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 www.elpasoco.com

**EL PASO COUNTY PLANNING AND
 COMMUNITY DEVELOPMENT
 DEPARTMENT**

FINAL DRAINAGE REPORT (FDR) CHECKLIST

Revised: July 2019

		Applicant	PCD
1 Final Drainage Report			
The purpose of the Final Drainage Report is to finalize concepts and to present the design details for the drainage facilities presented in the PDR. Also, any change to the preliminary design concepts which were incorporated due to review comments by the County, must be presented. The FDR shall contain all components of the PDR checklist plus additional necessary information relating to the design of specific facilities associated with the development.			
a Report Contents			
1	Table of contents, pages numbered		<input type="checkbox"/>
2	Existing/Historic and Developed Conditions Plans at the end of the report		<input checked="" type="checkbox"/>
b General Location			
1	City and County, and local streets within and adjacent to the subdivision.		<input type="checkbox"/>
2	Township, Range, section, 1/4 section.		<input type="checkbox"/>
3	Major drainage ways and existing facilities.		<input type="checkbox"/>
4	Names of surrounding platted developments.		<input checked="" type="checkbox"/>
c Description of Property			
1	Area in acres.		<input type="checkbox"/>
2	Ground cover, (type of trees, shrubs, vegetation).		<input type="checkbox"/>
3	General topography		<input type="checkbox"/>
4	General soil conditions.		<input type="checkbox"/>
5	Major drainageways		<input type="checkbox"/>
6	Irrigation facilities		<input type="checkbox"/>
7	Utilities and other encumbrances		<input type="checkbox"/>
d Major Basin Descriptions			
1	Reference should be made to major drainageway planning studies; Such as Drainage Basin Planning Studies; Flood Hazard delineation reports, and flood insurance studies or maps if available.		<input type="checkbox"/>
2	A flood plain statement shall be provided indicating whether any portion of the development is in a designated floodplain as delineated on the current FEMA mapping.		<input type="checkbox"/>
3	Major basin drainage characteristics.		<input type="checkbox"/>
4	Identification of all nearby irrigation facilities and other obstructions which could influence or be influenced by local drainage.		<input type="checkbox"/>
e Sub-Basin Descriptions			
1	Discussion of historic drainage patterns of the property in question		<input checked="" type="checkbox"/>
2	Discussion of offsite drainage flow patterns and their impact on the development.		<input checked="" type="checkbox"/>
f Drainage Design Criteria			
1	Reference all criteria, master plans, and technical information used for report preparation and design; any deviation from such material must be discussed and justified.		<input type="checkbox"/>
2	Discussion of previous drainage studies (i.e. PDR, drainage basin planning studies, master plans, flood insurance studies) for the site in question that influence or are influenced by the drainage design and how the studies affect drainage design for the site		<input type="checkbox"/>
g Four Step Process			



