

## MEMORANDUM

DATE: July 21, 2017

TO: Kari Parsons, PCD-Project Manager

FROM: Jeff Rice, PCD-Engineering

SUBJECT: SP-17-001/ CDR-16-007 – Falcon Marketplace  
Fourth Submittal

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### **Engineering Division**

Planning and Community Development (PCD)-Engineering reviews plans and reports to ensure general conformance with El Paso County standards and criteria. The project engineer is responsible for compliance with all applicable criteria, including other governmental regulations. Notwithstanding anything depicted in the plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code (LDC), the Engineering Criteria Manual (ECM), the Drainage Criteria Manual (DCM), and the Drainage Criteria Manual Volume 2 (DCM2). Any deviations from regulations and standards must be requested, and approved by the ECM Administrator, in writing. Any modifications necessary to meet overlooked criteria after-the-fact will be entirely the developer's responsibility to rectify.

The comments include unresolved previous comments and new comments resulting from the re-submittal in **bold purple**. All previous comments that have been resolved have been noted or deleted. A written response to all comments and redlines is required for review of the re-submittal. Please arrange a meeting between the developer's team and County staff to review and discuss these comments and prepared revisions/responses prior to the next submittal.

**Note: these comments incorporate previously separate TIS and EGP comments.**

### Preliminary Plan

1. through **7 – Resolved**
8. Regarding the proposed private spine road:
  - a. Resolved
  - b. Resolved
  - c. The cross-section right-of-way/easement width does not match the plan labels; revise as appropriate. See comment 8.f. regarding proposed deviations. **Unresolved.**
  - d. If the road through the site is not public, a maintenance turnaround will be required at the end of the Woodmen Frontage Road. Vacation of the current turnaround right-of-way is unlikely unless some other turnaround arrangement is agreed upon. Partially resolved; vacation of the turnaround right-of-way is dependent on resolution of the other proposed deviations to allow for adequate maintenance access. **Partially resolved; see redlines regarding portion to be vacated.**
  - e. Verify that the proposed road centerline radii are adequate for an appropriate design speed. Comment remains; the proposed radii need to *(being addressed with deviation request)*.
  - f. The new deviation request submitted with the revised TIS includes at least 10 deviations for the proposed Falcon Market Place, address TIS comment 6 and revise the plan accordingly. See redlines also. *See revised TIS comments.*
9. through 12 – Resolved
13. *The landscape plan included with this submittal shows trees in existing and proposed ROW in several areas including along Meridian Road. Some of these trees need to be moved depending on final site design and construction plans. A license agreement will be required at*

the final plat stage for private landscaping remaining in the ROW, including the proposed roundabouts. **Comment remains.**

14. **Resolved**

Transportation / Traffic Impact Study (TIS)

