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FINAL DRAINAGE REPORT
FOR
STERLING RANCH EAST FILING NO. 6

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ENGINEER'S STATEMENT:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.

Marc A. Whorton Colorado P.E. #37155 Date

OWNER'S/DEVELOPER'S STATEMENT:

I, the owner/developer, have read and will comply with all of the requirements specified in this drainage report and plan.

Business Name: CLASSIC SRJ LAND, LLC

By: ____________________

Title: ____________________

Address: 2138 Flying Horse Club Drive
Colorado Springs, CO 80921

EL PASO COUNTY:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

Joshua J. Palmer, P.E. Date
County Engineer, / ECM Administrator

Conditions:

FINAL DRAINAGE REPORT FOR STERLING RANCH EAST FILING NO. 6

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PURPOSE

The purpose of this Final Drainage Report is to address on-site and off-site drainage patterns and identify specific drainage improvements and facilities required to minimize impacts to the adjacent properties.

GENERAL DESCRIPTION

The Sterling ranch East Filing No. 6 Final Plat is 62.50-acre site located in portions sections 27 and 34, township 12 south, range 65 west of the sixth principal meridian. 198 urban residential lots are planned. The Preliminary Plan (SP244) for this project had a total acreage of 56.13 ac. The difference in acreage for this proposed Final Plat is the inclusion of the adjacent Sterling Ranch Road ROW that was originally shown in the Sterling Ranch East Phase 1 Preliminary Plan and included as portion of the Filing 4 area. The intent is to develop this proposed Filing 6 before Filing 4 and thus, now including this portion of Sterling Ranch Road with the Filing 6 Final Plat.

The site is bounded on the north and east by unplatted, future Sterling Ranch residential development, to the south by proposed Briargate Parkway extension and to the west by existing and proposed public ROW (Sterling Ranch Road). The site is in the upper portion of the Sand Creek East Fork Drainage Basin. Urban single family residential is proposed in this Filing that is consistent with the latest approved Sterling Ranch Sketch Plan Amendment and the Sterling Ranch East Filing No. 6 Preliminary Plan. The overall area for this property includes Tract H, which is proposed to be Pond FSD-16. This facility is described in the most recent drainage report for this area ("Final Drainage Report for Sterling Ranch East Filing No. 2 & Sterling Ranch East Filing No. 8", dated Sept. 2025 – SF2526) and handles nearly this entire development along with multiple other surrounding filings along with 100+ acres of future Sterling Ranch residential development to the north.

The average soil condition reflects Hydrologic Group "A" (Columbine gravelly sandy loam) as determined by the "Web Soil Survey of El Paso County Area," prepared by the Natural Resources Conservation Service (see map in Appendix). Type A soils were used to determine the pre-development conditions however, a mix a both Type A and Type B soils are utilized for developed site conditions as some import is anticipated for this development.

EXISTING DRAINAGE CONDITIONS

The Sterling Ranch East Filing No. 6 property is located in the upper portion of the Sand Creek East Fork Drainage Basin. The southern portion of the site along with a gravel access roads traversing the site are the areas of the property that are currently disturbed. Pond FSD-16 was previously graded under the Early GEC Plan approved for the Villages site to the south (SP226). This area currently acts as a TSB until formal development along with this final plat. The rest of the site is covered with native grasses with no trees or other vegetation.

This site has been previously studied in the “MDDP Amendment for Sterling Ranch”, prepared by JR Engineering, LLC, dated September 2022 and “Sterling Ranch MDDP Amendment No. 2 & Preliminary Drainage Report for Sterling Ranch East Preliminary Plan 1”, prepared by Classic Consulting, dated January 2023. The latter report analyzed the pre-development conditions for the flows off-site to the south. The entire site currently drains as sheet flow in a southerly direction within the previously studied pre-development basins EX-9, EX-10, EX-10A and EX-11. These are referenced in the Appendix. However, the most recent reports covering this property are “Final Drainage Report for Sterling Ranch East Filing No. 2 & Sterling Ranch East Filing No. 8” – SF2526 and “Preliminary Drainage Report for Sterling Ranch East Filing No. 6 Preliminary Plan and Final Drainage Report for Early Grading” – SP244.

The following descriptions represent the pre-development basins for the property:

Basin EX-9 (Q_5 = 9 cfs, Q_{100} = 61 cfs) consists of approximately 65.3 acres of property that sheet flows in a southerly direction through the westerly portion of the proposed site. This basin is similar to the original MDDP with the northern portion of the west basin line defining the westerly edge of the East Fork basin. The flows seem to remain as sheet flows as they travel through the site towards the existing Pond FSD-16 acting as a TSB (designed under Foursquare at Sterling Ranch Filing No. 1 development due west of this project – SF2236 and SF2526). The facility will remain a TSB until the development of either Sterling Ranch East Filing No. 2, Foursquare at Sterling Ranch Filing No. 1 or the proposed Sterling Ranch East Filing No. 6, whichever comes first. At that time the proposed pond structures (concrete forebays, trickle channels, outlet structure and emergency overflow spillway) will be installed based on the pond design plans approved originally with Sterling Ranch East Filing 8 and now modified with the proposed Sterling Ranch East Filing No. 6 Final Plat. (See Detention/SWQ Facilities section of this report below) **Design Point EX-1 (Q_5 = 9 cfs, Q_{100} = 61 cfs)** represents these total pre-developed flows tributary to the existing Pond FSD-16.

Basin EX-10A (Q_5 = 4 cfs, Q_{100} = 25 cfs) consists of approximately 17.8 acres of property that sheet flows in a southerly direction through the eastern half of the proposed site. **Design Point EX-2 (Q_5 = 4 cfs, Q_{100} = 25 cfs)** represents the total pre-developed flows that currently continue to travel in a southerly direction towards the extension of Briargate Parkway.

Basin EX-10 (Q_5 = 105 cfs, Q_{100} = 222 cfs) consists of approximately 265.9 acres of property at the extreme top of the Sand Creek East Fork Basin. The off-site northern portion of this basin is within the Black Forest, heavily treed area. The off-site eastern portion of the basin contains existing 5 ac. lot development (Indian Wells Subd. Filing 1). The flows from this large basin sheet flow in a southerly direction across the northern portion of the Sterling Ranch property and enter Basin EX-11. **Basin EX-11 (Q_5 = 1 cfs, Q_{100} = 7 cfs)** consists of approximately 3.9 acres of property that sheet flows across the northeastern corner of the proposed property. **Design Point EX-3 (Q_5 = 105 cfs, Q_{100} = 222 cfs)** represents the total combined pre-developed flows from basins EX-10 and EX-11 that currently continue to travel in a southerly direction through Sterling Ranch property east of all the currently approved development taking place.

PROPOSED DRAINAGE CONDITIONS

As described in the General Description of the report, this proposed Final Plat contains 62.50 acres of urban residential lots including Tract H containing Pond FSD-16. This report describes how this facility has been redesigned, yet still designed to handle all the anticipated future developed flows as previously planned. Thus, this report remains consistent with the recently approved Preliminary Drainage Report for Sterling Ranch East Filing No. 6 and Final Drainage Report for Sterling Ranch East Filing No. 8.

Per the El Paso County ECM, Section I.7.1.B, all urban lots are required to provide Water Quality Capture Volume (WQCV). Thus, the proposed FSD-16 facility within this development will provide WQCV along with an Excess Urban Runoff Volume (EURV) in the lower portion of the facility storage volume with an outlet control device. Frequent and infrequent inflows are released at rates approximating undeveloped conditions. This concept provides some mitigation of increased runoff volume by releasing a portion of the increased runoff at a low rate over an extended period of time, up to 72 hours. This means that frequent storms, smaller than the 2-year event, will be reduced to very low flows near or below the sediment carrying threshold value for downstream drainage ways. Also, by incorporating an outlet structure that limits the 100-year runoff to the undeveloped condition rate, the discharge hydrograph for storms between the 2 year and the 100-year event will approximate the hydrograph for the undeveloped conditions and will help effectively mitigate the effects of development. WQCV will be provided for all proposed roads and urban lots. (See Appendix for SWQ map)

The following developed basin descriptions will start at the north end of the project and move south and describe how this development proposes to handle both the off-site and on-site drainage conditions both from an interim standpoint based on adjacent construction phasing and the ultimate buildout scenario. This report will also include the adjusted Pond FSD-16 final design.

Pond FSD-16 Phasing:

Pond FSD-16 will be phased from an outlet plate standpoint and will be reflected in the final construction drawings. The **"Interim" condition** accounts for the full-buildout of Sterling Ranch East Filings 4, 6 and 8 with the future Sterling Ranch residential area to the north remaining undeveloped. Basin P-INT represents this undeveloped area currently tributary to Pond FSD-16 with a total acreage of 33.4 ac. that includes the undeveloped portions of Basins CC and DD. The **"Ultimate" condition** then accounts for the full-buildout of all filings, including the anticipated future development represented by Basin P1-F1 (60.6 ac.).

Design Points 1-23 represent both the Interim and Ultimate Condition:

Design Point 1 (Q_5 = 4 cfs, Q_{100} = 11 cfs) represents developed flows from Basin A (3.6 ac.) that is tributary to the proposed at-grade inlet at this location. A 10' Type R at-grade inlet will collect Q_5 = 3.9 cfs, Q_{100} = 7.4 cfs with flow-by of Q_5 = 0.1 cfs, Q_{100} = 3.6 cfs. This flow-by will then travel towards the sump condition at Design Point 2. The collected flows will be routed downstream via a public 24" RCP within the ROW. **Pipe Run 1 (Q_5 = 4 cfs, Q_{100} = 7 cfs)** represents the total flow in the public storm system at this point.

Design Point 2 (Q_5 = 6 cfs, Q_{100} = 20 cfs) represents developed flows from Basins B (1.2 ac.), C (4.5 ac.) and flow-by from DP-1 that are tributary to the proposed sump condition at Design Point 2. At this location, a 10' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A 24" public RCP within the ROW will convey these developed flows further downstream.

Design Point 3 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin D (1.5 ac.) that are tributary to Design Point 3. At this location, a 5' Type R sump inlet is installed to completely collect both the 5-yr. and 100-yr. developed flows. A 30" public RCP storm system within the ROW will convey the collected flows further downstream. **Pipe Run 4 (Q_5 = 12 cfs, Q_{100} = 31 cfs)** represents the total flow in the public storm system at this point.

Design Point 4 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin E (1.6 ac.) that are tributary to the proposed at-grade condition at Design Point 4. At this location, a 10' Type R at-grade inlet will be installed to collect Q_5 = 2.0 cfs, Q_{100} = 4.7 cfs with flow-by of Q_5 = 0.0 cfs, Q_{100} = 0.3 cfs. This minimal 100-yr. flow-by will then travel further downstream towards Design Point 17. The collected flows will be routed downstream via a public 18" RCP within the ROW.

Pipe Run 6 (Q_5 = 14 cfs, Q_{100} = 35 cfs) represents the total flow in the public storm system at this point.

Design Point 5 (Q_5 = 4 cfs, Q_{100} = 11 cfs) represents developed flows from Basin F (3.5 ac.) that are tributary to the proposed sump condition at Design Point 5. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24" RCP within the ROW will convey these developed flows further downstream.

Design Point 6 (Q_5 = 2 cfs, Q_{100} = 4 cfs) represents developed flows from Basin G (1.1 ac.) that are tributary to the proposed sump condition at Design Point 6. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream. **Pipe Run 9 (Q_5 = 6 cfs, Q_{100} = 14 cfs)** represents the total flow in the public storm system just downstream of this sump condition. **Pipe Run 10 (Q_5 = 19 cfs, Q_{100} = 48 cfs)** represents the total flow in the public storm system once combined with the upstream flows from PR-6.

Design Point 7 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin H (1.7 ac.) that are tributary to the proposed sump condition at Design Point 7. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream.

Design Point 8 (Q_5 = 0.3 cfs, Q_{100} = 0.8 cfs) represents developed flows from Basin I (0.22 ac.) that are tributary to the proposed sump condition at Design Point 8. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream. **Pipe Run 13 (Q_5 = 22 cfs, Q_{100} = 53 cfs)** represents the total flow in the public storm system just downstream of this sump condition.

Design Point 9 (Q_5 = 2 cfs, Q_{100} = 6 cfs) represents developed flows from Basin J (1.9 ac.) that are tributary to the proposed sump condition at Design Point 9. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream.

Design Point 10 (Q_5 = 1.1 cfs, Q_{100} = 2.6 cfs) represents developed flows from Basin K (0.73 ac.) that are tributary to the proposed sump condition at Design Point 10. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 16 (Q_5 = 3 cfs, Q_{100} = 8 cfs)** represents the total flow in the public storm system just downstream of this sump condition. **Pipe Run 17 (Q_5 = 24 cfs, Q_{100} = 60 cfs)** represents the total flow in the public storm system once combined with the upstream flows from PR-13.

Design Point 11 (Q_5 = 3 cfs, Q_{100} = 7 cfs) represents developed flows from Basin L (2.2 ac.) that are tributary to the proposed sump condition at Design Point 11. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream.

Design Point 12 (Q_5 = 0.8 cfs, Q_{100} = 2.0 cfs) represents developed flows from Basin M (0.57 ac.) that are tributary to the proposed sump condition at Design Point 12. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 20 (Q_5 = 3 cfs, Q_{100} = 8 cfs)** represents the total flow in the public storm system just downstream of this sump condition.

Design Point 13 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin N (1.7 ac.) that are tributary to the proposed sump condition at Design Point 13. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream.

Design Point 14 (Q_5 = 0.7 cfs, Q_{100} = 1.8 cfs) represents developed flows from Basin O (0.49 ac.) that are tributary to the proposed sump condition at Design Point 14. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 23 (Q_5 = 6 cfs, Q_{100} = 15 cfs)** represents the total flow in the public storm system just downstream of this sump condition. **Pipe Run 24 (Q_5 = 30 cfs, Q_{100} = 73 cfs)** represents the total flow in the public storm system once combined with the upstream flows from PR-17.

Design Point 15 (Q_5 = 0.6 cfs, Q_{100} = 1.5 cfs) represents developed flows from Basin P (0.40 ac.) that are tributary to the proposed sump condition at Design Point 15. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream.

Design Point 16 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin Q (1.7 ac.) that are tributary to the proposed sump condition at Design Point 16. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 27 (Q_5 = 32 cfs, Q_{100} = 79 cfs)** represents the total flow in the public storm system just downstream of this sump condition.

Design Point 17 (Q_5 = 2 cfs, Q_{100} = 9 cfs) represents developed flows from Basin R (2.7 ac.) and Flow-by from DP-4 that are tributary to the proposed at-grade condition at Design Point 17. At this location, a 10’ Type R at-grade inlet will be installed to collect Q_5 = 2.0 cfs, Q_{100} = 6.4 cfs with flow-by of Q_5 = 0.0 cfs, Q_{100} = 2.0 cfs. This 100-yr. flow-by will then travel further downstream into Basin U. The collected flows will be routed downstream via a public 18” RCP within the ROW.

Design Point 18 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin S (1.6 ac.) that are tributary to the proposed sump condition at Design Point 18. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream.

Design Point 19 (Q_5 = 0.7 cfs, Q_{100} = 1.8 cfs) represents developed flows from Basin T (0.49 ac.) that are tributary to the proposed sump condition at Design Point 19. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18” RCP within the ROW will convey these developed flows further downstream. **Pipe Run 31 (Q_5 = 6 cfs, Q_{100} = 13 cfs)** represents the total flow in the public storm system just downstream of this sump condition. **Pipe Run 32 (Q_5 = 37 cfs, Q_{100} = 90 cfs)** also known as **Design Point 20**, represents the total flow in the public storm system once combined with the upstream flows from PR-27. This total flow enters Pond FSD-16 at the east end of the facility where a concrete forebay, associated rip-rap and concrete trickle channel will be installed. A total of 33.4 acres is tributary to this outfall with a 51.1% Imperviousness.

Design Point 21 (Q_5 = 3 cfs, Q_{100} = 7 cfs) represents developed flows from Basin V (2.7 ac.) At this location, a 6’ County std. crosspan will be installed to convey these flows further downstream.

Design Point 22 (Q_5 = 6 cfs, Q_{100} = 16 cfs) represents developed flows from Basin W (0.79 ac.), Basin X (2.0 ac.) and DP-21, that are all tributary to the proposed sump condition at Design Point 22. At this location, a 10’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24” RCP within the ROW will convey these developed flows further downstream.

