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August 13, 2018

El Paso County Planning and Community Development

Attn: Jeff Rice, PCD-Engineering
& Kari Parsons, Project Manager/Planner II
2880 International Circle
Colorado Springs, CO 80910

Re: Falcon Marketplace Early Grading Permit (SP-17-001/CDR-16-007) Response 5

Mr. Rice,

Please accept this response letter to your review 4 comments dated July 21, 2018.

Our response comments to follow are in **Bold** following each original review comment.

Preliminary Plan

Preliminary Plan comments addressed in a separate response letter.

Transportation/Traffic Impact Study

Comments to follow...

Preliminary Drainage Report (PDR) / Drainage Plans

1. Provide all required PDR checklist items (~~attached~~). The known missing/incomplete items have been highlighted. Comment remains; see remaining items and redlines for clarification. Existing conditions and proposed on-site conditions need to be fully addressed. *See remaining items and redlines. Note: revisions and additional reviews will be required to address the access from Woodmen Road if that design is proposed. Partially resolved;*
 - a. *See remaining redlines and redlines on new design; address WQCV issues. See remaining redlines. **Plans updated per redlines***
 - b. *Provide approximate flow rates entering the subdivision with all necessary calculations (checklist item #28). Label Pond SR4 release rates (96" pipe flows) for each design storm. Partially resolved; see redlines. **Plans updated per redlines***
 - c. *Regarding checklist item #30, alignment, material and structure type, the roundabout designs will require additional details at the final design stage to ensure that drainage facilities do not conflict with the required roundabout attributes (grading, sight distance control, etc.).*
2. *through 5 – Resolved*
6. Address how the proposed design accommodates the existing petroleum pipeline and other utilities along the south and east property lines. Provide documentation that the easement holders have no objections to the proposed drainage design. Comment

remains. *Provide documentation when available. Comment remains.* Unresolved. **We have contacted Nustar on multiple occasions, most recently on August 8th 2018.**

7. *through 9 – Resolved*

10. Provide preliminary storm drain, channel, headwater, freeboard and spillway sizing calculations. Partially resolved;

a. Additional detail and clarification will be required for features to be constructed with the overlot grading or in the FDR for subdivision construction items. See redlines. *See remaining/updated redlines.* Partially resolved; see updated redlines. **Further detail added to the plan set.**

b. *Resolved*

c. *Resolved*

11. Geotechnical issues (also see Geotech. study comments below)

a. Page 31 of the geotech. study states that “In no case should water be allowed to pond near or adjacent to foundation elements, hardscaping, utility trench alignments, etc.” Discuss how the proposed drainage design accomplishes this. Partially resolved; final *liner* details need to be provided with FDR or in this report prior to pond construction. *Comment remains. Partially resolved see redlines regarding liner details. Requirements for quality control, testing and final certifications for the pond liner will need to be discussed and agreed to prior to construction. The thickness of topsoil mixture above the liner (liner depth) needs to be discussed and verified.* Comment remains; provide specifications when available. **Acknowledged, specifications will be provided when available.**

b. Address anticipated pond SR4 embankment settlement. Provide additional study and construction requirements when available. *Resolved; tracking of settlement will be addressed at construction stage.*

c. Consider replacing the proposed area drain and pipe at the northwest corner with a swale along the north property line to the proposed rundown. Maintenance access appears likely to be difficult as proposed and the geotech. study recommends “properly designed drainage swale” at the tops of excavation slopes. Partially resolved; stabilization of and maintenance access to the 3:1 (and steeper?) excavated slope along the north side of Pond SR4 will need to be further addressed with the final pond design. *(If the extent of overlot grading includes the slopes, this needs to be addressed with overlot grading.) Comment remains; access road design, offsite grading (requiring easements) sheet flow locations and rundowns and the concrete rundown need additional detail to ensure adequate access and functioning.* Unresolved. **Further detail added to the plan set, and a temp. offsite easement for grading of a berm in the NW corner of the site will be reviewed with the neighboring property owner. No other offsite easements are anticipated.**

d. Discuss the required geotechnical and dam analyses appropriate for detention pond SR4. See DCM Sections 6.6, 11.3.3, and Attachment A (Chapter 11). Partially resolved; provide additional study and construction requirements when available. *Partially resolved with PSI memo; provide copies of State Engineer correspondence and additional geotechnical requirements (if applicable) when available. See redlines regarding details and material at downstream edge of spillway.* Unresolved. **Concrete curb will be installed along the edge of the asphalt at the north side of lots 1 and 2.**