1. The TIS needs to include all items required by ECM Appendix B including but not limited to peak hour link volumes and LOS for Meridian Road and Woodmen Road and safety / accident analysis. Partially resolved; link volumes for Meridian Road and Woodmen Road were not labeled on the figures. The safety analysis only references general accident and injury/fatality history. If there is information about the predominant movements involved in the accidents please provide that. *Partially resolved; label link ADTs for Meridian Road and Woodmen Road on the existing and short-term figures.* **Unresolved. LSC Response (8/13/18): This has been addressed in the updated TIS.**
2. Additional offsite impacts will require mitigation if the Woodmen right-in access is approved. The TIS focuses on areas that may see improved LOS with the right-in, but it should also address additional signage, striping, signalization, and turn lane improvements at all intersections impacted by the development and specifically the shifted traffic patterns that would be caused by the right-in. The comments below mention some of the foreseen additional offsite improvements. Partially resolved;
  - a. *through c – Resolved*
  - d. *Note: The updated TIS shows that in both short term and 2040 background comparisons without the development (comparing “apples to apples”), the “with roundabout” option causes greater delays for the Meridian Road northbound through and left turn movements (almost all movements in the short-term). The development itself causes the northbound through movement failure for which a valid comparison would require either the third northbound lane on Meridian Road or a reduction in site-generated traffic to the extent that failure of the movement is not caused.* **Address this issue in general in the TIS (page 3). LSC Response (8/13/18): This has been addressed in the updated TIS.**
  - e. *Note: Additional revisions, including proper warrant analysis, signage and auxiliary lane details will be discussed with the preliminary plan and final plat reviews.*
3. A complete roundabout analysis addressing basic design aspects such as design vehicle, inscribed circle diameter, entry angles and widths, fastest paths, entry spacing and vehicle tracking was not provided and is requested. There are several issues of concern with the design as proposed:
  - a. The roundabout entry legs do not appear to be geometrically aligned to provide for the safest fastest path operations. The westbound movement appears to be designed as a free entry or bypass into the site, which will not function properly with the other legs. Traffic exiting Woodmen Road (the westbound movement) is likely to assume it has right-of-way to enter the site freely, which will conflict with the eastbound/northbound movement, and possibly the southbound movement depending on its exit leg. **Unresolved; provide complete roundabout details meeting the specified criteria and matching modeling per comments below. The proposed deflections entering the roundabout are still of concern, and other issues remain, including appropriate overall sizing (inscribed circle) and alignments for the design vehicle and other vehicles that will utilize the roundabout.** *Partially resolved; details adequate to show feasibility of a more standard design have been provided. Detailed review of all attributes will continue with the preliminary plan, final plat and construction drawings. Remaining concerns include calculation method of entry angles (which affects other design aspects) and potential conflict between Approach 2 and Approach 3. Reference NCHRP Report 672 pages 6-26 - 6-27.* **Partially resolved; LSC Response (8/13/18): Regarding the calculation of the Phi and potential conflict between Approach 2 and Approach 3, the revised TIS contains updated preliminary roundabout design exhibits. These exhibits reflect updated Phi angle calculations and include potential changes for Staff consideration to address staff’s concern regarding potential conflict between Approach 2 and Approach 3. Also, as per comments 3d and 3e (which follow), the**

**60% and 90% roundabout submittals, including FDM 11-26 Attachment 5.1 (or equivalent), will be provided prior to final design/final plat submittal. LSC will meet with staff on the roundabout design.**

- d. If the RI access with roundabout is approved, 60% to 90% roundabout technical reports and construction plans (for both roundabouts) will be required with the Preliminary Plan submittal to allow for adequate review time. **Provide 60% and 90% roundabout submittals prior to final design/final plat submittal. LSC Response (8/13/18): The 60% and 90% roundabout submittals, including FDM 11-26 Attachment 5.1 (or equivalent), will be provided prior to final design/final plat submittal. LSC will meet with staff on the roundabout design.**
  - e. **Note for final design: The Wisconsin DOT Facilities Development Manual (FDM), FDM 11-26 section is referenced where County criteria and the NCHRP Report 672 (Roundabouts: An Informational Guide) are lacking in detailed criteria. Roundabout design procedures and criteria in the FDM, including design procedures, details, signing and striping recommendations and lines of sight, should be utilized to the extent practicable. See <http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/design.aspx> Regarding roundabout lighting, reference <http://wisconsindot.gov/Pages/doing-bus/local-gov/traffic-ops/manuals-and-standards/tgm/11.aspx> / <http://wisconsindot.gov/dtsdManuals/traffic-ops/manuals-and-standards/teops/11-04.pdf> for guidance. Please discuss any conflicting or redundant criteria with Staff. **Provide FDM 11-26 Attachment 5.1 or equivalent prior to final design submittal.** (Links: <http://wisconsindot.gov/rdwy/fdm/fd-11-26-att.pdf#fd11-26a5.1> <http://wisconsindot.gov/rdwy/fdm/files/fd-11-26-a0501-File01.xls> ) **LSC Response (8/13/18): The 60% and 90% roundabout submittals, including FDM 11-26 Attachment 5.1 (or equivalent), will be provided prior to final design/final plat submittal. LSC will meet with staff on the roundabout design.****
4. **Resolved**
  5. When Woodmen Road is expanded to 6 lanes, the location and function of this access point will potentially exacerbate conflicts due to anticipated higher traffic speeds on Woodmen Road. If the proposed access is approved, Staff recommends that escrow be required in the amount necessary to remove the right-in and roundabout in the future. Resolved regarding the weaving analysis; the question remains regarding actual physical construction. Potential removal of the right-in due to safety issues and/or widening of Woodmen Road will be addressed in a *license* agreement, ~~if the access is approved~~. **A draft license agreement (needed with Final Plat) will be provided when available.**
  6. *Resolved*
  7. *Resolved*
  8. See **updated** TIS redlines regarding these comments and other associated issues.
  9. Regarding Figure 26, one Right Lane Must Turn Right sign should be sufficient and suggest retaining only the upstream sign with the 500-ft plaque and adding two R3-5 signs adjacent to the arrow pavement markings. Suggest adding a Circular Intersection warning sign in place of the Yield Ahead sign.