Design Point 23 (Q_5 = 4 cfs, Q_{100} = 9 cfs) represents developed flows from Basin Y (3.2 ac.) that are tributary to the proposed sump condition at Design Point 23. At this location, a 5’ Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 30” RCP within a public drainage easement between lots 42 and 43 will convey these developed flows further downstream. **Pipe Run 34 (Q_5 = 10 cfs, Q_{100} = 25 cfs)** represents the total flow in the public storm system just downstream of this sump condition.

The following Design Points are proposed to collect anticipated future or already planned residential development to the north and west of Sterling Ranch Road that are tributary to Pond FSD-16. The P1-F1, CC and DD basins are anticipated areas for future development within Sterling Ranch to the north and the F4 basins represent the Sterling Ranch East Filing No. 4 areas as planned and consistent with the approved "Sterling Ranch East Phase 1 Preliminary Plan - Filings 1-4" (SP224). The F2 and F8 basins represent the Sterling Ranch East Filing No. 2 (SF2237) and Filing No. 8 (SF2236 and SF2526) subdivisions as planned and recently reviewed/approved.

Ultimate & Interim Condition:

Design Point 24 (Q_5 = 5 cfs, Q_{100} = 16 cfs) represents the anticipated ultimate condition and future development flows from the undeveloped property to the north within Basin CC (5.8 ac.) that is tributary to a future sump condition. Type R sump inlets will be sized in a future Final Drainage Report. However, in the interim condition, a temporary sediment basin will be installed just north of Sterling Ranch Road (Design Point 26) to collect off-site undeveloped flows from basin P INT (33.4 ac.). The outfall for this basin will be downstream towards the proposed sump condition in Sterling Ranch Road. Two public 42" RCP stubs will be provided at the north end of the Sterling Ranch Road extension to handle the anticipated future development within the off-site basin P1-F1 (60.6 ac.) to the north. **Pipe Run 35 (Q_5 = 30 cfs, Q_{100} = 72 cfs)** represents an anticipated 50% of this off-site basin with **Pipe Run 36 (Q_5 = 33 cfs, Q_{100} = 84 cfs)** representing the other half of the basin along with basin CC in the ultimate condition.

Ultimate Condition:

Design Point 25 (Q_5 = 2 cfs, Q_{100} = 5 cfs) represents developed flows from Basin EE (1.3 ac.) that are tributary to the proposed sump condition at Design Point 25. At this location, a 5' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 18" RCP within the ROW will convey these developed flows further downstream.

Ultimate Condition:

Design Point 26 (Q_5 = 5 cfs, Q_{100} = 13 cfs) represents developed flows from Basin DD (4.4 ac.) that are tributary to the proposed sump condition at Design Point 26. At this location, a 10' Type R sump inlet will be installed to completely collect both the 5-yr. and 100-yr. developed flows. A public 24" RCP within the ROW will convey these developed flows further downstream. **Pipe Run 39 (Q_5 = 7 cfs, Q_{100} = 18 cfs)** represents the total flow in the public storm system just downstream of this sump condition.

Design Points 27-36 represent both the Interim and Ultimate Condition with Sterling Ranch East 4 being built:

Design Point 27 (Q_5 = 10 cfs, Q_{100} = 26 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-1 (9.0 ac.) that are tributary to the proposed sump condition at Design Point 27. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 28 (Q_5 = 3 cfs, Q_{100} = 7 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-2 (2.2 ac.) that are tributary to the proposed sump condition at Design Point 28. At this location, a Type R sump inlet will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A private storm system within a drainage esmt. and tract will convey these developed flows further downstream. Sizing of this facility will be provided in a future FDR.

Design Point 29 (Q_5 = 4 cfs, Q_{100} = 9 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-3 (3.2 ac.) that are tributary to Design Point 29. At this location, an anticipated Type R at-grade inlet will be sized to collect developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 30 (Q_5 = 8 cfs, Q_{100} = 25 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-4 (9.8 ac.) that are tributary to the proposed sump condition at Design Point 30. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 31 (Q_5 = 2 cfs, Q_{100} = 6 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-5 (1.7 ac.) that are tributary to the proposed sump condition at Design Point 31. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows along with the collected flows from the Design Points described above further downstream towards the large diameter storm system within Sterling Ranch Road. Sizing of these facilities and the storm system outfall will be provided in a future FDR.

Design Point 32 (Q_5 = 4 cfs, Q_{100} = 13 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-6 (3.5 ac.) along with some flow-by from the anticipated upstream Type R at-grade inlet that is tributary to the proposed sump condition at Design Point 32. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 33 (Q_5 = 8 cfs, Q_{100} = 20 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-7 (6.9 ac.) that are tributary to the proposed sump condition at Design Point 33. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 34 (Q_5 = 2 cfs, Q_{100} = 4 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-8 (1.1 ac.) that are tributary to the proposed sump condition at Design Point 34. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 35 (Q_5 = 6 cfs, Q_{100} = 14 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-9 (4.9 ac.) that are tributary to the proposed sump condition at Design Point 35. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 36 (Q_5 = 10 cfs, Q_{100} = 24 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 4 residential use within Basin F4-10 (8.5 ac.) that are tributary to the proposed sump condition at Design Point 34. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A private storm system within a tract will convey these developed flows further downstream towards the large diameter public storm system along Sterling Ranch Road. Sizing of these facilities will be provided in a future FDR.

Design Points 37 & 38 represent both the Interim and Ultimate Conditions:

Design Point 37 (Q_5 = 5 cfs, Q_{100} = 10 cfs) represents anticipated developed flows from Basin GG (2.5 ac.) along the north side of Sterling Ranch Road that are tributary to Design Point 37. A 15' Type R at-grade inlet is proposed at this location that will completely collect the 5-yr. developed flows with some minimal flow-by of the 100-yr. flows. A public storm system within the ROW will convey the collected flows towards the public storm system within Sterling Ranch Road. This remains consistent with *Design Point 13 (Q_5 = 5.4 cfs, Q_{100} = 15.1 cfs)* as described in the approved FDR for *Foursquare at Sterling Ranch East Filing No. 1 (SF2236).*

Design Point 38 (Q_5 = 5 cfs, Q_{100} = 9 cfs) represents anticipated developed flows from Basin HH (2.0 ac.) along the south side of Sterling Ranch Road that are tributary to Design Point 38. A 15' Type R at-grade inlet is proposed at this location that will completely collect the 5-yr. developed flows with some minimal flow-by *(Q_5 = 0.0 cfs, Q_{100} = 0.4 cfs)* of the 100-yr. flows. A public storm system within the ROW will convey the collected flows towards the public storm system within Sterling Ranch Road. This remains consistent with *Design Point 14 (Q_5 = 4.0 cfs, Q_{100} = 11.2 cfs)* as described in the approved FDR for *Foursquare at Sterling Ranch East Fil. 1 (SF2236).*

Ultimate Condition:

Design Point 39 (Q_5 = 123 cfs, Q_{100} = 307 cfs) represents the total collected developed flows during the ultimate condition with basins P1-F1, CC, DD, EE, GG, HH, V, W, X and Y being tributary to this **northwest storm system outfall into Pond FSD-16**. Sizing of this storm outfall and the proposed concrete forebay/impact structure is based on the ultimate condition. This remains fairly consistent with *Design Point 4 (Q_5 = 218 cfs, Q_{100} = 379 cfs)* as described in the approved *Sterling Ranch MDDP Amendment No. 2 and PDR for Sterling Ranch East Preliminary Plan No.1 (SP224).* The hydrologic calculation method difference between this report using rational method and the MDDP/PDR using SWWM 5.1 proves challenging for exact flow comparison. However, the future final drainage report(s) for these various proposed developments will provide the final determination of the interim and ultimate developed flow conditions.

Interim Condition:

Design Point 39 (Q_5 = 51 cfs, Q_{100} = 152 cfs) represents the total collected developed flows during the interim condition with basins P-INT, EE, GG, HH, V, W, X, Y and only the developed portions of CC and DD being tributary to this **northwest storm system outfall into Pond FSD-16**. Sizing of this storm outfall and the proposed concrete forebay/impact structure is based on the ultimate condition.

Design Points 40-48 represent both the Interim and Ultimate Condition
with Sterling Ranch East Filings 2 and 8 being built:

Design Point 40 (Q_5 = 4 cfs, Q_{100} = 11 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 8 residential use within Basin F8-1 (3.7 ac.) that are tributary to the proposed sump condition at Design Point 40. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 41 (Q_5 = 1.2 cfs, Q_{100} = 3 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 8 residential use within Basin F8-2 (1.0 ac.) that are tributary to the proposed sump condition at Design Point 41. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 42 (Q_5 = 5 cfs, Q_{100} = 11 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 8 residential use within Basin F8-3 (3.4 ac.) that are tributary to Design Point 42. At this location, an anticipated Type R at-grade inlet will be sized to collect developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 43 (Q_5 = 6 cfs, Q_{100} = 14 cfs) represents the anticipated developed flows from the planned Sterling Ranch East Filing No. 8 residential use within Basin F8-4 (4.7 ac.) that are tributary to Design Point 43. At this location, an anticipated Type R at-grade inlet will be sized to collect developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 44 (Q_5 = 7 cfs, Q_{100} = 15 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 8 residential use within Basin F8-7 (4.6 ac.) that are tributary to the proposed sump condition at Design Point 44. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Point 45 (Q_5 = 4 cfs, Q_{100} = 10 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 2 residential use within Basin F2-A (2.9 ac.) that are tributary to the proposed sump condition at Design Point 45. At this location, a 10' Type R sump inlet has already been designed to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. This remains consistent with *Design Point 2 (Q_5 = 4.5 cfs, Q_{100} = 11.1 cfs)* as described in the approved FDR for *Foursquare at Sterling Ranch East Filing No. 1 (SF2236).*

Design Point 46 (Q_5 = 6 cfs, Q_{100} = 16 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 2 residential use within Basin F2-B (5.0 ac.) that are tributary to the proposed sump condition at Design Point 46. At this location, a 10' Type R sump inlet has already been designed to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. This remains consistent with *Design Point 1 (Q_5 = 6.6 cfs, Q_{100} = 16.0 cfs)* as described in the approved FDR for *Foursquare at Sterling Ranch East Filing No. 1 (SF2236).*

Design Point 47 (Q_5 = 4 cfs, Q_{100} = 10 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 2 residential use within Basin F8-5 (3.0 ac.) that are tributary to the proposed sump condition at Design Point 47. At this location, a 15' Type R at-grade inlet has already been designed to collect the majority of the developed flows with a minimal flow-by of (Q_5 = 0.0 cfs, Q_{100} = 0.8 cfs). A public storm system within the ROW will convey these developed flows further downstream. This remains consistent with *Design Point 11 Flow by (Q_5 = 0.0 cfs, Q_{100} = 0.0 cfs)* as described in the approved FDR for *Foursquare at Sterling Ranch East Filing No. 1 (SF2236).*

Design Point 48 (Q_5 = 3 cfs, Q_{100} = 9 cfs) represents the anticipated developed flows from the Sterling Ranch East Filing No. 8 residential use within Basin F8-6 (2.8 ac.) that are tributary to the proposed sump condition at Design Point 48. At this location, Type R sump inlets will be sized to completely collect both the 5-yr. and 100-yr. developed flows. A public storm system within the ROW will convey these developed flows further downstream. Sizing of these facilities will be provided in a future FDR.

Design Points 49 & 50 represent both the Interim and Ultimate Conditions:

Design Point 49 (Q_5 = 3 cfs, Q_{100} = 8 cfs) represents developed flows from Basin SR-1 (1.2 ac.) and the minimal flow-by from DP-37 along the north side of Sterling Ranch Road that are tributary to Design Point 49. A 15' Type R at-grade inlet has already been designed to collect the majority of the developed flows with a minimal flow-by of (Q_5 = 0.0 cfs, Q_{100} = 0.1 cfs). A public storm system within the ROW will convey these developed flows further downstream. This remains consistent with *Design Point 15 Flow by (Q_5 = 0.0 cfs, Q_{100} = 1.2 cfs)* as described in the approved FDR for *Foursquare at Sterling Ranch East Filing No. 1 (SF2236).*

Design Point 50 (Q_5 = 2.2 cfs, Q_{100} = 5.1 cfs) represents anticipated developed flows from Basin SR-2 (0.65 ac.) and Basin Z (0.30) along the south side of Sterling Ranch Road that are tributary to Design Point 50. A 15' Type R at-grade inlet has already been designed to collect the majority of the developed flows with a minimal flow-by of (Q_5 = 0.0 cfs, Q_{100} = 0.0 cfs). A public storm system within the ROW will convey these developed flows further downstream. This remains consistent with *Design Point 16 Flow by (Q_5 = 0.0 cfs, Q_{100} = 0.4 cfs)* as described in the approved FDR for *Foursquare at Sterling Ranch East Filing No. 1 (SF2236).*

Design Point 51 represents both the Interim and Ultimate Conditions with Sterling Ranch East Filing No. 8 and Sterling Ranch East Filing No. 2 being built:

Design Point 51 (Q_5 = 38 cfs, Q_{100} = 89 cfs) represents the **total developed flows at the southwest forebay** from all the designed residential development tributary to this outfall location into Pond FSD-16. This remains fairly consistent with *Design Point 17 (Q_5 = 48 cfs, Q_{100} = 112 cfs)* as described in the approved FDR for *Sterling Ranch East Filing No. 8 (SF2526).*

Design Points 52-54 represents both the Interim and Ultimate Conditions:

Design Point 52 (Q_5 = 12.2 cfs, Q_{100} = 25.7 cfs) consists of developed flows from Basin F2-C, P1-A2, F8-8 and Flow-by from DP-47. Basin F2-C is 0.72 acres and Basin F8-8 is 1.3 acres of open space tracts adjacent to Briargate Parkway. Basin P1-A2 is 4.2 acres of the north half of Briargate Parkway. These basins combine flows that travel as curb and gutter flow along the north flowline of Briargate Parkway. These flows are intercepted by an existing 15’ Type R at-grade inlet recently constructed in Briargate Parkway. This at-grade inlet intercepts (Q_5= 10.4 cfs, Q_{100}= 15.4 cfs) with a flow-by of (Q_5= 1.8 cfs, Q_{100}= 10.4 cfs) that travels in the north curb line of Briargate Parkway towards Design Point 53. Intercepted flows are conveyed by a public 24” RCP storm sewer within Briargate Parkway. These flows are then routed further downstream towards the existing Pond FSD-14A recently constructed along the Sterling Ranch East Filing No. 1 (SF2235)

This basin was originally studied in the “Drainage Letter for Sterling Ranch Road and Briargate Parkway Interim Plan”, prepared by JR Engineering, approved 7/25/23 (CDR221) as Basin A2 and Design Point 2 (Q_5= 10.5 cfs, Q_{100}= 21.4 cfs). These off-site flows remain fairly consistent with what was previously planned and anticipated and the downstream facilities will continue to adequately handle these flows.

Design Point 53 (Q_5 = 7.5 cfs, Q_{100} = 24.0 cfs) consists of developed flows from Basin F8-9, off-site Basin P1-A3 and Flow-by from DP-52. Basin F8-9 is 1.6 acres of open space tract adjacent to Briargate Parkway. Basin P1-A3 is 1.2 acres of the north half of Briargate Parkway. These basins combine flows that travel as curb and gutter flow along the north flowline of Briargate Parkway. These flows are intercepted by an existing 15' Type R at-grade inlet recently constructed in Briargate Parkway just west of the intersection with Sterling Ranch Road. This at-grade inlet intercepts (Q_5= 7.2 cfs, Q_{100}= 14.3 cfs) with a flow-by of (Q_5= 0.1 cfs, Q_{100}= 7.9 cfs) that travels in the north half of Briargate Parkway towards Design Point 54. Intercepted flows are conveyed by a public 24" RCP storm sewer within Briargate Parkway. These flows are then routed further downstream towards the existing Pond FSD-14A recently constructed along the Sterling Ranch East Filing No. 1 (SF2235)

This basin was originally studied in the "Drainage Letter for Sterling Ranch Road and Briargate Parkway Interim Plan", prepared by JR Engineering, approved 7/25/23 (CDR221) as Basin A3 and Design Point 5 (Q_5= 5.1 cfs, Q_{100}= 13.2 cfs). Again, these off-site flows remain fairly consistent with what was previously planned and anticipated and the downstream facilities will continue to adequately handle these flows.