12. *Resolved*

13. Drainage Plan:

- a. Resolved.
 - b. Show and label all proposed maintenance access roads and easements on the Developed Conditions Plan. Partially resolved; see GEC redlines regarding this. Provide stabilized access roads along the west and north sides of the pond. See *additional redlines; due to the rundown along the north side of the pond, pond bottom stabilization is required which could be incorporated into an access road design through that area. Comment remains.* Partially resolved; details need to be provided in CDs. **Further details added to the plan set.**
 - c. *Resolved*
 - d. Provide a design point summary of 5- and 100-year flow rates at all surface and pipe design points on both the existing and proposed plans. Partially resolved; address per local basin and DP redlines. *Comment remains; see redlines regarding flows from the north. Comment remains.* Unresolved. **Flows from the north clarified and broken out into the separate reaches.**
 - e. *Note: The determination of crown location and inlet or sheet flow for the additional paving on Meridian Road (and at other offsite locations if required due to approval of the Woodmen Road right-in) will need to be determined with the Final Drainage Report and offsite CDs.*
14. *through 16 – Resolved*
17. All runoff from Falcon Market Place (road) needs to be treated for WQCV or a deviation approved for areas that are not treated (southwest area?). See redlines regarding Pond #3. Of course this will all need to be revised if the Woodmen Road access with roundabout is approved. *Comment remains (the drainage plan shows some inlets draining directly to the channel area).* If a deviation is needed it can be provided with the FDR.
18. Adequate separation of the inlet and outlet for Pond #2 needs to be provided. Reference UDFCD USDCM Volume 3 EDB Design Procedure and Criteria, page EDB-3. Consider shifting the inlet to the west and/or the outlet to the east. Another option would be to construct a wall directing flows toward the end of the pond before reaching the outlet. *Comment remains for both Pond #2 and Pond #3. Note that the location of Pond #3 in existing County right-of-way is not able to be approved until resolution of the overall road design issues.* These details can be worked out with the FDR.
19. *Resolved*
20. *Resolved*
21. *Note: If any of the CLOMR excerpts have been revised with the design (i.e. StormCAD), provide revised versions in the report calculations.*
22. Verify outlet grate velocity of Pond SR4. Address compliance with UDFCD safety criteria (see redlines).
23. *Note: Details on upstream diversions done with the Bent Grass project will need to be addressed with the Falcon Marketplace FDR. Acknowledged.*

Grading and Erosion Control Plan / SWMP / Geotechnical Issues

Note that in order to obtain the Early Grading permit, most of the drainage and all of the Grading and Erosion control comments need to be addressed with detail to the final design level.

1. *Note: Regarding the request for pre-development site grading (“early grading”), a checklist of final submittal requirements was previously provided. The separate*

Construction Drawing review (CDR-16-007) (*comments incorporated below*) needs to be complete and those plans approved along with the GEC plans prior to overlot grading. The PDR will need final-level details as well, including complete pipe and pond design, if the Final Drainage Report is not to be submitted and approved prior to overlot grading.