**Note: Comments 11-16 are from previous complete Preliminary Plan submittal.**

11. **Resolved**
12. **Resolved**; Construction or “fair share” escrow contribution, if applicable, will need to be determined and approved by the County Engineer with the final plat **or each Site Development Plan.**
13. Verify whether or not the traffic signal at Meridian and Eastonville is proposed to be constructed with the first final plat connecting that intersection. If it is not, provide additional stop-condition and warrant analyses for the current and short-term conditions at this intersection. Resolved; coordination with EPC DPW will be provided at the final plat/construction stages.
14. The TIS needs to provide acceleration, deceleration, and stopping distances in accordance with current design and posted speeds. If these lengths cannot be met, provide deviation requests for shorter lengths as applicable. Resolved; reduction of the speed limit on Meridian Road between

Woodmen Road and a location near Owl Lane (verify MUTCD requirement) is being considered by the County Engineer if this development proceeds.

15. Resolved

16. The deviations submitted have not approved or denied pending review of the revised TIS.

*Comment remains; 6/16: Comment remains; the deviations have still not been approved or denied pending further revisions. The number of issues remaining with the proposed design are not acceptable. 7/19/18: Unresolved. LSC Response (8-13-18): Previously-submitted deviations have been included with this resubmittal. The deviation for Falcon Market Place has been updated per staff redlines.*

a. Resolved

b. Regarding the new (multiple) deviation request for “Falcon Market Place” as a public road additional information and revisions are required:

- iii. Commercial lot access and spacing: Address anticipated turning movement traffic with the detailed internal analysis per TIS comment 1. It appears that some of the proposed access points would produce conflicting left turns and some may have limited sight distance; address or revise as appropriate. Cross-lot access may be required across certain outer lots and limitations on the types of uses may need to be considered if levels of traffic would impact traffic on Falcon Market Place. *Partially resolved; the sight distance exhibits are all based on 20 MPH traffic. In locations where traffic is anticipated to be traveling at 25 MPH or greater, use that speed. See redlines.*
- Concerns with the public road as shown include maintenance (plowing, repaving, etc.), access (delivery trucks), and safety/adequacy of pedestrians, bicycle traffic and turning movements with the narrow road, sharp turns and no shoulders. The design needs to meet WB-50 design vehicle requirements, and the WB-67 design vehicle needs to be accommodated where it is reasonable to assume they may have a delivery within the site or need to travel through the site. *Comment remains; the turning templates seem to show multiple locations where curb and gutter is likely to be driven over or hit by the design vehicle, snow plow and WB-67 (including roundabout islands). Potential conflicts through the southeast and southwest corner curves are a concern where left-turning vehicles will have conflicts with the WB-50 design vehicle and larger. Provide exhibits showing the revised design and road and roundabout backgrounds and lanes with the next submittal. Expand Figures 5 and 6 to show the complete turning templates on the north end and show turns from and to the internal west access (at southwest curve). Provide WB-62 and fuel tanker templates through the site since a gas station has been proposed as a potential use. Partially resolved; see redlines. LSC Response (8/13/18): The revised TIS contains updated preliminary roundabout design exhibits.*
- Adequate transition needs to be provided from the Woodmen Frontage Road cross section to the Falcon Market Place road section. *Comment remains. Resolved; details to be addressed with CDs. LSC Response (8/13/18): Noted.*
- Reference NCHRP Report 672; Roundabouts: An Informational Guide, specifically chapter 6, regarding the roundabout geometric design. *Compliance with the concepts in that guide and County criteria will need to be shown with the actual roundabout designs through roundabout design reports. Initial concerns with the current design include those listed above and in the Woodmen Road access comments; circulating width; entry angle, entry radii and phi (and calculation method); accommodation of buses and snow plows (they shouldn't need to use the center apron and curb clearances should be 1-2 feet); and fastest path speed consistency. (See comment #3e, above.) LSC Response (8/13/18): Please see LSC responses to 3d and 3e above.*