Design Point 54 (Q_5 = 11.2 cfs, Q_{100} = 32.6 cfs) consists of developed flows from Basins BG-1, U and flow-by from Design Points 17, 49 & 53. Basin BG-1 is 4.2 acres of Sterling Ranch Road, open space tract adjacent to Briargate Parkway and the proposed Briargate Parkway extension to the east. Basin U is 1.7 ac. of rear yards and open space north of Briargate Parkway. These flows travel as curb and gutter flow within Briargate Parkway to Design Point 54. At this location an existing 20' Type R sump inlet constructed along with the recent Briargate Parkway and Filing No. 1 improvements completely collects these proposed and anticipated future developed flows. Intercepted flows are conveyed by a public 30" RCP storm sewer within Briargate Parkway. These flows are then routed further downstream towards the existing Pond FSD-14A recently constructed along the Sterling Ranch East Filing No. 1 (SF2235)

This basin was previously studied in the "Final Drainage Report for Sterling Ranch East Filing No. 1", prepared by Classic Consulting, approved 7/2/24 (SF2235) as Basins P1-C2, P1-A5 and Design Point 6 (Q_5= 10.3 cfs, Q_{100}= 31.6 cfs). These off-site flows remain fairly consistent with what was previously planned and anticipated and the downstream facilities will continue to adequately handle these flows.

Interim and Ultimate Condition:

Design Point 55 (Q_5 = 7 cfs, Q_{100} = 13 cfs) represents developed flows from Basin BG-2 (3.0 ac.) that are tributary to the proposed sump condition at Design Point 55. At this location, as existing 15' Type R sump inlet, constructed with the recent Briargate Parkway and Filing No. 1 improvements will completely collect both the 5-yr. and 100-yr. developed flows. A public 24" RCP within the ROW will convey these developed flows further downstream.

The following Basins represent both the Interim and Ultimate Conditions:

Basin U (Q_5 = 2 cfs, Q_{100} = 6 cfs) represents developed flows from rear yards of lots 1-6 that are not able to be captured and routed to Pond FSD-16. However, these developed flows will enter the proposed north curb line of Briargate Parkway and travel as curb and gutter flow in a westerly direction towards the existing 20' Type R sump inlet at DP-54. This condition is consistent with the approved *Sterling Ranch MDDP Amendment No. 2 and PDR for Sterling Ranch East Preliminary Plan No.1 (SP224)* as previously planned Basin P1-A5. These developed flows within this basin are completely captured and routed downstream within the public storm system within Sterling Ranch Road and ultimately enter the existing Pond FSD-14A as constructed with *Sterling Ranch East Filing No. 1 FDR (SF2235).*

Basin Z (Q_5 = 0.3 cfs, Q_{100} = 0.9 cfs) represents developed flows from rear yards of lots and the open space tract adjacent to Sterling Ranch Road (0.30 ac.). These flows sheet flow into the easterly curb line of Sterling Ranch Road and travel as curb and gutter flow in a southerly direction towards the downstream 15' Type R at-grade inlet proposed at DP-50. This basin was previously accounted for as Basin OS-4 in the Sterling Ranch East Filing No. 8 FDR.

Basin AA (Q_5 = 4 cfs, Q_{100} = 10 cfs) represents developed flows from rear lots and adjacent Tract that sheet flow directly into Pond FSD-16 (2.6 ac.).

Basin BB (Q_5 = 3 cfs, Q_{100} = 16 cfs) represents developed flows from the Pond FSD-16 area itself (6.2 ac.). These developed flows travel as sheet flow into the facility and then routed via concrete trickle channels towards the outlet structure.

This is fine, but in the PCM Applicability Form you state that Runoff Reduction will be utilized for this basin. Which is it? Revise to remove discrepancy. And cite ECM Appendix I.6.3.A.1.a for this exclusion.

Interim Condition:

Basin FF (Q_5 = 2 cfs, Q_{100} = 4 cfs) represents developed flows from the north half of the proposed Oshkosh Rd. public roadway. These developed flows travel as curb and gutter flows in a southeasterly direction towards an off-site temporary sediment basin, as they are not able to be routed to Pond FSD-16. However, these flows will ultimately be treated in a future downstream permanent SWQ facility. Given this basin is only 0.62 ac. and is well less than 20% of this total Filing acreage, we request an exclusion for this specific basin from providing WQCV.

A temporary control berm is proposed along the north side of Oshkosh Rd. to route the off-site pre-developed flows from the north around the site. The berm will remain in place until future upstream facilities are designed and constructed with future Sterling Ranch residential filings within this basin.

Per my comment on PDF page 9 of the CDs, consider need for erosion control measures at the downstream end of this berm.

Basin P1-F1 (Q_5 = 59 cfs, Q_{100} = 144 cfs) represents the entire anticipated upstream basin tributary to Pond FSD-16 within the future Sterling Ranch Development in the ultimate condition. (Reference "Sterling Ranch East Prelim. Plan Filings 1-4 Preliminary Drainage Report" – SP244) At this time, it is estimated that approximately 50% of these future developed flows will be routed to the 42" RCP storm stub provided at Pipe Run 35 and the other 50% routed to the other 42" RCP storm stub at Pipe Run 36.

Basin P1-INT (Q_5 = 6 cfs, Q_{100} = 39 cfs) represents undeveloped flows from the area to the north (33.4 ac.) tributary to this development in the interim condition. These undeveloped flows continue to sheet flow in a southerly direction towards a proposed temporary sediment basin just north of Sterling Ranch Road. The release from this temporary facility will be directly into the proposed storm system at DP-26.

DETENTION / STORMWATER QUALITY FACILITES

As required, storm water quality measures will be utilized in order to reduce the amount of sediment, debris and pollutants that are allowed to enter Sand Creek. These features include but are not limited to Pond FSD-16 and existing downstream Pond FSD-14A. (All owned and maintained by Sterling Ranch Metro District No. 3). All urban areas require detention and will provide a WQCV and Excess Urban Runoff Volume (EURV) in the lower portion of the facility storage volume that will release the more frequent storms at a slower rate to help minimize the effects of development of the property. The proposed facilities are to be private facilities with ownership and maintenance by the Sterling Ranch Metropolitan District No. 3. After completion of construction and upon the Board of County Commissioners acceptance, all the drainage facilities within the public Right-of-Way will be owned and maintained by El Paso County.

The following represents the proposed **Pond FSD-16 design:**

(See MHFD-Detention Design Sheets in Appendix)

Ultimate Condition:

Total Tributary acreage: 211.5 Ac. with Eff. Imp. of 49.1%

3.592 Ac.-ft. WQCV required

8.114 Ac.-ft. EURV required

7.446 Ac.-ft. 100-yr. Storage

19.152 Ac.-ft. Total

Total In-flow: **Q_5 = 190 cfs, Q_{100} = 471 cfs**

Pond Design Release: **Q_5 = 4.0 cfs, Q_{100} = 118.8 cfs**

Interim Condition:

Total Tributary acreage: 184.3 Ac. with Eff. Imp. of 39.4%

2.738 Ac.-ft. WQCV required

5.041 Ac.-ft. EURV required

5.869 Ac.-ft. 100-yr. Storage

13.648 Ac.-ft. Total

Total In-flow:	**Q_5 = 101 cfs, Q_{100} = 276 cfs**
Pond Design Release:	**Q_5 = 3.3 cfs, Q_{100} = 76.8 cfs**

(Both conditions will have Ownership and maintenance by the Sterling Ranch Metro District No. 3)

DRAINAGE CRITERIA

Hydrologic calculations were performed using the City of Colorado Springs/El Paso County Drainage Criteria Manual, as revised in November 1991 and October 1994 with County adopted Chapter 6 and Section 3.2.1 of Chapter 13 of the City of Colorado Springs/El Paso County Drainage Criteria Manual as revised in May 2014. Individual on-site developed basin design used for detention/SWQ basin sizing was calculated using the Rational Method. Runoff Coefficients are based on the imperviousness of the particular land use and the hydrologic soil type in accordance with Table 6-6. The average rainfall intensity, by recurrence interval found in the Intensity-Duration-Frequency (IDF) curves in Figure 6-5. (See Appendix)

The City of Colorado Springs/El Paso County DCM requires the Four Step Process for receiving water protection that focuses on reducing runoff volumes, treating the water quality capture volume (WQCV), stabilizing drainage ways, and implementing long-term source controls. The Four Step Process pertains to management of smaller, frequently occurring storm events, as opposed to larger storms for which drainage and flood control infrastructure are sized. Implementation of these four steps helps to achieve storm water permit requirements.

This site adheres to this **Four Step Process** as follows:

1. **Employ Runoff Reduction Practices:** All proposed lot impervious area (roof tops, patios, etc.) will sheet flow across landscaped portions of front and rear yards and through open space areas to slow runoff and increase time of concentration prior to being conveyed to the proposed public streets or detention facilities. This will minimize directly connected impervious areas within the project site. Final Drainage Report will provide further detail on basins that will be providing Runoff Reduction.

2. **Stabilize Drainageways:** After developed flows utilize the runoff reduction practices through the front and rear yards, developed flows will travel via curb and gutter within the public streets and eventually public storm systems. These collected flows are then routed directly to the proposed extended detention basins (full-spectrum facilities). Where developed flows are not able to be routed to public street, sheet flows will travel across landscaped rear yards and then through undeveloped property prior to being released off-site.

3. **Provide Water Quality Capture Volume (WQCV):** Runoff from this development will be treated through capture and slow release of the WQCV and excess urban runoff volume (EURV) in the proposed Full-Spectrum permanent Extended Detention Basins (Pond FSD-16 and Pond FSD-14A) designed per current El Paso County drainage criteria. For the small area that is not able to be captured and routed to a permanent EDB, Basin FF (0.62 ac.) falls under the less than 1.0 ac. and 20% exclusion. In the future, this area will be treated in a downstream FSD pond.

4. **Consider need for Industrial and Commercial BMPs**: No industrial or commercial uses are proposed within this development. However, a site-specific storm water quality and erosion control plan and narrative along with the grading and erosion control plan will be submitted with the future Final Plat submittal. Details such as site-specific sediment and erosion control construction BMP's as well as temporary and permanent BMP's will be detailed in this plan and narrative to protect receiving waters. BMP's will be constructed

and maintained as the development has been graded and erosion control methods employed.

FLOODPLAIN STATEMENT

No portion of this site is located within a floodplain as determined by the Flood Insurance Rate Maps (F.I.R.M.) Map Number 08041C0533G and 08041C535G with effective date of December 7, 2018 (See Appendix).

DRAINAGE AND BRIDGE FEES

This subdivision lies entirely within the Sand Creek Drainage Basin boundaries. The following are anticipated drainage and bridge fees using the following impervious acreage method approved by El Paso County.

Total Final Plat area equals 62.50 acres with the following different land uses proposed:

10.10 Ac.	Park/Open Space/Pond Tracts (Tracts A-H)
44.36 Ac.	Urban Lots (RS-5000 zone with avg. Lot Size = 7,590 SF)
8.04 Ac.	Briargate Parkway, Sterling Ranch Road and Oshkosh Rd. Right-of-Way
62.50 Ac.	**Total**

The percent imperviousness for this subdivision is calculated as follows:

Fees for Park/Open Space/Pond Tracts

(Per El Paso County Percent Impervious Chart: 7**%**)

10.10 Ac. x 7% = **0.71 Impervious Ac.**

Fees for Urban Lots (Avg. Lot Size of 7,390 SF)

(Per El Paso County Percent Impervious Chart: 48**%**)

44.36 Ac. x 48% = **21.29 Impervious Ac.**

Fees for adjacent Public Right-of-Way

(Per El Paso County Percent Impervious Chart: 80**%**)

8.04 Ac. x 80% = **6.43 Impervious Ac.**

Total Impervious Acreage: **28.43 Imp. Ac.** (Drainage Fees)

Total Impervious Acreage: **28.43 Imp. Ac.** (Bridge Fees)

The following calculations are based on the 2026 Sand Creek drainage/bridge fees:

ESTIMATED FEE TOTALS (Filing No. 6):

Bridge Fees

$ 11,518.00 x 28.43 Impervious Ac. = **$ 327,456.74**

Drainage Fees (Credits may be used)

$ 28,160.00 x 28.43 Impervious Ac. = **$ 800,588.80**

Credits within the basin may be used for Drainage Fees only. Please reference the "Pre-credits" table below. Bridge Fees will be paid at plat recordation.

Unresolved:
Please provide copy of the pre-credit table.

SUMMARY

The proposed Sterling Ranch East Filing No. 6 Final Plat is within the Sand Creek Drainage Basin. Recommendations are made within this report concerning necessary improvements that will be required as a result of development of this property. The points of storm water release from the proposed site are required to be at or below the calculated pre-developed flow quantities. The development of the proposed site does not significantly impact any downstream facility or property to an extent greater than that which currently exists in the pre-development conditions. All drainage facilities within this report were sized according to the Drainage Criteria Manuals and the full-spectrum storm water quality requirements.

PREPARED BY:

Classic Consulting Engineers & Surveyors, LLC

Marc A. Whorton, P.E.
Project Manager

maw/118360 FDR Fil. 6.doc

REFERENCES

1. City of Colorado Springs/County of El Paso Drainage Criteria Manual as revised in November 1991 and October 1994 with County adopted Chapter 6 and Section 3.2.1 of Chapter 13 of the City of Colorado Springs/El Paso County Drainage Criteria Manual as revised in May 2014.

2. "Urban Storm Drainage Criteria Manual Volume 1, 2 & 3" Urban Drainage and Flood Control District, dated January 2016.

3. "Final Drainage Report for Forest Gate Subdivision" Law & Mariotti Consultants, Inc. dated October 2004.

4. "Sand Creek Drainage Basin Planning Study," Kiowa Engineering Corporation, dated March 1996.

5. "2018 Sterling Ranch MDDP", M&S Civil Consultants, Inc., June 2018

6. "Final Drainage Report for Retreat at TimberRidge Filing No. 1", Classic Consulting, approved November, 2020.

7. "Final Drainage Report for Retreat at TimberRidge Filing No. 2", Classic Consulting, approved September, 2022.

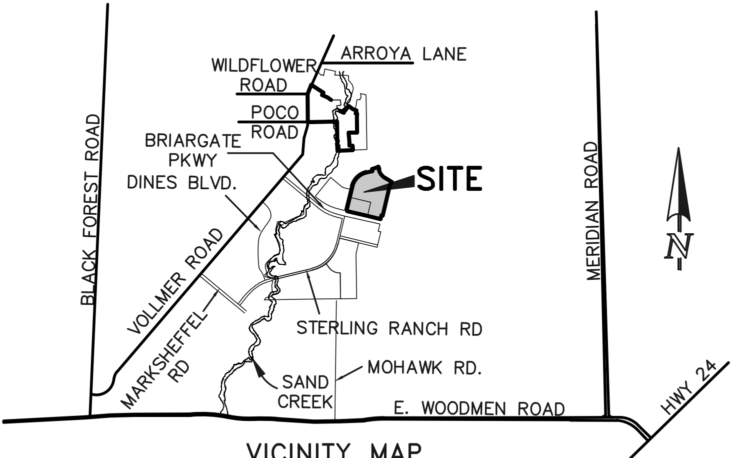
8. "Sterling Ranch MDDP Amendment No. 2 & Preliminary Drainage Report for Sterling Ranch East Preliminary Plan No. 1", Classic Consulting, approved January, 2023.

9. "Final Drainage Report for Sterling Ranch East Filing No. 2 and Foursquare at Sterling Ranch East Filing No. 1", Classic Consulting, dated August, 2024.