2. GEC Plan:
 - a. Provide all required GEC checklist items (attached). The known missing/incomplete items have been highlighted. You may need to split sheet 2 into two sheets (north and south) or more to show all information and detail required. Comment remains. *See remaining items. For the overlot/early grading permit, an interim plan will be necessary showing only the grading and drainage improvements necessary for the overlot grading. This will exclude work outside of the property lines and storm drains that serve the future lots. If the Pond SR4 embankment will be completed, the pond outlet and downstream storm drain (or interim channel) will need to be installed. Partially resolved; see updated checklist. Partially resolved; see updated checklist. **Plan set updated to include outstanding checklist items.***
 - b. through j – *Resolved*
 - k. *See new redlines and incorporate applicable drainage plan redlines. Comment remains. **Plan set updated per redlines.***
3. Ground Engineering Geotechnical Report dated October 18, 2016:
 - a. *Resolved*
 - b. There is only one boring in the SR4 pond area, which indicates very shallow groundwater. Recommendations on how to keep the groundwater from infiltrating the pond (which is to be excavated approximately 10 feet deeper than the groundwater level) need to be provided. If a separate geotech. study will be provided for pond construction, let us know. Comment remains; provide additional study when available.
 - c. *Resolved*
 - d. Note: Comments regarding pavement design for the proposed spine road will be provided with the Final Plat review, dependent on final design/layout and determination of public or private maintenance. Final geotechnical study and review of construction plans by the geotechnical P.E. will be required at the Final Plat stage.
4. SWMP:
 - a. *Provide remaining items highlighted in blue on attached checklist. Comment remains. Unresolved. **Plan set updated to include outstanding checklist items.***
 - b. *Items highlighted in yellow need to be provided in the on-site SWMP when construction begins.*
 - c. *Resolved*

CLOMR Report and Construction Plans (#1-#13 from CLOMR comments)

2. *Resolved*
11. Note: A soils/geotechnical investigation as appropriate for detention pond and embankment construction will be required with the Construction drawings submitted for County approval. Reference ECM Section 2.2.6. For the complete construction drawing review, all County submittal requirements need to be met, including the following: (to be

revised with CDs) 2/17: *Comment remains.* 5/30: *Comment remains.* 7/6: *Partially resolved:*

- a. Survey horizontal and vertical control points (*not found*). Resolved; to be addressed further with as-builts.
 - b. All necessary onsite and offsite drainage and access easements. *Comment remains.* Unresolved; also provide documentation from Nustar concurring with the CDs when available.
 - c. *Resolved*
 - d. *Liner design specifications and details.* *Comment remains (to be agreed upon with County Engineer).* Unresolved; see PDR comment #11.
13. *Annotated FIRM contains some illegible text (PDF scrambled).* 5/30: *Provide final (approved version) CLOMR CD when available.* Unresolved. **CLOMR approval letter included with this submittal. CD of CLOMR will be submitted separately.**
14. *Resolved*
15. *Resolved*
16. *Reference attached UDFCD outlet structure design details. Specific items that need to be incorporated into the project's outlet structure designs include the orifice plate design and notes, water quality plate details (type and thickness), stainless steel well screen (page OS-9) and neoprene gasket. Complete review of sheet C7.9 will be provided after revisions. Sheets C7.11 and C7.12 will be reviewed with the subdivision CDs. Partially resolved; see redline regarding specific calculations for trash rack (now sheet C7.5). Partially resolved; see updated redlines.*
17. *Provide a detailed liner design drawing with elevations and extents. Ensure that conflicts with the other pond features are addressed. Partially resolved; see redlines regarding conflicts and cover depth. Partially resolved; see PDR comment #11.*
18. *See redlines on CDs. See new redlines. Partially resolved; see updated redlines.*

Financial Assurance Estimate Form/Other

1. Provide a Financial Assurance Estimate form including all required GEC items. *Comment remains. Partially resolved; Clarification needs to be provided on the extent of construction with the overlot grading, to be as shown on the Interim GEC Plan. All improvements required, included the following need to be included on the FAE form: rundowns, low-flow channels, forebays, outlet structure, pipes, stabilized access roads, etc. Partially resolved; add clay liner and add description to the "other" channel stabilization line for which feature it applies to. Partially resolved; see redlines. Updated per redlines.*
2. *Resolved*
3. *Provide PDB/BMP agreement exhibits A and B when available. If an access easement other than the to-be platted pond tracts/easements is desired, an Exhibit "C" can be provided. Provide when available. Acknowledged*

We trust you find our responses to the 4th review of the Falcon Marketplace Preliminary Plan acceptable. We look forward to working with the County in processing the submittal. Please call if you have any questions or require any additional information.

Respectfully,

Drexel, Barrell & Co.

A handwritten signature in black ink, appearing to read "Tim D. McConnell". The signature is fluid and cursive, with a large initial "T" and "M".

Tim D. McConnell, P.E.