Following are applicable November 2, 2007 comments (renumbered 7-15) that were remaining to be addressed from the rezone approval (CR-07-001, condition of approval #2). Address as appropriate with the updated TIS:

7. The overall study for the Latigo Area should include a fair and equitable cost from each developer that would need to be determined prior to final plat. This equation should address the cost sharing of all regional improvements. *10/29/07: Many improvements have been identified*

to develop commercial in the area. Costs that are regional or part of the subarea should be shared among developers. These costs and contributions will be identified with the final plat. Resolved; any off-site improvement contributions (or potential cost recovery) will be identified with the final plat.

8. through 11 – Resolved
12. Levels of service E are shown at the intersection of Eastonville and Meridian Road and Woodmen and Golden Sage. Provide methods of mitigating these unacceptable levels of service. A possible solution is to specify uses to trip generation that would bring the turn lanes into conformance. 10/29/07: These deviations will be evaluated further with the preliminary plan. Comment remains regarding the Eastonville/Meridian intersection; conditions may be placed on the deviation request by the County Engineer.

#### 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.***
  - 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.***
  - 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.***
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.**
  - 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.***
  - 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.**
  - 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.**
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.**
  - 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.**
  - 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.

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.*
  - b. through j – *Resolved*
  - k. See new redlines and incorporate applicable drainage plan redlines. **Comment remains.**
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.**
  - 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.**
  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.**
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.**

#### Attachments

1. Preliminary Plan Redlines
2. TIS Redlines
3. Preliminary Drainage Report Redlines
4. CD/GEC Plan Redlines
5. Deviation Request Redlines
6. GEC Checklist
7. SWMP Checklist
8. Engineering Final Submittal Checklist
9. Falcon DBPS Screenshots for (reference)

**EI Paso County Grading and Erosion Control Plan Submittal Checklist**

- 1) Vicinity map.....
- 2) North arrow and acceptable scale (1"=20' to 1"=100').....
- 3) Existing and proposed Contours 2 feet or less (except for hillside).....
- 4) Standard EPC Grading and Erosion Control Notes included.....
- 5) Delineate mapped FEMA 100-yr floodplain.....
- 6) Construction site boundaries clearly delineated.....
- 7) Areas of soil disturbance shown.....
- 8) All proposed construction BMPs and Construction BMP details shown.....
- 9) Show existing vegetation.....
- 10) Existing and proposed water courses including springs, streams, wetlands, Detention ponds, roadside ditches, irrigation ditches and other water surfaces.....
- 11) Show all existing structures.....
- 12) Show all existing utilities.....
- 13) Submit geotechnical investigation from soils engineer.....
- 14) Conclusions from soils report and geologic hazards report incorporated in grading design.....
- 15) Show existing and proposed property lines and site boundary.....
- 16) All existing and proposed easements (permanent and construction).including required off site easements.....
- 17) Any offsite grading clearly shown and called out.....
- 18) Existing and proposed storm drainage facilities as necessary to show all BMPs.....
- 19) Temporary sediment ponds provided for disturbed drainage areas greater than one acre.....
- 20) Proposed slopes steeper than 3:1 with top and toe of slope delineated.....
- 21) Erosion control blanketing shown on slopes steeper than 3:1.....
- 22) Retaining walls greater than or equal to 4ft in height require design by P.E. and building permit from Regional Building Department. Locations to be shown on the plan (not located in County ROW).....
- 23) Vehicle tracking shown at all construction entrances.....
- 24) The erosion control plan is to be certified by a Colorado Registered P.E. with appropriate signature blocks for EPC and the Engineer and the statement "The Owner will comply with the requirements of the Erosion Control Plan" signed by the owner.....
- 25) Required Signature blocks:.....