10. "Preliminary Drainage Report for Sterling Ranch East Filing No. 6 Preliminary Plan and Final Drainage Report for Early Grading ", Classic Consulting, dated April 2025

APPENDIX

VICINITY MAP

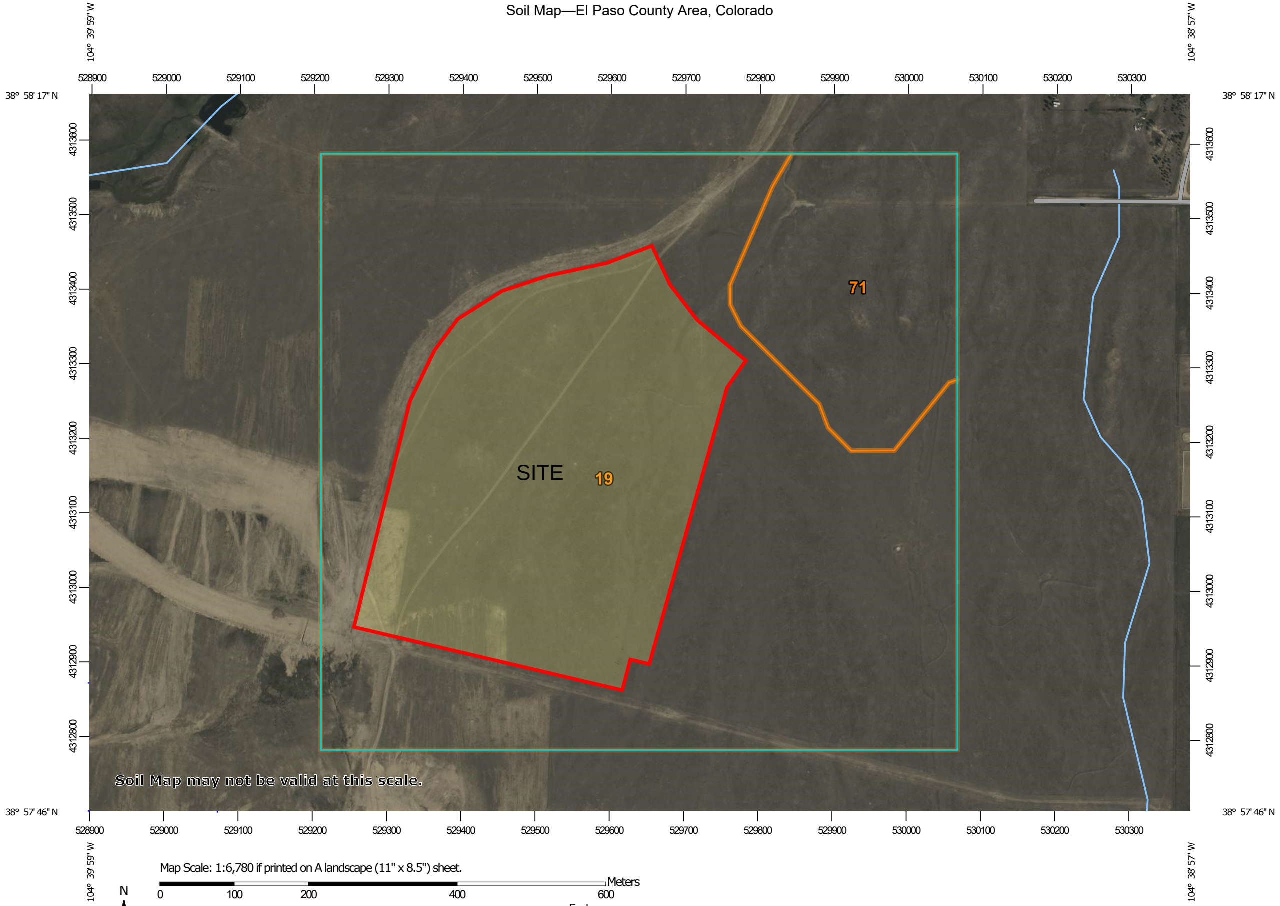

ARROYA LANE
WILDFLOWER ROAD
POCO ROAD
BRIARGATE PKWY
DINES BLVD.
SITE
BLACK FOREST ROAD
VOLLMER ROAD
MARKSHEFFEL RD
STERLING RANCH RD
MERIDIAN ROAD
N
MOHAWK RD.
SAND CREEK
E. WOODMEN ROAD
HWY 24

VICINITY MAP

N.T.S.

SOILS MAP (S.C.S SURVEY)

Soil Map—El Paso County Area, Colorado


104° 39' 59" W
104° 38' 57" W
38° 58' 17" N
38° 57' 46" N
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530300
4313600
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4313100
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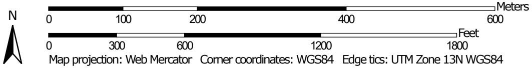
4312900
4312800
71
SITE
19
Soil Map may not be valid at this scale.

Map Scale: 1:6,780 if printed on A landscape (11" x 8.5") sheet.


N
Meters
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400
600
Feet
0
300
600
1200
1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

□	Area of Interest (AOI)

Soils

□	Soil Map Unit Polygons
〰	Soil Map Unit Lines
■	Soil Map Unit Points

Special Point Features

⊙	Blowout
⊠	Borrow Pit
✱	Clay Spot
◇	Closed Depression
✕	Gravel Pit
∴	Gravelly Spot
●	Landfill
Λ	Lava Flow
ψ	Marsh or swamp
⚒	Mine or Quarry
◎	Miscellaneous Water
○	Perennial Water
∨	Rock Outcrop
+	Saline Spot
⁘	Sandy Spot
═	Severely Eroded Spot
◈	Sinkhole
≫	Slide or Slip
∅	Sodic Spot
≡	Spoil Area
◌	Stony Spot
∞	Very Stony Spot
Ψ	Wet Spot
△	Other
┅	Special Line Features

Water Features

〜	Streams and Canals

Transportation

┼┼┼	Rails
〰	Interstate Highways
〰	US Routes
〰	Major Roads
〰	Local Roads

Background

▩	Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

> Warning: Soil Map may not be valid at this scale.
>
> Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 11, 2018—Oct 20, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	146.7	86.2%
71	Pring coarse sandy loam, 3 to 8 percent slopes	23.5	13.8%
Totals for Area of Interest		**170.2**	**100.0%**

El Paso County Area, Colorado

19—Columbine gravelly sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 367p
Elevation: 6,500 to 7,300 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 125 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Columbine and similar soils: 97 percent
Minor components: 3 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Columbine

Setting

Landform: Flood plains, fan terraces, fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

A - 0 to 14 inches: gravelly sandy loam
C - 14 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R049XY214CO - Gravelly Foothill
Hydric soil rating: No

Minor Components

Fluvaquentic haplaquolls

Percent of map unit: 1 percent

Landform: Swales
Hydric soil rating: Yes

Other soils

Percent of map unit: 1 percent
Hydric soil rating: No

Pleasant

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

El Paso County Area, Colorado

71—Pring coarse sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 369k
Elevation: 6,800 to 7,600 feet
Farmland classification: Not prime farmland

Map Unit Composition

Pring and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pring

Setting

Landform: Hills
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Arkosic alluvium derived from sedimentary rock

Typical profile

A - 0 to 14 inches: coarse sandy loam
C - 14 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R048AY222CO - Loamy Park
Hydric soil rating: No

Minor Components

Pleasant

Percent of map unit:
Landform: Depressions
Hydric soil rating: Yes

Other soils

Percent of map unit:
Hydric soil rating: No

Data Source Information

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 21, Aug 24, 2023

F.E.M.A. MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 13. The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the **North American Vertical Datum of 1988 (NAVD88)**. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at http://www.ngs.noaa.gov/.

Base Map information shown on this FIRM was provided in digital format by El Paso County, Colorado Springs Utilities, and Anderson Consulting Engineers, Inc. These data are current as of 2006.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

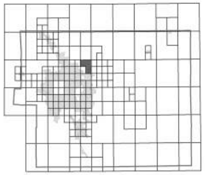
Contact **FEMA Map Service Center** (MSC) via the FEMA Map Information eXchange (FMIX) 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. The MSC may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

El Paso County Vertical Datum Offset Table

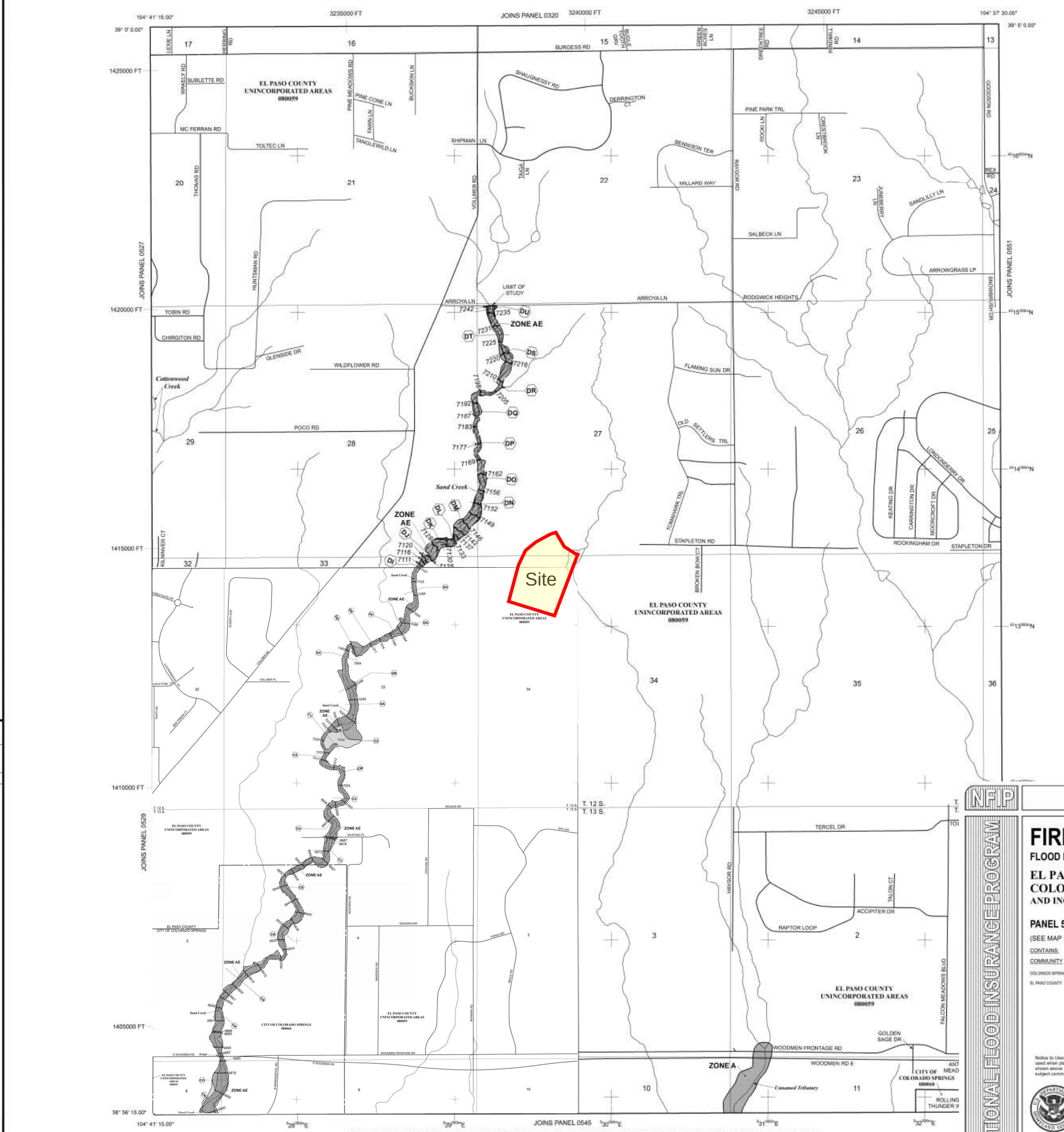
Flooding Source	Vertical Datum Offset (ft)
REFER TO SECTION 3.3 OF THE EL PASO COUNTY FLOOD INSURANCE STUDY FOR STREAM BY STREAM VERTICAL DATUM CONVERSION INFORMATION	

Panel Location Map



This Digital Flood Insurance Rate Map (DFIRM) was produced through a Cooperating Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).

Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.


104° 41' 15.00"
39° 0' 0.00"
3235000 FT
JOINS PANEL 0320
3240000 FT
3245000 FT
104° 37' 30.00"
39° 0' 0.00"
1425000 FT
1420000 FT
1415000 FT
1410000 FT
1405000 FT
JOINS PANEL 0527
JOINS PANEL 0529
JOINS PANEL 0551
4316000mN
4315000mN
4314000mN
4313000mN
EL PASO COUNTY UNINCORPORATED AREAS 080059
LEXIE LN
HERRING RD
WAKELY RD
SUBLETTE RD
MC FERRAN RD
TOLTEC LN
PINE MEADOWS RD
PINE CONE LN
FAWN LN
TANGLEWILD LN
BUCKSKIN LN
SHIPMAN LN
TAIGA LN
VOLLMER RD
SHAUGNESSY RD
BURGESS RD
BUGLE TOOTH GRV
GREEN ACRES LN
GREENTREE RD
WINDMILL RD
DERRINGTON CT
PINE PARK TRL
ROCKI LN
CRESTBROOK LN
BENNISON TER
MILLARD WAY
RAYGOR RD
SALBECK LN
GOODSON RD
REX RD
JUNEBERRY LN
SANDLILLY LN
ARROWGRASS LP
SNOWBRUSH DR
THOMAS RD
HUNTSMAN RD
TOBIN RD
CHIRGITON RD
GLENSIDE DR
WILDFLOWER RD
POCO RD
Cottonwood Creek
ARROYA LN
RODGWICK HEIGHTS
LIMIT OF STUDY
FLAMING SUN DR
OLD SETTLERS TRL
TOMAHAWK TRL
STAPLETON RD
BROKEN BOW CT
KEATING DR
CARRINGTON DR
MOORCROFT DR
LONDONDERRY DR
ROCKINGHAM DR
STAPLETON DR
KILNWINER CT
ZONE AE
Sand Creek
7242
7235
7231
7225
7220
7216
7210
7205
7198
7192
7187
7183
7177
7169
7162
7156
7152
7149
7146
7142
7137
7133
7130
7128
7125
7120
7116
7111
DU
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Site
13
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16
17
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22
23
24
25
26
27
28
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32
33
34
35
36
2
3
4
5
8
9
10
11
T. 12 S.
T. 13 S.
TERCEL DR
HAYGOR RD
TALON CT
ACCIPITER DR
RAPTOR LOOP
FALCON MEADOWS BLVD
GOLDEN SAGE DR
WOODMEN FRONTAGE RD
WOODMEN RD E
E WOODMEN RD
ZONE A
Unnamed Tributary
CITY OF COLORADO SPRINGS 080060
ROLLING THUNDER W
EL PASO COUNTY CITY OF COLORADO SPRINGS
38° 56' 15.00"
104° 41' 15.00"
JOINS PANEL 0545
528000mE
529000mE
530000mE
531000mE
532000mE

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 65 WEST, AND TOWNSHIP 13 SOUTH, RANGE 65 WEST.

LEGEND

▩ SPECIAL FLOOD HAZARD AREAS (SFHAS) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area Formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

▨ FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

▒ OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

☐ OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

▧ COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

▧ OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

———	Floodplain boundary
— — —	Floodway boundary
—— ——	Zone D Boundary
•••••••••••••	CBRS and OPA boundary
▬	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~ 513 ~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)———(A)	Cross section line
(23)-------(23)	Transect line
97° 07' 30.00" 32° 22' 30.00"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 13
6000000 FT	5000-foot grid ticks: Colorado State Plane coordinate system, central zone (FIPSZONE 0502), Lambert Conformal Conic Projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
MARCH 17, 1997

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
DECEMBER 7, 2018 - to update corporate limits, to change Base Flood Elevations and Special Flood Hazard Areas, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History Table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0533G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 533 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0533	G
EL PASO COUNTY	080059	0533	G

Notice to User: The **Map Number** shown below should be used when placing map orders: the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0533G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0535G

FIRM
FLOOD INSURANCE RATE MAP
EL PASO COUNTY, COLORADO
AND INCORPORATED AREAS

PANEL 535 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0535	G
EL PASO COUNTY	080059	0535	G

Notice to User: The **Map Number** shown below should be used when placing map orders: the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
08041C0535G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

HYDROLOGIC CALCULATIONS

For Colorado Springs and much of the Fountain Creek watershed, the 1-hour depths are fairly uniform and are summarized in Table 6-2. Depending on the location of the project, rainfall depths may be calculated using the described method and the NOAA Atlas maps shown in Figures 6-6 through 6-17.

Table 6-2. Rainfall Depths for Colorado Springs

Return Period	1-Hour Depth	6-Hour Depth	24-Hour Depth
2	1.19	1.70	2.10
5	1.50	2.10	2.70
10	1.75	2.40	3.20
25	2.00	2.90	3.60
50	2.25	3.20	4.20
100	2.52	3.50	4.60

Where Z= 6,840 ft/100

These depths can be applied to the design storms or converted to intensities (inches/hour) for the Rational Method as described below. However, as the basin area increases, it is unlikely that the reported point rainfalls will occur uniformly over the entire basin. To account for this characteristic of rain storms an adjustment factor, the Depth Area Reduction Factor (DARF) is applied. This adjustment to rainfall depth and its effect on design storms is also described below. The UDFCD UD-Rain spreadsheet, available on UDFCD's website, also provides tools to calculate point rainfall depths and Intensity-Duration-Frequency curves^2 and should produce similar depth calculation results.