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1	Runoff reduction proposed.		<input checked="" type="checkbox"/>
2	Stabilization of drainage ways proposed/discussed.		<input checked="" type="checkbox"/>
3	Proposed Stormwater Quality Capture Volume (WQCV) proposed.		<input checked="" type="checkbox"/>
4	Identify Best Management Practices (BMP's) to be used to control industrial and commercial pollutants.		<input checked="" type="checkbox"/>
h	Hydrologic Criteria		
1	Identify design rainfall.		<input checked="" type="checkbox"/>
2	Identify runoff calculation method.		<input checked="" type="checkbox"/>
3	Identify design storm recurrence intervals		<input checked="" type="checkbox"/>
4	Identify detention discharge and storage calculation method.		<input checked="" type="checkbox"/>
5	Note ECM Appendix I Full Spectrum Detention (FSD) requirement.		<input checked="" type="checkbox"/>
i	Drainage Facility Design - General Concept		
1	Discussion of compliance with offsite runoff considerations.		<input checked="" type="checkbox"/>
2	Discussion of anticipated and proposed drainage patterns.		<input checked="" type="checkbox"/>
3	Discussion of the content of tables, charts, figures, plates or drawings presented in the report.		<input checked="" type="checkbox"/>
j	Drainage Facility Design - Specific Details		
1	Presentation of existing and proposed hydrologic conditions including approximate flow rates entering and exiting the subdivision with all necessary calculation		<input checked="" type="checkbox"/>
2	Presentation of approach to accommodate drainage impacts on existing or proposed improvements and facilities		<input checked="" type="checkbox"/>
3	Presentation of proposed facilities with respect to alignment, material and structure type.		<input checked="" type="checkbox"/>
4	Discussion of drainage impact of site constraints such as streets, utilities existing and proposed structures.		<input checked="" type="checkbox"/>
5	Environmental features and issues shall be presented if applicable.		N/A
6	Discussion of maintenance access and aspects of the preliminary design.		<input checked="" type="checkbox"/>
7	Discussion and analysis of existing and proposed downstream drainage facilities and their ability to convey developed runoff from the proposed development.		<input checked="" type="checkbox"/>
8	Presentation of detention storage and outlet design (including reservoir routings) when applicable. Note the Engineering Criteria Manual Appendix I which requires Full Spectrum Detention.		<input checked="" type="checkbox"/>
9	Presentations of all hydrologic and hydraulic calculations including hydraulic grade line computations as appropriate. Recommended use of Urban Drainage and Flood Control District (UDFCD) spreadsheets and calculations to properly meet this requirement.		<input checked="" type="checkbox"/>
10	Presentation of an accurate, complete current estimate of cost of proposed facilities.		<input checked="" type="checkbox"/>
11	Presentation of all drainage fees bridge fees for the property in question as applicable.		<input checked="" type="checkbox"/>
k	Other Government agency requirements		
1	Federal Emergency Management Agency (FEMA)		
2	Army Corps of Engineers (COE)		
3	Colorado State Engineer		



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4	Colorado Water Conservation Board (CWCB)		
5	Others		
I Drawing Contents, two maps/plans are required, existing conditions & the proposed plans.			
1	General Location Map: A map shall be provided in sufficient detail to identify drainage flows entering and leaving the development and general drainage patterns. The map should be at a scale of 1"=50' to 1"=2000'. The map shall identify any major construction (i.e. development, irrigation ditches, existing detention facilities, culverts, storm sewers, etc.) that shall influence or be influenced by the subdivision.		<input checked="" type="checkbox"/>
2	Drainage Plan: Map (s) of the proposed development at a scale of 1"=20' to 1"=200' shall be included to identify existing and proposed conditions on or adjacent to the site in question.		<input checked="" type="checkbox"/>
i	Existing and proposed contours at 2 feet maximum intervals. For subdivisions involving rural lots greater than 1.0 acre, the maximum interval may be 5 feet where approved. In terrain greater than 10% - 10 feet.		<input checked="" type="checkbox"/>
ii	Property lines and existing or proposed easements with purposes noted.		<input checked="" type="checkbox"/>
iii	All Streets		<input checked="" type="checkbox"/>
iv	Existing drainage facilities and structures, including irrigation ditches roadside ditches, drainageways, gutters and culverts, all indicating flow direction. All pertinent information such as material, size, shape, slope and locations shall also be included.		<input checked="" type="checkbox"/>
v	Overall drainage area boundary and drainage sub-area boundaries relating to the subdivision.		<input checked="" type="checkbox"/>
vi	Proposed type of street sections (i.e., vertical or ramp curb and gutters roadside ditch, gutter flow and/or cross pans).		<input checked="" type="checkbox"/>
vii	Proposed storm sewers and open drainageways, including inlets, manholes, culverts, and other appurtenances.		<input checked="" type="checkbox"/>
viii	Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties.		<input checked="" type="checkbox"/>
ix	Routing and summary of initial and major flow rates at various design points for all storm runoff associated with the property.		<input checked="" type="checkbox"/>
x	Path (s) chosen for computation of time of concentration.		<input checked="" type="checkbox"/>
xi	Details of and design computations for detention storage facilities including outlet.		<input checked="" type="checkbox"/>
xii	Location and elevations of all defined 100-year flood plains affecting the property.		<input checked="" type="checkbox"/>
xiii	Location of all existing and proposed utilities affected by or affecting the drainage design.		<input checked="" type="checkbox"/>
4. Applicant Comments:			
1			
2			