### Stormwater Management Plan Checklist

1	Applicant (owner/designated operator), Prepared By, SWMP Administrator, and Contractor information	<input type="checkbox"/>
2	Table of Contents	<input checked="" type="checkbox"/>
3	Site description and location to include vicinity map (not just Section, Township, Range)	<input checked="" type="checkbox"/>
4	Narrative description of construction activities proposed (e.g., may include clearing and grubbing, temporary stabilization, road grading, utility / storm installation, final grading, final stabilization, and removal of temporary control measures)	<input checked="" type="checkbox"/>
5	Phasing plan – may require separate drawings indicating initial, interim, and final site phases for larger projects. Provide “living maps” that can be revised in the field as conditions dictate.	<input type="checkbox"/>
6	Proposed sequence for major activities: Provide a construction schedule of anticipated starting and completion dates for each stage of land-disturbing activity depicting conservation measures anticipated, including the expected date by which the final stabilization will be completed.	<input type="checkbox"/>
7	Estimates of the total site area and area to undergo disturbance	<input checked="" type="checkbox"/>
8	Soil erosion potential <b>and potential impacts upon discharge</b>	<input checked="" type="checkbox"/>
9	A description of existing vegetation at the site and percent ground cover	<input checked="" type="checkbox"/>
10	The location and description of any other potential pollution sources such as fueling (mobile or stationary), chemical storage, etc.	<input type="checkbox"/>
11	Material handling to include spill prevention <b>and response procedures</b>	<input checked="" type="checkbox"/>
12	Spill prevention and pollution controls for dedicated batch plants	<input checked="" type="checkbox"/>
13	Other stormwater pollutant control measures to include waste disposal and cleanup of off-site soil tracking	<input checked="" type="checkbox"/>
14	The location and description of any anticipated non-stormwater components of discharge (springs, irrigation, etc.)	<input checked="" type="checkbox"/>
15	The name of ultimate receiving waters; size, type and location of stormwater outfall or storm sewer system discharge	<input checked="" type="checkbox"/>
16	SWMP Map to include: a) construction boundaries	<input checked="" type="checkbox"/>
	b) all areas of disturbance	<input checked="" type="checkbox"/>
	c) areas of cut and fill	<input type="checkbox"/>
	d) areas used for storage of building materials, soils or wastes (stockpiles)	<input checked="" type="checkbox"/>
	e) location of any dedicated asphalt / concrete batch plants	<input checked="" type="checkbox"/>
	f) location of all structural BMPs	<input checked="" type="checkbox"/>
	g) location of all non-structural BMPs	<input type="checkbox"/>
	h) springs, streams, wetlands and other surface waters	<input checked="" type="checkbox"/>
17	Narrative description of <b>all</b> structural BMPs to be used, including: silt fence, straw bales, check dams, sediment basins, diversion swales, etc. Ensure that methods are ECM/DCM-approved.	<input checked="" type="checkbox"/>
18	Description of non-structural BMPs to be used <b>including seeding, mulching, protection of existing vegetation, site watering, sod placement, etc.</b>	<input checked="" type="checkbox"/>
19	Technical drawing details for BMP installation and maintenance	<input checked="" type="checkbox"/>
20	Procedure for how the SWMP will be revised	<input checked="" type="checkbox"/>
21	Description of final stabilization and long-term stormwater quality measures to control stormwater pollutants after construction operations have been completed	<input checked="" type="checkbox"/>
22	Specification that vegetative cover density is to be a minimum of 70% of pre-disturbed levels to be considered stabilized	<input checked="" type="checkbox"/>
23	Outline of permit holder inspection procedures to install, maintain, and effectively operate BMPs to manage erosion and sedimentation	<input checked="" type="checkbox"/>
24	Record keeping procedures identified <b>to include signature on inspection logs and location of SWMP records onsite</b>	<input type="checkbox"/>

Please note: all items need to be addressed. If not applicable, explain; simply identifying “not applicable” will not satisfy CDPHE requirement of explanation.