2.2 Design Storms

Design storms are used as input into rainfall/runoff models and provide a representation of the typical temporal distribution of rainfall events when the creation or routing of runoff hydrographs is required. It has long been observed that rainstorms in the Front Range of Colorado tend to occur as either short-duration, high-intensity, localized, convective thunderstorms (cloud bursts) or longer-duration, lower-intensity, broader, frontal (general) storms. The significance of these two types of events is primarily determined by the size of the drainage basin being studied. Thunderstorms can create high rates of runoff within a relatively small area, quickly, but their influence may not be significant very far downstream. Frontal storms may not create high rates of runoff within smaller drainage basins due to their lower intensity, but tend to produce larger flood flows that can be hazardous over a broader area and extend further downstream.

- **Thunderstorms**: Based on the extensive evaluation of rain storms completed in the Carlton study (Carlton 2011), it was determined that typical thunderstorms have a duration of about 2 hours. The study evaluated over 300,000 storm cells using gage-adjusted NEXRAD data, collected over a 14-year period (1994 to 2008). Storms lasting longer than 3 hours were rarely found. Therefore, the results of the Carlton study have been used to define the shorter duration design storms.

  To determine the temporal distribution of thunderstorms, 22 gage-adjusted NEXRAD storm cells were studied in detail. Through a process described in a technical memorandum prepared by the City of Colorado Springs (City of Colorado Springs 2012), the results of this analysis were interpreted and normalized to the 1-hour rainfall depth to create the distribution shown in Table 6-3 with a 5 minute time interval for drainage basins up to 1 square mile in size. This distribution represents the rainfall

Table 6-6. Runoff Coefficients for Rational Method

(Source: UDFCD 2001)

Land Use or Surface Characteristics	Percent Impervious	Runoff Coefficients											
		2-year		5-year		10-year		25-year		50-year		100-year	
		HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D	HSG A&B	HSG C&D
Business													
Commercial Areas	95	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.87	0.87	0.88	0.88	0.89
Neighborhood Areas	70	0.45	0.49	0.49	0.53	0.53	0.57	0.58	0.62	0.60	0.65	0.62	0.68
Residential													
1/8 Acre or less	65	0.41	0.45	0.45	0.49	0.49	0.54	0.54	0.59	0.57	0.62	0.59	0.65
1/4 Acre	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
1/3 Acre	30	0.18	0.22	0.25	0.30	0.32	0.38	0.39	0.47	0.43	0.52	0.47	0.57
1/2 Acre	25	0.15	0.20	0.22	0.28	0.30	0.36	0.37	0.46	0.41	0.51	0.46	0.56
1 Acre	20	0.12	0.17	0.20	0.26	0.27	0.34	0.35	0.44	0.40	0.50	0.44	0.55
Industrial													
Light Areas	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Heavy Areas	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Parks and Cemeteries	7	0.05	0.09	0.12	0.19	0.20	0.29	0.30	0.40	0.34	0.46	0.39	0.52
Playgrounds	13	0.07	0.13	0.16	0.23	0.24	0.31	0.32	0.42	0.37	0.48	0.41	0.54
Railroad Yard Areas	40	0.23	0.28	0.30	0.35	0.36	0.42	0.42	0.50	0.46	0.54	0.50	0.58
Undeveloped Areas													
Historic Flow Analysis--Greenbelts, Agriculture	2	0.03	0.05	0.09	0.16	0.17	0.26	0.26	0.38	0.31	0.45	0.36	0.51
Pasture/Meadow	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Forest	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50
Exposed Rock	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Offsite Flow Analysis (when landuse is undefined)	45	0.26	0.31	0.32	0.37	0.38	0.44	0.44	0.51	0.48	0.55	0.51	0.59
Streets													
Paved	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Gravel	80	0.57	0.60	0.59	0.63	0.63	0.66	0.66	0.70	0.68	0.72	0.70	0.74
Drive and Walks	100	0.89	0.89	0.90	0.90	0.92	0.92	0.94	0.94	0.95	0.95	0.96	0.96
Roofs	90	0.71	0.73	0.73	0.75	0.75	0.77	0.78	0.80	0.80	0.82	0.81	0.83
Lawns	0	0.02	0.04	0.08	0.15	0.15	0.25	0.25	0.37	0.30	0.44	0.35	0.50

3.2 Time of Concentration

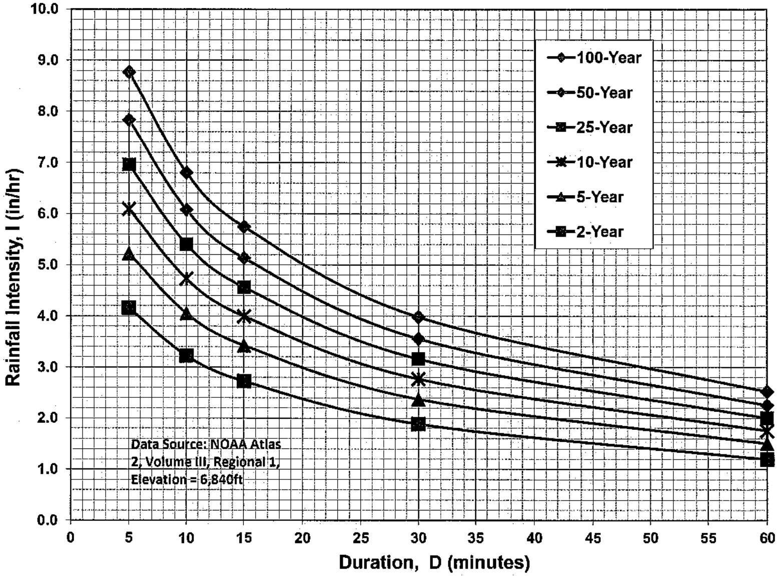
One of the basic assumptions underlying the Rational Method is that runoff is a function of the average rainfall rate during the time required for water to flow from the hydraulically most remote part of the drainage area under consideration to the design point. However, in practice, the time of concentration can be an empirical value that results in reasonable and acceptable peak flow calculations.

For urban areas, the time of concentration (t_c) consists of an initial time or overland flow time (t_i) plus the travel time (t_t) in the storm sewer, paved gutter, roadside drainage ditch, or drainage channel. For non-urban areas, the time of concentration consists of an overland flow time (t_i) plus the time of travel in a concentrated form, such as a swale or drainageway. The travel portion (t_t) of the time of concentration can be estimated from the hydraulic properties of the storm sewer, gutter, swale, ditch, or drainageway. Initial time, on the other hand, will vary with surface slope, depression storage, surface cover, antecedent rainfall, and infiltration capacity of the soil, as well as distance of surface flow. The time of concentration is represented by Equation 6-7 for both urban and non-urban areas.

Table 6-10. NRCS Curve Numbers for Frontal Storms & Thunderstorms for Developed Conditions (ARCII)

Fully Developed Urban Areas (vegetation established)[1]	**Treatment**	**Hydrologic Condition**	**% I**	**Pre-Development CN**			
				HSG A	**HSG B**	**HSG C**	**HSG D**
Open space (lawns, parks, golf courses, cemeteries, etc.):							
Poor condition (grass cover < 50%)	-----	-----	---	68	79	86	89
Fair condition (grass cover 50% to 75%)	-----	-----	---	49	69	79	84
Good condition (grass cover > 75%)	-----	-----	---	39	61	74	80
Impervious areas:							
Paved parking lots, roofs, driveways, etc. (excluding right-of-way	-----	-----	---	98	98	98	98
Streets and roads:							
Paved; curbs and storm sewers (excluding right-of-way)	-----	-----	---	98	98	98	98
Paved; open ditches (including right-of-way)	-----	-----	---	83	89	92	93
Gravel (including right-of-way)	-----	-----	---	76	85	89	91
Dirt (including right-of-way)	-----	-----	---	72	82	87	89
Western desert urban areas:							
Natural desert landscaping (pervious areas only)	-----	-----	---	63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)	-----	-----	---	96	96	96	96
Urban districts:							
Commercial and business	-----	-----	85	89	92	94	95
Industrial	-----	-----	72	81	88	91	93
Residential districts by average lot size:							
1/8 acre or less (town houses)	-----	-----	65	77	85	90	92
1/4 acre	-----	-----	38	61	75	83	87
1/3 acre	-----	-----	30	57	72	81	86
1/2 acre	-----	-----	25	54	70	80	85
1 acre	-----	-----	20	51	68	79	84
2 acres	-----	-----	12	46	65	77	82
Developing Urban Areas[1]	**Treatment**[2]	**Hydrologic Condition**[3]	**% I**	**HSG A**	**HSG B**	**HSG C**	**HSG D**
Newly graded areas (pervious areas only, no vegetation)	-----	-----	---	77	86	91	94
Cultivated Agricultural Lands[1]	**Treatment**	**Hydrologic Condition**	**% I**	**HSG A**	**HSG B**	**HSG C**	**HSG D**
Fallow	Bare soil	-----	---	77	86	91	94
	Crop residue cover (CR)	Poor	---	76	85	90	93
		Good	---	74	83	88	90
Row crops	Straight row (SR)	Poor	---	72	81	88	91
		Good	---	67	78	85	89
	SR + CR	Poor	---	71	80	87	90
		Good	---	64	75	82	85
	Contoured (C)	Poor	---	70	79	84	88
		Good	---	65	75	82	86
	C + CR	Poor	---	69	78	83	87
		Good	---	64	74	81	85
	Contoured & terraced (C&T)	Poor	---	66	74	80	82
		Good	---	62	71	78	81
	C&T+ CR	Poor	---	65	73	79	81
		Good	---	61	70	77	80
Small grain	SR	Poor	---	65	76	84	88
		Good	---	63	75	83	87
	SR + CR	Poor	---	64	75	83	86
		Good	---	60	72	80	84
	C	Poor	---	63	74	82	85
		Good	---	61	73	81	84
	C + CR Poor	Poor	---	62	73	81	84
		Good	---	60	72	80	83
	C&T	Poor	---	61	72	79	82
		Good	---	59	70	78	81
	C&T+ CR	Poor	---	60	71	78	81
		Good	---	58	69	77	80

Figure 6-5. Colorado Springs Rainfall Intensity Duration Frequency



IDF Equations

$$I_{100} = -2.52 \ln(D) + 12.735$$

$$I_{50} = -2.25 \ln(D) + 11.375$$

$$I_{25} = -2.00 \ln(D) + 10.111$$

$$I_{10} = -1.75 \ln(D) + 8.847$$

$$I_{5} = -1.50 \ln(D) + 7.583$$

$$I_{2} = -1.19 \ln(D) + 6.035$$

Note: Values calculated by equations may not precisely duplicate values read from figure.

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
JOB NUMBER: ***1183.60***
DATE: ***07/29/26***
CALCULATED BY: ***MAW***

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY (PRE-DEVELOPMENT)

		C VALUE DCM TABLE 6-6						**WEIGHTED CA**			**DCM TABLE 6-6**
BASIN	TOTAL AREA (AC)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	**CA(2)**	**CA(5)**	**CA(100)**	**WEIGHTED % IMPERVIOUS**
EX-9	65.30	**UNDEV.**	2.0%	65.30	**0.03**	**0.09**	**0.36**	**1.96**	**5.88**	**23.51**	2.0%
EX-10	265.90	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)									
EX-10A	17.80	**UNDEV.**	2.0%	17.80	**0.03**	**0.09**	**0.36**	**0.53**	**1.60**	**6.41**	2.0%
EX-11	3.90	**UNDEV.**	2.0%	3.90	**0.03**	**0.09**	**0.36**	**0.12**	**0.35**	**1.40**	2.0%

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
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Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1-C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (PRE-DEVELOPMENT)

BASIN	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
	CA(2)	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
EX-9	1.96	5.88	23.51	0.12	300	8	22.2	3500	3.0%	1.7	33.7	55.9	1.25	1.55	2.60	2	**9**	**61**
EX-10	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)																**105**	**222**
EX-10A	0.53	1.60	6.41	0.12	300	8	22.2	1100	3.0%	1.7	10.6	32.8	1.88	2.35	3.94	1	**4**	**25**
EX-11	0.12	0.35	1.40	0.12	300	8	22.2					22.2	2.35	2.93	4.93	0.3	**1**	**7**

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
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CALCULATED BY: ***MAW***

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (PRE-DEVELOPMENT)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Outfall
					I(5)	I(100)	Q(5)	Q(100)	
EX1	EX-9	5.88	23.51	55.9	1.55	2.60	9	61	Exist. Pond FSD-16 (Interim - TSB)
EX2	EX-10A	1.60	6.41	32.8	2.35	3.94	4	25	
EX3	EX-10 & EX-11	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)					105	222	

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
JOB NUMBER: *1183.60*
DATE: *07/30/26*
CALCULATED BY: *MAW*

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY (DEVELOPED)

