspond to the Inlet Management Sheet in Appendix C of the Drainage Report

The inlet label identifying numbers will be updated to reflect the associated basin name and the necessary revisions will take place on the next submittal.

10) As previously commented, the grading for the ponds show the bottoms to be flat. Regrade these ponds to account for trickle channel depths, sloping bottoms, and a minimum 4-inch depth from the trickle channel invert to the micropool elevation.

The pond bottoms will be updated to reflect the proper grading and the necessary revisions will take place on the next submittal.

11) Provide profiles for all storm sewer pipes including pond outlet pipes, inlet lateral pipes, and culverts

Profiles for all storm pipes will be added to the plans and the necessary revisions will take place on the next submittal.

- 12) Provide a design for the manhole located nearest to Inlet B08 to show that the manhole is structurally sound with the amount and size of pipe penetrations. Increase the MH diameter if needed

The manhole located near inlet B08 will be adjusted accordingly and the necessary revisions will take place on the next submittal.

FPDP Drawings

- 13) On Sheets 7 and 8, show native seed mix placed on cut and fill slopes created by road, swale, and detention pond construction.

Native seed mix location has been updated to show seed mix in slopes created by roads, swales, and detention ponds.

The Whitmer Law Firm, LLC. – West Mountain at Grand Park Preliminary Plat and FPDP Legal Review

1. The legal descriptions submitted, including the legal on the plat, reference Section 32 although none of the subject parcel is in that section.

The legal will be updated.

2. The preliminary plat checklist indicates that there are no liens on the property, but the title commitment shows a deed of trust from Cornerstone Winter Park Holdings LLC, a Colorado limited liability company for the use of The Northern Trust Company, to secure \$16,000,000.00, dated February 23, 2022, and recorded February 24, 2022, at Reception No. 2022001639. The Plat and the FPDP have mortgagee consents for different deeds of trust.

Noted. A Mortgagee consent will be added to the Final Plat and FPDP.

3. Applicant's narratives state that "Land Use. Planning Area 10w allows 174 residential units, and 11w allows 41 residential units. The FPDP proposes 29 residential units in 11W and 43 residential units in 10W. Any remaining residential units can be transferred to other planning areas." The PDD allows for 40 detached and 134 attached residential units for Planning Area 10w and 10 detached and 31 attached residential units for Planning Area 11w. The proposed 43 single-family homes for 10w would exceed the allowed detached units by three, and the proposed 29 single-family homes for 11w would exceed the allowed detached units by 19. Applicant has not yet submitted an updated density transfer chart.

A density transfer chart will be provided to show the transfer of attached units to detached units.

4. The Final PD Plan Checklist requires "Estimated time schedule for development, including a site map that depicts the development, phases thereof, sites and building footprint sizes and locations outlined in the development schedule." Applicant provided a note referencing the FPDP, but no estimated time schedule for development is provided there.

A note will be added to the Final PD Plan.

5. The Traffic Impact Analysis provided is from 2013 and the Environmental Site Assessment is from 1999. Newer studies are needed.

A traffic compliance letter will be provided with Final Plat however the density for this neighborhood follows the 2013 TIA. The Environmental assessment was completed with the PDDP and an update is not warranted as there is nothing in Town Code indicating that these reports expire. The site conditions have not changed since 1999 except for the removal of pine beetle infected trees.

East Grand Fire Protection District No.4 – Grand Park West Mountain Filing 1 -10W and 11W Pre Plat

- Road D, C, E-width increased to 26ft and an approved Dead-End Fire Apparatus Access Road Turnaround IFC Figure D103.I

Site Plan has been updated to show width at 26' and appropriate dead end fire apparatus access road turnaround

- Road B - width increased to 26ft and an approved emergency turnarounds installed not more that 750ft apart (need on the west side).

Site Plan has been updated to show width at 26'

- Road F-width increased to 26ft and the Cul-de-sac appears to be under sized, will require a minimum diameter of 96ft of driving surface.

Site Plan has been updated to reflect changes to cul-de-sacs and driving surface.

- Grand Park Drive -emergency turnarounds spaced throughout with internals not to exceed 750ft.

Noted and Road C, D, and E have been updated to Cul-de-sacs and hold appropriate access turnarounds where needed.