<b>Engineering Final Submittal Checklist for Electronic Submittals</b>	
<b>Check Box</b>	<b>Item: Report/Form</b>
<input type="checkbox"/>	Preliminary Drainage Report (signed)
<input type="checkbox"/>	Traffic Impact Study (signed)
<input type="checkbox"/>	Grading & Erosion Control Plan (signed)
<input type="checkbox"/>	Street Construction Plans (signed)
<input type="checkbox"/>	Deviation Request (signed)
<input type="checkbox"/>	MS4 Post Construction Form and SDI worksheet DPW POC: John Chavez
<input type="checkbox"/>	Proof of embankment/pond submittal to State Engineer
<input type="checkbox"/>	ESQCP (signed) DPW POC: John Chavez
<input type="checkbox"/>	* Financial Assurance Estimate, SIA (signed)
<input type="checkbox"/>	* Pond/BMP Maint. Agreement and Easement (signed)
<input type="checkbox"/>	<b>* Operation &amp; Maintenance Manual</b>
<input type="checkbox"/>	Pre-Development Site Grading Acknowledgement and Right of Access Form (signed)
<input type="checkbox"/>	Other: <u>Offsite Easements, Other Permits (FEMA LOMR, USACE, Floodplain...), Conditions of Approval, etc.</u>
<b>Pre-Construction Checklist:</b>	
<input type="checkbox"/>	Driveway/Access Permit
<input type="checkbox"/>	Work Within the ROW Permit (DPW or CDOT)
<input type="checkbox"/>	* Stormwater Management Plan (SWMP) Submit to DSD-Inspection 2 weeks prior to precon
<input type="checkbox"/>	* Colorado Discharge Permit (COR: _____ )
<input type="checkbox"/>	* County Construction Activity Permit
<input type="checkbox"/>	* CDPHE APEN – (if over 25 ac. or 6 mos.)
<input type="checkbox"/>	* Financial Surety (Letter of Credit/Bond/Collateral/Check)
<input type="checkbox"/>	Construction Permit Fee: <i>Major Final Plat - Predevelopment Grading</i> <span style="float: right;"><b>\$ 1,637.00</b></span> (Verify fees with Inspections Supervisor at time of scheduling)
<input type="checkbox"/>	Other: _____