		C VALUE DCM TABLE 6-6								**C VALUE DCM TABLE 6-6**				**WEIGHTED "C" VALUE**			**WEIGHTED CA**			**DCM TABLE 6-6**
BASIN	TOTAL AREA (AC)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	**CA(2)**	**CA(5)**	**CA(100)**	**WEIGHTED % IMPERVIOUS**
A	3.60	**RES 1/6 AC.**	52.5%	3.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.15**	**1.35**	**1.96**	52.5%
B	1.20	**RES 1/6 AC.**	52.5%	1.20	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.38**	**0.45**	**0.65**	52.5%
C	4.50	**RES 1/6 AC.**	52.5%	3.90	**0.32**	**0.38**	**0.55**	**OPEN SPACE**	7.0%	0.60	**0.05**	**0.12**	**0.39**	0.28	0.34	0.52	**1.28**	**1.53**	**2.36**	46.4%
D	1.50	**RES 1/6 AC.**	52.5%	1.50	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.48**	**0.56**	**0.82**	52.5%
E	1.60	**RES 1/6 AC.**	52.5%	1.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.51**	**0.60**	**0.87**	52.5%
F	3.50	**RES 1/6 AC.**	52.5%	3.50	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.12**	**1.31**	**1.91**	52.5%
G	1.10	**RES 1/6 AC.**	52.5%	1.10	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.35**	**0.41**	**0.60**	52.5%
H	1.70	**RES 1/6 AC.**	52.5%	1.70	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.54**	**0.64**	**0.93**	52.5%
I	0.22	**RES 1/6 AC.**	52.5%	0.22	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.07**	**0.08**	**0.12**	52.5%
J	1.90	**RES 1/6 AC.**	52.5%	1.90	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.61**	**0.71**	**1.04**	52.5%
K	0.73	**RES 1/6 AC.**	52.5%	0.73	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.23**	**0.27**	**0.40**	52.5%
L	2.20	**RES 1/5 AC.**	46.0%	2.20	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.62**	**0.75**	**1.14**	46.0%
M	0.57	**RES 1/5 AC.**	46.0%	0.57	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.16**	**0.19**	**0.30**	46.0%
N	1.70	**RES 1/6 AC.**	52.5%	1.70	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.54**	**0.64**	**0.93**	52.5%
O	0.49	**RES 1/6 AC.**	52.5%	0.49	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.16**	**0.18**	**0.27**	52.5%
P	0.40	**RES 1/6 AC.**	52.5%	0.40	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.13**	**0.15**	**0.22**	52.5%
Q	1.70	**RES 1/6 AC.**	52.5%	1.70	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.54**	**0.64**	**0.93**	52.5%
R	2.70	**RES 1/6 AC.**	52.5%	2.70	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.86**	**1.01**	**1.47**	52.5%
S	1.60	**RES 1/6 AC.**	52.5%	1.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.51**	**0.60**	**0.87**	52.5%
T	0.49	**RES 1/6 AC.**	52.5%	0.49	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.16**	**0.18**	**0.27**	52.5%
U	1.70	**RES 1/6 AC.**	52.5%	1.37	**0.32**	**0.38**	**0.55**	**OPEN SPACE**	7.0%	0.33	**0.05**	**0.12**	**0.39**	0.27	0.33	0.51	**0.45**	**0.55**	**0.88**	43.7%
V	2.70	**RES 1/5 AC.**	46.0%	1.93	**0.28**	**0.34**	**0.52**	**POCKET PARK**	7.0%	0.77	**0.05**	**0.12**	**0.39**	0.21	0.28	0.48	**0.58**	**0.75**	**1.30**	34.9%
W	0.79	**RES 1/6 AC.**	52.5%	0.79	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.25**	**0.30**	**0.43**	52.5%
X	2.00	**RES 1/6 AC.**	52.5%	2.00	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.64**	**0.75**	**1.09**	52.5%
Y	3.20	**RES 1/5 AC.**	46.0%	3.20	**0.28**	**0.34**	**0.52**			0.00	0.89	0.90	0.96	0.28	0.34	0.52	**0.90**	**1.09**	**1.66**	46.0%
Z	0.30	**RES 1/5 AC.**	46.0%	0.15	**0.28**	**0.34**	**0.52**	**OPEN SPACE**	7.0%	0.15	**0.05**	**0.12**	**0.39**	0.17	0.23	0.46	**0.05**	**0.07**	**0.14**	26.5%
AA	2.60	**RES 1/5 AC.**	46.0%	2.35	**0.28**	**0.34**	**0.52**	**OPEN SPACE**	7.0%	0.25	**0.05**	**0.12**	**0.39**	0.26	0.32	0.51	**0.67**	**0.83**	**1.32**	42.3%
BB	6.20	**RES 1/5 AC.**	46.0%	0.00	**0.28**	**0.34**	**0.52**	**OPEN SPACE**	7.0%	6.20	**0.05**	**0.12**	**0.39**	0.05	0.12	0.39	**0.31**	**0.74**	**2.42**	7.0%
CC	5.80	**RES 1/5 AC.**	46.0%	3.60	**0.28**	**0.34**	**0.52**	**OPEN SPACE**	7.0%	2.20	**0.05**	**0.12**	**0.39**	0.19	0.26	0.47	**1.12**	**1.49**	**2.73**	31.2%
DD	4.40	**RES 1/6 AC.**	52.5%	4.00	**0.32**	**0.38**	**0.55**	**OPEN SPACE**	7.0%	0.40	**0.05**	**0.12**	**0.39**	0.30	0.35	0.53	**1.30**	**1.55**	**2.34**	48.4%
EE	1.30	STREET	100.0%	0.60	0.89	0.90	0.96	**OPEN SPACE**	7.0%	0.80	**0.05**	**0.12**	**0.39**	0.44	0.49	0.68	**0.57**	**0.64**	**0.89**	50.5%
FF	0.62	STREET	100.0%	0.60	0.89	0.90	0.96			0.00	**0.05**	**0.12**	**0.39**	0.86	0.87	0.93	**0.53**	**0.54**	**0.58**	96.8%
GG	2.50	**RES 1/6 AC.**	52.5%	1.90	**0.32**	**0.38**	**0.55**	STREET	100.0%	0.60	0.89	0.90	0.96	0.46	0.50	0.64	**1.14**	**1.25**	**1.61**	63.9%
HH	2.00	**RES 1/6 AC.**	52.5%	1.00	**0.32**	**0.38**	**0.55**	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.75	**1.21**	**1.28**	**1.51**	76.3%
F4-1	9.00	**RES 1/5 AC.**	46.0%	9.00	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**2.52**	**3.06**	**4.68**	46.0%
F4-2	2.20	**RES 1/5 AC.**	46.0%	2.20	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.62**	**0.75**	**1.14**	46.0%
F4-3	3.20	**RES 1/5 AC.**	46.0%	3.20	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.90**	**1.09**	**1.66**	46.0%
F4-4	9.80	**RES 1/5 AC.**	46.0%	6.10	**0.28**	**0.34**	**0.52**	**OPEN SPACE**	7.0%	3.70	**0.05**	**0.12**	**0.39**	0.19	0.26	0.47	**1.89**	**2.52**	**4.62**	31.3%
F4-5	1.70	**RES 1/6 AC.**	52.5%	1.70	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.54**	**0.64**	**0.93**	52.5%
F4-6	3.50	**RES 1/5 AC.**	46.0%	3.50	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.98**	**1.19**	**1.82**	46.0%
F4-7	6.90	**RES 1/6 AC.**	52.5%	6.90	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**2.21**	**2.59**	**3.76**	52.5%
F4-8	1.10	**RES 1/6 AC.**	52.5%	1.10	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.35**	**0.41**	**0.60**	52.5%
F4-9	4.90	**RES 1/6 AC.**	52.5%	4.90	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.57**	**1.84**	**2.67**	52.5%
F4-10	8.50	**RES 1/6 AC.**	52.5%	8.50	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**2.72**	**3.19**	**4.63**	52.5%
F2-A	2.90	**RES 1/6 AC.**	52.5%	2.90	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.93**	**1.09**	**1.58**	52.5%
F2-B	5.00	**RES 1/6 AC.**	52.5%	5.00	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.60**	**1.88**	**2.73**	52.5%
F2-C	0.72	STREET	100.0%	0.19	0.89	0.90	0.96	**OPEN SPACE**	7.0%	0.53	**0.05**	**0.12**	**0.39**	0.27	0.33	0.54	**0.20**	**0.23**	**0.39**	31.5%
F8-1	3.30	**RES 1/6 AC.**	52.5%	3.10	**0.32**	**0.38**	**0.55**	**OPEN SPACE**	7.0%	0.20	**0.05**	**0.12**	**0.39**	0.30	0.36	0.54	**1.00**	**1.19**	**1.77**	49.7%
F8-2	1.00	**RES 1/5 AC.**	46.0%	0.88	**0.28**	**0.34**	**0.52**	**OPEN SPACE**	7.0%	0.12	**0.05**	**0.12**	**0.39**	0.25	0.31	0.50	**0.25**	**0.31**	**0.50**	41.3%
F8-3	3.00	**RES 1/8 AC.**	65.0%	2.75	**0.41**	**0.45**	**0.59**	**OPEN SPACE**	7.0%	0.25	**0.05**	**0.12**	**0.39**	0.38	0.42	0.57	**1.14**	**1.27**	**1.72**	60.2%

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
JOB NUMBER: *1183.60*
DATE: *07/30/26*
CALCULATED BY: *MAW*

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY (DEVELOPED)

		C VALUE DCM TABLE 6-6						**C VALUE DCM TABLE 6-6**						**WEIGHTED "C" VALUE**			**WEIGHTED CA**			**DCM TABLE 6-6**
BASIN	TOTAL AREA (AC)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	**LAND USE**	**PERCENT IMPERVIOUS**	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	**CA(2)**	**CA(5)**	**CA(100)**	**WEIGHTED % IMPERVIOUS**
F8-4	5.00	**RES 1/8 AC.**	65.0%	4.75	**0.41**	**0.45**	**0.59**	**OPEN SPACE**	7.0%	0.25	**0.05**	**0.12**	**0.39**	0.39	0.43	0.58	**1.96**	**2.17**	**2.90**	62.1%
F8-5	2.50	**RES 1/8 AC.**	65.0%	2.01	**0.41**	**0.45**	**0.59**	**OPEN SPACE**	7.0%	0.49	**0.05**	**0.12**	**0.39**	0.34	0.39	0.55	**0.85**	**0.96**	**1.38**	53.6%
F8-6	3.50	**RES 1/8 AC.**	65.0%	2.30	**0.41**	**0.45**	**0.59**	**OPEN SPACE**	7.0%	1.20	**0.05**	**0.12**	**0.39**	0.29	0.34	0.52	**1.00**	**1.18**	**1.83**	45.1%
F8-7	4.90	**RES 1/8 AC.**	65.0%	4.75	**0.41**	**0.45**	**0.59**	**OPEN SPACE**	7.0%	0.15	**0.05**	**0.12**	**0.39**	0.40	0.44	0.58	**1.96**	**2.16**	**2.86**	63.2%
F8-8	1.30	**RES 1/8 AC.**	65.0%	0.50	**0.41**	**0.45**	**0.59**	**OPEN SPACE**	7.0%	0.80	**0.05**	**0.12**	**0.39**	0.19	0.25	0.47	**0.25**	**0.32**	**0.61**	29.3%
F8-9	1.60	**RES 1/8 AC.**	65.0%	0.80	**0.41**	**0.45**	**0.59**	**OPEN SPACE**	7.0%	0.80	**0.05**	**0.12**	**0.39**	0.23	0.29	0.49	**0.37**	**0.46**	**0.78**	36.0%
P1-A2	4.20	STREET	100.0%	3.50	0.89	0.90	0.96	**OPEN SPACE**	7.0%	0.70	**0.05**	**0.12**	**0.39**	0.75	0.77	0.87	**3.15**	**3.23**	**3.63**	84.5%
P1-A3	1.20	STREET	100.0%	1.03	0.89	0.90	0.96	**OPEN SPACE**	7.0%	0.17	**0.05**	**0.12**	**0.39**	0.77	0.79	0.88	**0.93**	**0.95**	**1.06**	86.8%
SR-1	1.20	STREET	100.0%	0.75	0.89	0.90	0.96	**OPEN SPACE**	7.0%	0.45	**0.05**	**0.12**	**0.39**	0.58	0.61	0.75	**0.69**	**0.73**	**0.90**	65.1%
SR-2	0.65	STREET	100.0%	0.48	0.89	0.90	0.96	**OPEN SPACE**	7.0%	0.17	**0.05**	**0.12**	**0.39**	0.67	0.70	0.81	**0.44**	**0.45**	**0.53**	75.7%
BG-1	4.20	STREET	100.0%	3.00	0.89	0.90	0.96	**OPEN SPACE**	7.0%	1.20	**0.05**	**0.12**	**0.39**	0.65	0.68	0.80	**2.73**	**2.84**	**3.35**	73.4%
BG-2	3.00	STREET	100.0%	2.25	0.89	0.90	0.96	**OPEN SPACE**	7.0%	0.75	**0.05**	**0.12**	**0.39**	0.68	0.71	0.82	**2.04**	**2.12**	**2.45**	76.8%
P1-INT	33.40	**UNDEV.**	2.0%	33.40	**0.03**	**0.09**	**0.36**			0.00	0.89	0.90	0.96	0.03	0.09	0.36	**1.00**	**3.01**	**12.02**	2.0%
P1-F1	60.60	**RES 1/6 AC.**	52.5%	60.60	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**19.39**	**22.73**	**33.03**	52.5%
TOTAL AREA TRIBUTARY TO POND FSD-16	**211.5**	**49.1%**																		
Tributary Area to NWesterly Outfall	**136.1**	**49.1%**																		
Tributary Area to Easterly Outfall	**33.4**	**51.1%**																		
Tributary Area to SWesterly Outfall	**33.0**	**52.0%**																		
Basins tributary to Pond FSD-14A	**17.9**	**66.4%**																		
Basin tributary to future SWQ pond	**0.62**	**96.8%**																		

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
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Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED)

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A	1.15	1.35	1.96	0.12	100	2	14.1	600	1.5%	2.4	4.1	18.2	2.59	3.23	5.43	3	**4**	**11**
B	0.38	0.45	0.65	0.12	100	2	14.1	650	2.5%	3.2	3.4	17.5	2.63	3.29	5.52	1	**1**	**4**
C	1.28	1.53	2.36	0.12	100	2	14.1	650	2.5%	3.2	3.4	17.5	2.63	3.29	5.52	3	**5**	**13**
D	0.48	0.56	0.82	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	1	**2**	**5**
E	0.51	0.60	0.87	0.12	100	2	14.1	360	2.0%	2.8	2.1	16.2	2.72	3.41	5.72	1	**2**	**5**
F	1.12	1.31	1.91	0.12	100	2	14.1	510	1.5%	2.4	3.5	17.5	2.63	3.29	5.52	3	**4**	**11**
G	0.35	0.41	0.60	0.12	50	1	10.0	510	1.5%	2.4	3.5	13.4	2.94	3.69	6.19	1	**2**	**4**
H	0.54	0.64	0.93	0.12	100	2	14.1	180	1.5%	2.4	1.2	15.3	2.79	3.49	5.86	2	**2**	**5**
I	0.07	0.08	0.12	0.12	50	1	10.0	10	1.5%	2.4	0.1	10.0	3.29	4.13	6.93	0.2	**0.3**	**0.8**
J	0.61	0.71	1.04	0.12	100	2	14.1	240	1.5%	2.4	1.6	15.7	2.76	3.45	5.79	2	**2**	**6**
K	0.23	0.27	0.40	0.12	50	1	10.0	240	1.5%	2.4	1.6	11.6	3.12	3.91	6.56	0.7	**1.1**	**2.6**
L	0.62	0.75	1.14	0.12	100	2	14.1	220	1.5%	2.4	1.5	15.6	2.77	3.46	5.82	2	**3**	**7**
M	0.16	0.19	0.30	0.12	50	1	10.0	200	1.5%	2.4	1.4	11.3	3.15	3.94	6.62	0.5	**0.8**	**2.0**
N	0.54	0.64	0.93	0.12	100	2	14.1	180	1.5%	2.4	1.2	15.3	2.79	3.49	5.86	2	**2**	**5**
O	0.16	0.18	0.27	0.12	50	1	10.0	180	1.5%	2.4	1.2	11.2	3.16	3.96	6.65	0.5	**0.7**	**1.8**

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
JOB NUMBER: *1183.60*
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CALC'D BY: *MAW*

Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED)

BASIN	WEIGHTED CA(2)	WEIGHTED CA(5)	WEIGHTED CA(100)	OVERLAND C(5)	OVERLAND Length (ft)	OVERLAND Height (ft)	OVERLAND Tc (min)	STREET / CHANNEL FLOW Length (ft)	STREET / CHANNEL FLOW Slope (%)	STREET / CHANNEL FLOW Velocity (fps)	STREET / CHANNEL FLOW Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	INTENSITY I(5) (in/hr)	INTENSITY I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	TOTAL FLOWS Q(5) (cfs)	TOTAL FLOWS Q(100) (cfs)
P	0.13	0.15	0.22	0.12	50	1	10.0	120	3.0%	3.5	0.6	10.5	3.23	4.05	6.80	0.4	**0.6**	**1.5**
Q	0.54	0.64	0.93	0.12	100	2	14.1	340	3.0%	3.5	1.6	15.7	2.76	3.45	5.79	1	**2**	**5**
R	0.86	1.01	1.47	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	2	**3**	**8**
S	0.51	0.60	0.87	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	1	**2**	**5**
T	0.16	0.18	0.27	0.12	50	1	10.0	150	1.5%	2.4	1.0	11.0	3.18	3.99	6.70	0.5	**0.7**	**1.8**
U	0.45	0.55	0.88	0.12	80	3	10.2					10.2	3.27	4.09	6.87	1	**2**	**6**
V	0.58	0.75	1.30	0.12	100	2	14.1	390	2.0%	2.8	2.3	16.4	2.71	3.39	5.69	2	**3**	**7**
W	0.25	0.30	0.43	0.12	50	1	10.0	370	2.0%	2.8	2.2	12.1	3.06	3.84	6.45	0.8	**1.1**	**2.8**
X	0.64	0.75	1.09	0.12	100	2	14.1	350	1.5%	2.4	2.4	16.5	2.70	3.38	5.68	2	**3**	**6**
Y	0.90	1.09	1.66	0.12	100	2	14.1	600	4.0%	4.0	2.5	16.6	2.69	3.37	5.66	2	**4**	**9**
Z	0.05	0.07	0.14	0.12	90	3	11.3					11.3	3.15	3.95	6.63	0.2	**0.3**	**0.9**
AA	0.67	0.83	1.32	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	**4**	**10**
BB	0.31	0.74	2.42	0.12	70	2	10.5					10.5	3.24	4.06	6.82	1	**3**	**16**
CC	1.12	1.49	2.73	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	3	**5**	**16**

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Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v

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Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED)