\* - required items to obtain an ESQCP

\*\* - after recordation

\*\*\* - Staff completing

Permit Fee and Collateral must be separate checks

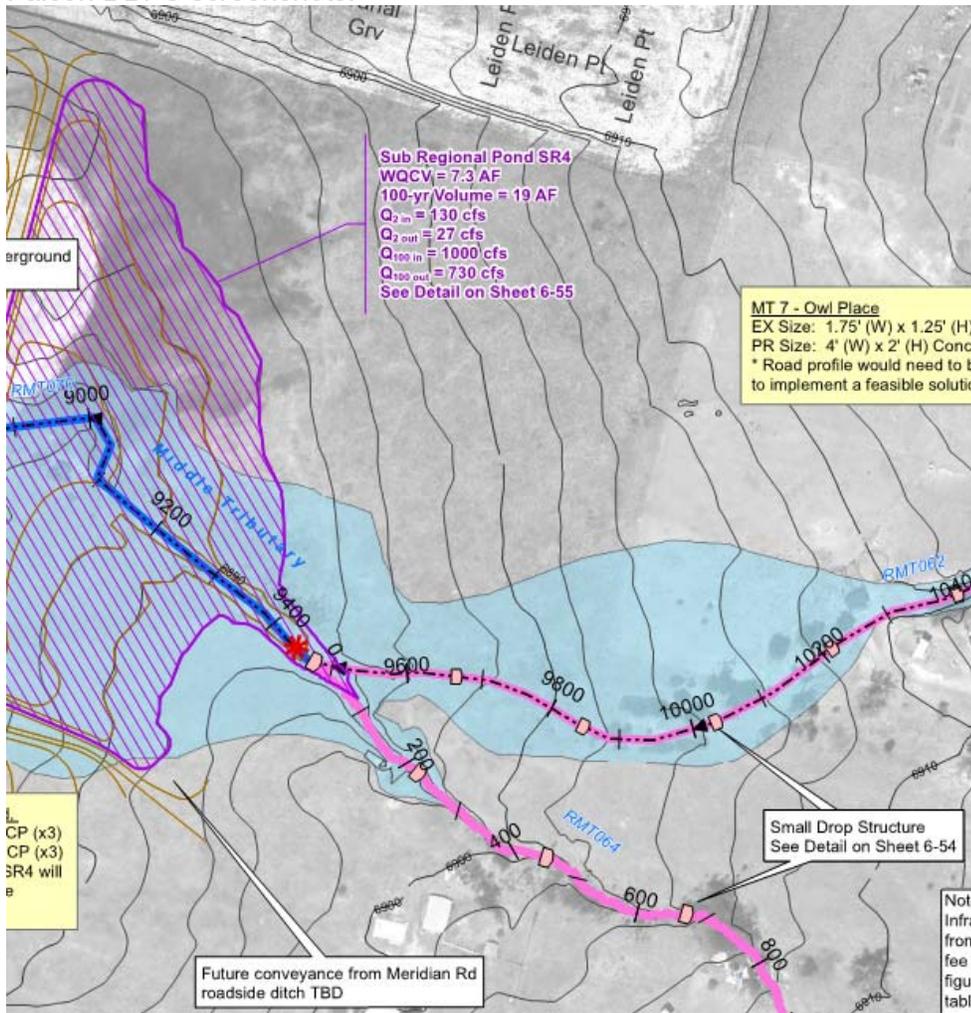
<b>Post Construction Submittal Checklist: (ECM 5.10.6)</b>	
<input type="checkbox"/>	As-Built Drawings
<input type="checkbox"/>	Pond Certification Letter
<input type="checkbox"/>	Acceptance Letter for wet utilities

= Need final signed version

= complete, in file

= Need later

Falcon DBPS screenshots:



Falcon DBPS

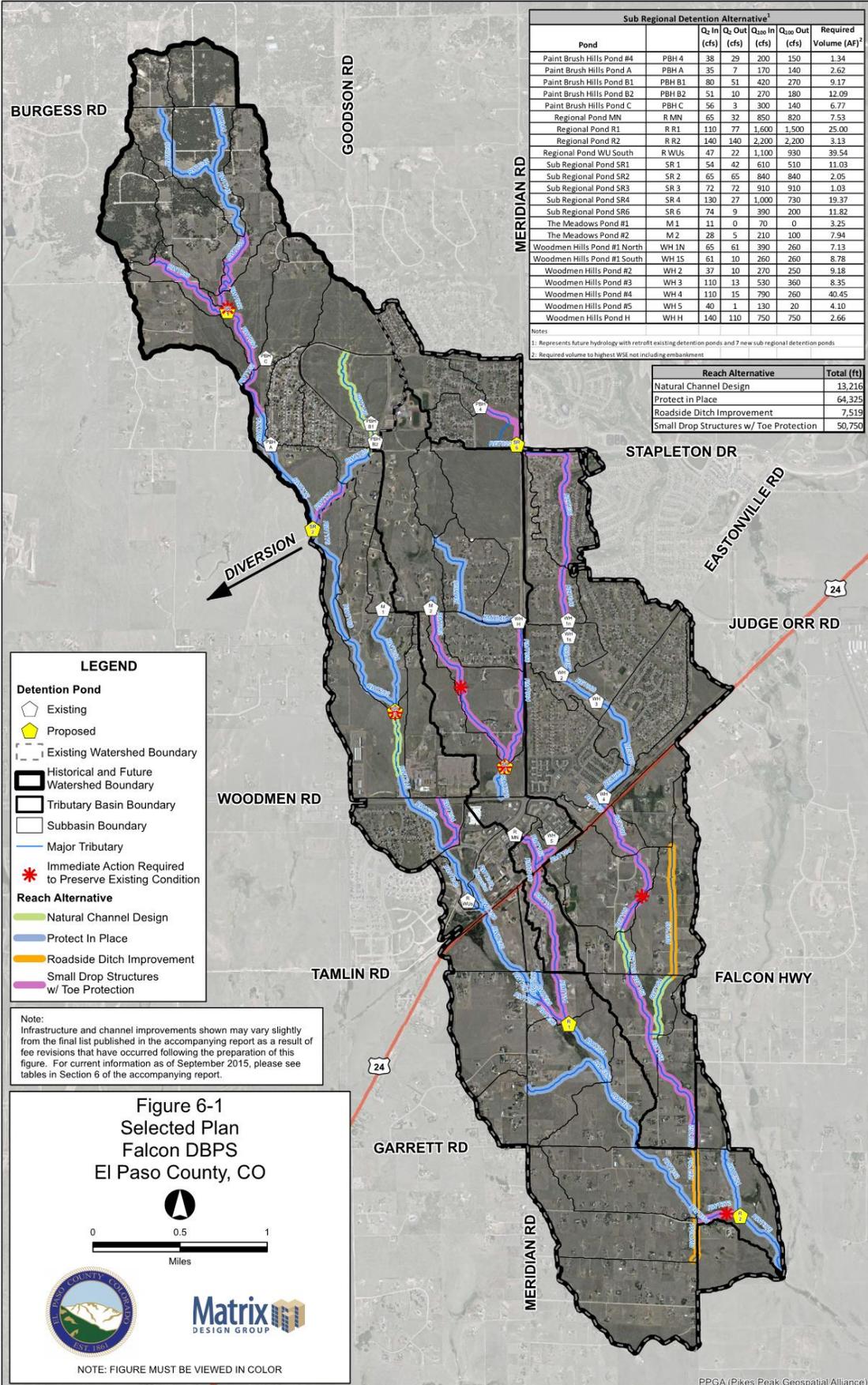
Peak Flow Results

Hydrologic Element	Area (sq mi)	Future Peak Flows (cfs) - With Existing Detention					
		2-year	5-year	10-year	25-year	50-year	100-year
RET162	2.74	59	130	200	360	530	680
RET164	2.93	66	150	230	410	550	710
RMT030	0.09	25	47	63	100	120	140
RMT040	0.25	49	93	130	200	250	290
RMT050	0.56	110	240	330	520	620	750
RMT062	0.29	1	11	25	62	110	160
RMT064	0.67	120	270	370	590	710	850
RMT070	1.16	130	310	430	690	840	1,000
RMT080	1.36	150	350	490	800	980	1,200

Falcon DBPS

Peak Flow Results

Hydrologic Element	Area (sq mi)	Future Peak Flows (cfs) - Sub Regional Detention					
		2-year	5-year	10-year	25-year	50-year	100-year
RET154	0.40	26	0	0	0	0	200
RET156	2.57	55	0	0	0	0	560
RET162	2.74	60	0	0	0	0	590
RET164	2.93	66	0	0	0	0	630
RMT030	0.09	25	0	0	0	0	140
RMT040	0.25	49	0	0	0	0	290
RMT050	0.56	110	0	0	0	0	750
RMT062	0.29	5	0	0	0	0	99
RMT064	0.67	120	0	0	0	0	850
RMT070	1.16	27	0	0	0	0	730
RMT080	1.36	31	0	0	0	0	840



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PPGA (Pikes Peak Geospatial Alliance)