BASIN	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
	CA(2)	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
DD	1.30	1.55	2.34	0.12	100	2	14.1	350	2.0%	2.8	2.1	16.1	2.73	3.41	5.73	4	**5**	**13**
EE	0.57	0.64	0.89	0.12	90	2	12.9	300	1.5%	2.4	2.0	14.9	2.82	3.53	5.92	2	**2**	**5**
FF	0.53	0.54	0.58	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	**2**	**4**
GG	1.14	1.25	1.61	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	**5**	**10**
HH	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	**5**	**9**
F4-1	2.52	3.06	4.68	0.12	100	2	14.1	670	2.5%	3.2	3.5	17.6	2.62	3.28	5.51	7	**10**	**26**
F4-2	0.62	0.75	1.14	0.12	100	2	14.1	350	2.5%	3.2	1.8	15.9	2.74	3.43	5.76	2	**3**	**7**
F4-3	0.90	1.09	1.66	0.12	100	2	14.1	450	2.5%	3.2	2.4	16.4	2.70	3.38	5.68	2	**4**	**9**
F4-4	1.89	2.52	4.62	0.12	100	2	14.1	730	2.5%	3.2	3.8	17.9	2.60	3.25	5.46	5	**8**	**25**
F4-5	0.54	0.64	0.93	0.12	50	1	10.0	770	2.5%	3.2	4.1	14.0	2.89	3.62	6.08	2	**2**	**6**
F4-6	0.98	1.19	1.82	0.12	50	1	10.0	850	1.5%	2.4	5.8	15.7	2.76	3.45	5.79	3	**4**	**11**
F4-7	2.21	2.59	3.76	0.12	100	2	14.1	870	2.0%	2.8	5.1	19.2	2.52	3.15	5.29	6	**8**	**20**
F4-8	0.35	0.41	0.60	0.12	50	1	10.0	200	1.5%	2.4	1.4	11.3	3.15	3.94	6.62	1	**2**	**4**
F4-9	1.57	1.84	2.67	0.12	50	1	10.0	1500	2.0%	2.8	8.8	18.8	2.54	3.18	5.34	4	**6**	**14**
F4-10	2.72	3.19	4.63	0.12	100	2	14.1	1070	2.5%	3.2	5.6	19.7	2.49	3.11	5.22	7	**10**	**24**

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Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

$$t_c = \frac{L}{180} + 10$$

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* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED)

	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
BASIN	CA(2)	CA(5)	CA(100)	C(5)	Length *(ft)*	Height *(ft)*	Tc *(min)*	Length *(ft)*	Slope *(%)*	Velocity *(fps)*	Tc *(min)*	TOTAL *(min)*	I(2) *(in/hr)*	I(5) *(in/hr)*	I(100) *(in/hr)*	Q(2) *(cfs)*	Q(5) *(cfs)*	Q(100) *(cfs)*
F2-A	0.93	1.09	1.58	0.12	50	1	10.0	300	2.0%	2.8	1.8	11.7	3.11	3.89	6.53	3	**4**	**10**
F2-B	1.60	1.88	2.73	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	4	**6**	**16**
F2-C	0.20	0.23	0.39	0.12	50	1	10.0					10.0	3.30	4.14	6.94	0.6	**1.0**	**3**
F8-1	1.00	1.19	1.77	0.12	90	2	12.9	560	1.5%	2.4	3.8	16.7	2.68	3.36	5.64	3	**4**	**10**
F8-2	0.25	0.31	0.50	0.12	100	3	12.3	60	1.5%	2.4	0.4	12.7	3.01	3.77	6.33	0.8	**1.2**	**3**
F8-3	1.14	1.27	1.72	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	3	**5**	**10**
F8-4	1.96	2.17	2.90	0.12	100	2	14.1	800	1.5%	2.4	5.4	19.5	2.50	3.13	5.25	5	**7**	**15**
F8-5	0.85	0.96	1.38	0.12	50	1	10.0	650	2.3%	3.0	3.6	13.5	2.94	3.68	6.17	2	**4**	**8**
F8-6	1.00	1.18	1.83	0.12	100	2	14.1	325	1.5%	2.4	2.2	16.3	2.71	3.40	5.70	3	**4**	**10**
F8-7	1.96	2.16	2.86	0.12	100	2	14.1	500	1.5%	2.4	3.4	17.5	2.63	3.29	5.53	5	**7**	**16**
F8-8	0.25	0.32	0.61	0.12	120	7	10.8					10.8	3.20	4.01	6.73	0.8	**1.3**	**4**
F8-9	0.37	0.46	0.78	0.12	80	8	7.4					7.4	3.65	4.58	7.69	1	**2**	**6**

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Return Period	1-Hour Depth
2	1.19
5	1.50
10	1.75
25	2.00
50	2.25
100	2.52

$$t_i = \frac{0.395(1.1 - C_5)\sqrt{L}}{S^{0.33}}$$

$$V = C_v S_w^{0.5}$$

Tc=L/V

Table 6-7. Conveyance Coefficient, C_v

Type of Land Surface	C_v
Heavy meadow	2.5
Tillage/field	5
Riprap (not buried)*	6.5
Short pasture and lawns	7
Nearly bare ground	10
Grassed waterway	15
Paved areas and shallow paved swales	20

$$t_c = \frac{L}{180} + 10$$

* For buried riprap, select C_v value based on type of vegetative cover.

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED)

BASIN	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
	CA(2)	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
P1-A2	3.15	3.23	3.63	0.12	20	0.5	5.8	1500	1.0%	2.0	12.5	18.3	2.57	3.22	5.40	8.1	**10.4**	**19.6**
P1-A3	0.93	0.95	1.06	0.12	20	0.5	5.8	780	1.0%	2.0	6.5	12.3	3.04	3.81	6.40	2.8	**3.6**	**6.8**
SR-1	0.69	0.73	0.90	0.12	50	5	5.9	550	3.5%	3.7	2.4	8.3	3.52	4.41	7.40	2	**3**	**7**
SR-2	0.44	0.45	0.53	0.12	15	0.4	5.0	550	3.5%	1.9	4.9	9.9	3.31	4.15	6.97	1	**2**	**4**
BG-1	2.73	2.84	3.35	0.12	80	2	11.7	700	1.0%	2.0	5.8	17.5	2.63	3.29	5.52	7	**9**	**18**
BG-2	2.04	2.12	2.45	0.12	60	2	9.2	1150	1.0%	2.0	9.6	18.8	2.54	3.18	5.34	5	**7**	**13**
P1-INT	1.00	3.01	12.02	0.12	300	7.5	22.6	2300	3.5%	1.9	20.5	43.1	1.56	1.94	3.25	2	**6**	**39**
P1-F1	19.39	22.73	33.03	0.12	100	2	14.1	2000	1.5%	2.4	13.6	27.7	2.08	2.60	4.37	40	**59**	**144**

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Ultimate)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
1	A	1.35	1.96	18.2	3.23	5.43	4	11	Prop. 10' Type R At-grade Inlet
2	B, C, Flow-by from DP-1	2.01	3.66	18.4	3.22	5.40	6	20	Prop. 10' Type R Sump Inlet
3	D	0.56	0.82	14.4	3.58	6.02	2	5	Prop. 5' Type R Sump Inlet
4	E	0.60	0.87	16.2	3.41	5.72	2	5	Prop. 10' Type R At-grade Inlet
5	F	1.31	1.91	17.5	3.29	5.52	4	11	Prop. 5' Type R Sump Inlet
6	G	0.41	0.60	13.4	3.69	6.19	2	4	Prop. 5' Type R Sump Inlet
7	H	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
8	I	0.08	0.12	10.0	4.13	6.93	0.3	0.8	Prop. 5' Type R Sump Inlet
9	J	0.71	1.04	15.7	3.45	5.79	2	6	Prop. 5' Type R Sump Inlet
10	K	0.27	0.40	11.6	3.91	6.56	1.1	2.6	Prop. 5' Type R Sump Inlet
11	L	0.75	1.14	15.6	3.46	5.82	3	7	Prop. 5' Type R Sump Inlet
12	M	0.19	0.30	11.3	3.94	6.62	0.8	2.0	Prop. 5' Type R Sump Inlet
13	N	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
14	O	0.18	0.27	11.2	3.96	6.65	0.7	1.8	Prop. 5' Type R Sump Inlet

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Ultimate)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
15	P	0.15	0.22	10.5	4.05	6.80	0.6	1.5	Prop. 5' Type R Sump Inlet
16	Q	0.64	0.93	15.7	3.45	5.79	2	5	Prop. 5' Type R Sump Inlet
17	R, Flow-by from DP-4	1.01	1.53	17.3	3.30	5.55	3	9	Prop. 10' Type R At-grade Inlet
18	S	0.60	0.87	17.3	3.30	5.55	2	5	Prop. 5' Type R Sump Inlet
19	T	0.18	0.27	11.0	3.99	6.70	0.7	1.8	Prop. 5' Type R Sump Inlet
20	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**Prop. Concrete Forebay**
21	V	0.75	1.30	16.4	3.39	5.69	3	7	Prop. 6' County Std. Crosspan
22	W, X, DP-21	1.79	2.82	16.5	3.38	5.68	6	16	Prop. 10' Type R Sump Inlet
23	Y	1.09	1.66	16.6	3.37	5.66	4	9	Prop. 5' Type R Sump Inlet
24	CC	1.49	2.73	15.8	3.44	5.77	5	16	Future Type R inlets at Sump Condition
25	EE	0.64	0.89	14.9	3.53	5.92	2	5	Prop. 5' Type R Sump Inlet
26	DD	1.55	2.34	16.1	3.41	5.73	5	13	Prop. 10' Type R Sump Inlet
27	F4-1	3.06	4.68	17.6	3.28	5.51	10	26	Future Type R inlets at Sump Condition

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Ultimate)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
28	F4-2	0.75	1.14	15.9	3.43	5.76	3	7	Future Type R inlet at Sump Condition
29	F4-3	1.09	1.66	16.4	3.38	5.68	4	9	Future At-grade Type R inlet
30	F4-4	2.52	4.62	17.9	3.25	5.46	8	25	Future Type R inlets at Sump Condition
31	F4-5	0.64	0.93	14.0	3.62	6.08	2	6	Future Type R inlets at Sump Condition
32	F4-6, Flow-by from DP-29	1.20	2.25	15.7	3.45	5.79	4	13	Future Type R inlets at Sump Condition
33	F4-7	2.59	3.76	19.2	3.15	5.29	8	20	Future Type R inlets at Sump Condition
34	F4-8	0.41	0.60	11.3	3.94	6.62	2	4	Future Type R inlets at Sump Condition
35	F4-9	1.84	2.67	18.8	3.18	5.34	6	14	Future Type R inlets at Sump Condition
36	F4-10	3.19	4.63	19.7	3.11	5.22	10	24	Future Type R inlets at Sump Condition
37	GG	1.25	1.61	12.7	3.78	6.34	5	10	Prop. 15' Type R At-Grade Inlet
38	HH	1.28	1.51	14.2	3.60	6.04	5	9	Prop. 15' Type R At-Grade Inlet
39	**POND FSD-16 INFLOW (NORTHWEST FOREBAY)**	**49.07**	**73.02**	**29.5**	**2.51**	**4.21**	**123**	**307**	**Prop. Impact Structure**

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Ultimate)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Facility/ Inlet Size*
40	F8-1	1.31	1.97	16.7	3.36	5.64	4	11	Future Type R inlets at Sump Condition
41	F8-2	0.32	0.51	12.7	3.77	6.33	1.2	3	Future Type R inlet at Sump Condition
42	F8-3	1.33	1.89	14.4	3.58	6.02	5	11	Future At-grade Type R inlet
43	F8-4	2.02	2.71	19.5	3.13	5.25	6	14	Future At-grade Type R inlet
44	F8-7	2.02	2.68	17.5	3.29	5.53	7	15	Future Type R inlet at Sump Condition
45	F2-A	1.09	1.58	11.7	3.89	6.53	4	10	Prop. 10' Type R Sump Inlet
46	F2-B	1.88	2.73	15.8	3.44	5.77	6	16	Prop. 10' Type R Sump Inlet
47	F8-5	1.19	1.67	13.5	3.68	6.17	4	10	Prop. 15' Type R At-Grade Inlet
48	F8-6	1.05	1.52	16.3	3.40	5.70	4	9	Future Type R inlet at Sump Condition
49	SR-1, Flow-by from DP-37	0.73	1.02	8.3	4.41	7.40	3	8	Prop. 15' Type R At-Grade Inlet
50	SR-2, Z, Flow-by from DP-38	0.52	0.74	9.9	4.15	6.97	2.2	5.1	Prop. 15' Type R At-Grade Inlet
51	**POND FSD-16 INFLOW (SOUTHWEST FOREBAY)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**Prop. Concrete Forebay**

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Ultimate)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
52	P1-A2, F2-C, F8-8, Flow-by from DP-47	3.79	4.76	18.3	3.22	5.40	12.2	25.7	Exist. 15' Type R At-grade Inlet
53	P1-A3, F8-9, Flow-by from DP-52	1.97	3.74	12.3	3.81	6.40	7.5	24.0	Exist. 15' Type R At-grade Inlet
54	BG-1, U, Flow-by from DP-17, 49 and 53	3.42	5.91	17.5	3.29	5.52	11.2	32.6	Exist. 20' Type R Sump Inlet
55	BG-2	2.12	2.45	18.8	3.18	5.34	7	13	Exist. 15' Type R Sump Inlet
	POND FSD-16 TOTALINFLOW (Incl. Basins AA and BB)	**76.30**	**112.97**	**29.9**	**2.49**	**4.17**	**190**	**472**	

Unresolved:
What about flow-by from DP-50?

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Interim)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
1	A	1.35	1.96	18.2	3.23	5.43	4	11	Prop. 10' Type R At-grade Inlet
2	B, C, Flow-by from DP-1	2.01	3.66	18.4	3.22	5.40	6	20	Prop. 10' Type R Sump Inlet
3	D	0.56	0.82	14.4	3.58	6.02	2	5	Prop. 5' Type R Sump Inlet
4	E	0.60	0.87	16.2	3.41	5.72	2	5	Prop. 10' Type R At-grade Inlet
5	F	1.31	1.91	17.5	3.29	5.52	4	11	Prop. 5' Type R Sump Inlet
6	G	0.41	0.60	13.4	3.69	6.19	2	4	Prop. 5' Type R Sump Inlet
7	H	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
8	I	0.08	0.12	10.0	4.13	6.93	0.3	0.8	Prop. 5' Type R Sump Inlet
9	J	0.71	1.04	15.7	3.45	5.79	2	6	Prop. 5' Type R Sump Inlet
10	K	0.27	0.40	11.6	3.91	6.56	1.1	2.6	Prop. 5' Type R Sump Inlet
11	L	0.75	1.14	15.6	3.46	5.82	3	7	Prop. 5' Type R Sump Inlet
12	M	0.19	0.30	11.3	3.94	6.62	0.8	2.0	Prop. 5' Type R Sump Inlet
13	N	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
14	O	0.18	0.27	11.2	3.96	6.65	0.7	1.8	Prop. 5' Type R Sump Inlet

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Interim)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Facility/ Inlet Size*
15	P	0.15	0.22	10.5	4.05	6.80	0.6	1.5	Prop. 5' Type R Sump Inlet
16	Q	0.64	0.93	15.7	3.45	5.79	2	5	Prop. 5' Type R Sump Inlet
17	R, Flow-by from DP-4	1.01	1.53	17.3	3.30	5.55	3	9	Prop. 10' Type R At-grade Inlet
18	S	0.60	0.87	17.3	3.30	5.55	2	5	Prop. 5' Type R Sump Inlet
19	T	0.18	0.27	11.0	3.99	6.70	0.7	1.8	Prop. 5' Type R Sump Inlet
20	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**Prop. Concrete Forebay**
21	V	0.75	1.30	16.4	3.39	5.69	3	7	Prop. 6' County Std. Crosspan
22	W, X, DP-21	1.79	2.82	16.5	3.38	5.68	6	16	Prop. 10' Type R Sump Inlet
23	Y	1.09	1.66	16.6	3.37	5.66	4	9	Prop. 5' Type R Sump Inlet
24	NO DESIGN POINT IN INTERIM CONDITION								
25	EE	0.64	0.89	14.9	3.53	5.92	2	5	Prop. 5' Type R Sump Inlet
26	DEVELOPED PORTION OF BASIN DD	0.15	0.27	16.1	3.41	5.73	1	2	Prop. 10' Type R Sump Inlet
TSB	DEV. PORTIONS OF BASINS CC & DD AND BASIN P-INT	3.55	12.93	43.1	1.94	3.25	7	42	Prop. 42" RCP Storm Stub at PR-36
27	F4-1	3.06	4.68	17.6	3.28	5.51	10	26	Future Type R inlets at Sump Condition

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Interim)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
28	F4-2	0.75	1.14	15.9	3.43	5.76	3	7	Future Type R inlet at Sump Condition
29	F4-3	1.09	1.66	16.4	3.38	5.68	4	9	Future At-grade Type R inlet
30	F4-4	2.52	4.62	17.9	3.25	5.46	8	25	Future Type R inlets at Sump Condition
31	F4-5	0.64	0.93	14.0	3.62	6.08	2	6	Future Type R inlets at Sump Condition
32	F4-6, Flow-by from DP-29	1.20	2.25	15.7	3.45	5.79	4	13	Future Type R inlets at Sump Condition
33	F4-7	2.59	3.76	19.2	3.15	5.29	8	20	Future Type R inlets at Sump Condition
34	F4-8	0.41	0.60	11.3	3.94	6.62	2	4	Future Type R inlets at Sump Condition
35	F4-9	1.84	2.67	18.8	3.18	5.34	6	14	Future Type R inlets at Sump Condition
36	F4-10	3.19	4.63	19.7	3.11	5.22	10	24	Future Type R inlets at Sump Condition
37	GG	1.25	1.61	12.7	3.78	6.34	5	10	Prop. 15' Type R At-Grade Inlet
38	HH	1.28	1.51	14.2	3.60	6.04	5	9	Prop. 15' Type R At-Grade Inlet
39	**POND FSD-16 INFLOW (NORTHWEST FOREBAY)**	**27.02**	**48.00**	**44.7**	**1.88**	**3.16**	**51**	**152**	**Prop. Impact Structure**

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Interim)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
40	F8-1	1.31	1.97	16.7	3.36	5.64	4	11	Future Type R inlets at Sump Condition
41	F8-2	0.32	0.51	12.7	3.77	6.33	1.2	3	Future Type R inlet at Sump Condition
42	F8-3	1.33	1.89	14.4	3.58	6.02	5	11	Future At-grade Type R inlet
43	F8-4	2.02	2.71	19.5	3.13	5.25	6	14	Future At-grade Type R inlet
44	F8-7	2.02	2.68	17.5	3.29	5.53	7	15	Future Type R inlet at Sump Condition
45	F2-A	1.09	1.58	11.7	3.89	6.53	4	10	Prop. 10' Type R Sump Inlet
46	F2-B	1.88	2.73	15.8	3.44	5.77	6	16	Prop. 10' Type R Sump Inlet
47	F8-5	1.19	1.67	13.5	3.68	6.17	4	10	Prop. 15' Type R At-Grade Inlet
48	F8-6	1.05	1.52	16.3	3.40	5.70	4	9	Future Type R inlet at Sump Condition
49	SR-1, Flow-by from DP-37	0.73	1.02	8.3	4.41	7.40	3	8	Prop. 15' Type R At-Grade Inlet
50	SR-2, Z, Flow-by from DP-38	0.52	0.74	9.9	4.15	6.97	2.2	5.1	Prop. 15' Type R At-Grade Inlet
51	**POND FSD-16 INFLOW (SOUTHWEST FOREBAY)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**Prop. Concrete Forebay**

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FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Interim)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Facility/ Inlet Size*
					I(5)	I(100)	Q(5)	Q(100)	
52	P1-A2, F2-C, F8-8, Flow-by from DP-47	3.79	4.76	18.3	3.22	5.40	12.2	25.7	Exist. 15' Type R At-grade Inlet
53	P1-A3, F8-9, Flow-by from DP-52	1.97	3.74	12.3	3.81	6.40	7.5	24.0	Exist. 15' Type R At-grade Inlet
54	BG-1, U, Flow-by from DP-17, 49 and 53	3.42	5.91	17.5	3.29	5.52	11.2	32.6	Exist. 20' Type R Sump Inlet
55	BG-2	2.12	2.45	18.8	3.18	5.34	7	13	Exist. 15' Type R Sump Inlet
	POND FSD-16 TOTALINFLOW (Incl. Basins AA and BB)	**54.24**	**87.96**	**45.1**	**1.87**	**3.13**	**101**	**276**	

What about flowby from DP 50?

JOB NAME:	***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
JOB NUMBER:	***1183.60***
DATE:	***07/30/26***
CALCULATED BY:	***MAW***

* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM SLOPE.
REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.
ALL STORM FACILITIES WITHIN PUBLIC ROW TO BE OWNED/MAINTAINED BY EL PASO COUNTY

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
1	DP-1 Capture	1.32	1.31	18.7	3.19	5.36	4	7	PROP. 18" RCP
2	DP-2	2.01	3.66	18.4	3.22	5.40	6	20	PROP. 24" RCP
3	DP-3	0.56	0.82	14.4	3.58	6.02	2	5	PROP. 18" RCP
4	PR-1, PR-2, PR-3	3.90	5.79	19.0	3.17	5.32	12	31	PROP. 30" RCP
5	DP-4 Capture	0.60	0.81	16.2	3.41	5.72	2	5	PROP. 18" RCP
6	PR-4, PR-5	4.50	6.60	19.1	3.16	5.31	14	35	PROP. 30" RCP
7	DP-5	1.31	1.91	17.5	3.29	5.52	4	11	PROP. 24" RCP
8	DP-6	0.41	0.60	13.4	3.69	6.19	2	4	PROP. 18" RCP
9	PR-7, PR-8	1.73	2.51	17.7	3.27	5.49	6	14	PROP. 24" RCP
10	PR-6, PR-9	6.22	9.11	19.5	3.13	5.25	19	48	PROP. 36" RCP
11	DP-7	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
12	DP-8	0.08	0.12	10.0	4.13	6.93	0.3	0.8	PROP. 18" RCP
13	PR-10, PR-11, PR-12	6.94	10.16	19.7	3.12	5.23	22	53	PROP. 36" RCP

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
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REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.
ALL STORM FACILITIES WITHIN PUBLIC ROW TO BE OWNED/MAINTAINED BY EL PASO COUNTY

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*
					I(5)	I(100)	Q(5)	Q(100)	
14	DP-9	0.71	1.04	15.7	3.45	5.79	2	6	PROP. 18" RCP
15	DP-10	0.27	0.40	11.6	3.91	6.56	1.1	2.6	PROP. 18" RCP
16	PR-14, PR-15	0.99	1.43	15.7	3.45	5.79	3	8	PROP. 24" RCP
17	PR-13, PR-16	7.93	11.59	20.2	3.08	5.17	24	60	PROP. 36" RCP
18	DP-11	0.75	1.14	15.6	3.46	5.82	3	7	PROP. 18" RCP
19	DP-12	0.19	0.30	11.3	3.94	6.62	0.8	2.0	PROP. 18" RCP
20	PR-18, PR-19	0.94	1.44	16.1	3.42	5.74	3	8	PROP. 24" RCP
21	DP-13	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
22	DP-14	0.18	0.27	11.2	3.96	6.65	0.7	1.8	PROP. 18" RCP
23	PR-20, PR-21, PR-22	1.76	2.63	16.2	3.41	5.72	6	15	PROP. 30" RCP
24	PR-17, PR-23	9.69	14.22	20.4	3.06	5.14	30	73	PROP. 42" RCP
25	DP-15	0.15	0.22	10.5	4.05	6.80	0.6	1.5	PROP. 18" RCP
26	DP-16	0.64	0.93	15.7	3.45	5.79	2	5	PROP. 18" RCP

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
JOB NUMBER: ***1183.60***
DATE: ***07/30/26***
CALCULATED BY: ***MAW***

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REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.
ALL STORM FACILITIES WITHIN PUBLIC ROW TO BE OWNED/MAINTAINED BY EL PASO COUNTY

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*
					I(5)	I(100)	Q(5)	Q(100)	
27	PR-24, PR-25, PR-6	10.48	15.37	20.6	3.05	5.12	32	79	PROP. 42" RCP
28	DP-17 Capture	1.01	1.18	17.3	3.30	5.55	3	7	PROP. 18" RCP
29	DP-18	0.60	0.87	17.3	3.30	5.55	2	5	PROP. 18" RCP
30	DP-19	0.18	0.27	11.0	3.99	6.70	0.7	1.8	PROP. 18" RCP
31	PR-28, PR-29, PR-30	1.80	2.32	17.4	3.30	5.53	6	13	PROP. 24" RCP
32	**TOTAL INFLOW POND FSD - 16 (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**PROP. 48" RCP**
33	DP-22	1.79	2.82	16.5	3.38	5.68	6	16	PROP. 24" RCP
34	DP-23, PR-33	2.88	4.49	16.7	3.36	5.65	10	25	PROP. 30" RCP
35	P1-F1 (50%)	11.36	16.51	27.7	2.60	4.37	30	72	PROP. 42" RCP STUB
36	DP-24, P1-F1 (50%)	12.85	19.24	27.7	2.60	4.37	33	84	PROP. 42" RCP STUB
37	PR-35, PR-36	24.21	35.76	27.9	2.59	4.35	63	155	PROP. 48" RCP
38	DP-25	0.64	0.89	14.9	3.53	5.92	2	5	PROP. 18" RCP
39	DP-26, PR-38	2.18	3.22	16.1	3.41	5.73	7	18	PROP. 24" RCP

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
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REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.
ALL STORM FACILITIES WITHIN PUBLIC ROW TO BE OWNED/MAINTAINED BY EL PASO COUNTY

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
40	PR-37, PR-39	26.40	38.98	28.6	2.55	4.29	67	167	PROP. 48" RCP
41	DP-27, DP-28, DP-29 Capture, DP-30, DP-31	8.04	12.60	20.4	3.06	5.13	25	65	PROP. 42" RCP
42	PR-40, PR-41	34.44	51.58	29.2	2.52	4.23	87	218	PROP. 54" RCP
43	DP-32, DP-33, DP-34, DP-35, DP 36	9.23	13.92	20.2	3.07	5.16	28	72	PROP. 42" RCP
44	PR-42, PR-43	43.66	65.49	29.2	2.52	4.23	110	277	PROP. 60" RCP
45	DP-38 Capture	1.28	1.51	14.2	3.60	6.04	5	9	PROP. 18" RCP
46	DP-37 Capture, PR-45	2.53	3.04	14.2	3.60	6.04	9	18	PROP. 24" RCP
47	PR-44, PR-46	46.19	68.53	29.3	2.52	4.22	116	290	PROP. 60" RCP
48	**PR-34, PR-47 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**49.07**	**73.02**	**29.5**	**2.51**	**4.21**	**123**	**307**	**PROP. 66" RCP**
49	**DP-40 THRU DP-50 TOTAL INFLOW POND FSD-16 (SW OUTFALL)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**PROP. 48" RCP**

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
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REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.
ALL STORM FACILITIES WITHIN PUBLIC ROW TO BE OWNED/MAINTAINED BY EL PASO COUNTY

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	I(100)	Flow Q(5)	Q(100)	Pipe Size*
1	DP-1 Capture	1.32	1.31	18.7	3.19	5.36	4	7	PROP. 18" RCP
2	DP-2	2.01	3.66	18.4	3.22	5.40	6	20	PROP. 24" RCP
3	DP-3	0.56	0.82	14.4	3.58	6.02	2	5	PROP. 18" RCP
4	PR-1, PR-2, PR-3	3.90	5.79	19.0	3.17	5.32	12	31	PROP. 30" RCP
5	DP-4 Capture	0.60	0.81	16.2	3.41	5.72	2	5	PROP. 18" RCP
6	PR-4, PR-5	4.50	6.60	19.1	3.16	5.31	14	35	PROP. 30" RCP
7	DP-5	1.31	1.91	17.5	3.29	5.52	4	11	PROP. 24" RCP
8	DP-6	0.41	0.60	13.4	3.69	6.19	2	4	PROP. 18" RCP
9	PR-7, PR-8	1.73	2.51	17.7	3.27	5.49	6	14	PROP. 24" RCP
10	PR-6, PR-9	6.22	9.11	19.5	3.13	5.25	19	48	PROP. 36" RCP
11	DP-7	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
12	DP-8	0.08	0.12	10.0	4.13	6.93	0.3	0.8	PROP. 18" RCP
13	PR-10, PR-11, PR-12	6.94	10.16	19.7	3.12	5.23	22	53	PROP. 36" RCP

JOB NAME: *STERLING RANCH EAST FILING NO. 6 - FINAL PLAT*
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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*
					I(5)	I(100)	Q(5)	Q(100)	
14	DP-9	0.71	1.04	15.7	3.45	5.79	2	6	PROP. 18" RCP
15	DP-10	0.27	0.40	11.6	3.91	6.56	1.1	2.6	PROP. 18" RCP
16	PR-14, PR-15	0.99	1.43	15.7	3.45	5.79	3	8	PROP. 24" RCP
17	PR-13, PR-16	7.93	11.59	20.2	3.08	5.17	24	60	PROP. 36" RCP
18	DP-11	0.75	1.14	15.6	3.46	5.82	3	7	PROP. 18" RCP
19	DP-12	0.19	0.30	11.3	3.94	6.62	0.8	2.0	PROP. 18" RCP
20	PR-18, PR-19	0.94	1.44	16.1	3.42	5.74	3	8	PROP. 24" RCP
21	DP-13	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
22	DP-14	0.18	0.27	11.2	3.96	6.65	0.7	1.8	PROP. 18" RCP
23	PR-20, PR-21, PR-22	1.76	2.63	16.2	3.41	5.72	6	15	PROP. 30" RCP
24	PR-17, PR-23	9.69	14.22	20.4	3.06	5.14	30	73	PROP. 42" RCP
25	DP-15	0.15	0.22	10.5	4.05	6.80	0.6	1.5	PROP. 18" RCP
26	DP-16	0.64	0.93	15.7	3.45	5.79	2	5	PROP. 18" RCP

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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*
					I(5)	I(100)	Q(5)	Q(100)	
27	PR-24, PR-25, PR-6	10.48	15.37	20.6	3.05	5.12	32	79	PROP. 42" RCP
28	DP-17 Capture	1.01	1.18	17.3	3.30	5.55	3	7	PROP. 18" RCP
29	DP-18	0.60	0.87	17.3	3.30	5.55	2	5	PROP. 18" RCP
30	DP-19	0.18	0.27	11.0	3.99	6.70	0.7	1.8	PROP. 18" RCP
31	PR-28, PR-29, PR-30	1.80	2.32	17.4	3.30	5.53	6	13	PROP. 24" RCP
32	**TOTAL INFLOW POND FSD - 16 (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**PROP. 48" RCP**
33	DP-22	1.79	2.82	16.5	3.38	5.68	6	16	PROP. 24" RCP
34	DP-23, PR-33	2.88	4.49	16.7	3.36	5.65	10	25	PROP. 30" RCP
35	NO FLOWS IN INTERIM CONDITION								
36	DEV. PORTIONS OF BASINS CC & DD AND BASIN P-INT FROM OUTFALL OF TSB	3.55	12.93	43.1	1.94	3.25	7	42	PROP. 42" RCP STUB
37	PR-35, PR-36	3.55	12.93	43.1	1.94	3.25	7	42	PROP. 48" RCP
38	DP-25	0.64	0.89	14.9	3.53	5.92	2	5	PROP. 18" RCP

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FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
39	DP-26, PR-38	0.78	1.16	16.1	3.41	5.73	3	7	PROP. 24" RCP
40	PR-37, PR-39	4.34	14.09	43.8	1.91	3.21	8	45	PROP. 48" RCP
41	DP-27, DP-28, DP-29 Capture, DP-30, DP-31	8.04	12.60	20.4	3.06	5.13	25	65	PROP. 42" RCP
42	PR-40, PR-41	12.38	26.69	44.4	1.89	3.17	23	85	PROP. 54" RCP
43	DP-32, DP-33, DP-34, DP-35, DP-36	9.23	13.92	20.2	3.07	5.16	28	72	PROP. 42" RCP
44	PR-42, PR-43	21.60	40.60	44.4	1.89	3.17	41	129	PROP. 60" RCP
45	DP-38 Capture	1.28	1.43	12.7	3.78	6.34	5	9	PROP. 18" RCP
46	DP-37 Capture, PR-45	2.53	2.91	14.2	3.60	6.04	9	18	PROP. 24" RCP
47	PR-44, PR-46	24.13	43.51	44.5	1.89	3.17	46	138	PROP. 60" RCP
48	**PR-34, PR-47 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**27.02**	**48.00**	**44.7**	**1.88**	**3.16**	**51**	**152**	**PROP. 66" RCP**
49	**DP-40 THRU DP-50 TOTAL INFLOW POND FSD-16 (SW OUTFALL)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**PROP. 48" RCP**

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-1	DP-2	DP-3	DP-4
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	In Sump	In Sump	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening
Number of Inlet Units	1	1	1	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	4.00	6.00	2.00	2.00
Major Peak Flow, Q (cfs)	11.00	16.00	5.00	5.00

Bypass (Carry-Over) Flow from Upstream

Inlets must be organized from upstream (left) to downstream (right) in order for bypass flows to be linked.

Receive Bypass Flow from:	No Bypass Flow Received	DP-1	No Bypass Flow Received	No Bypass Flow Received
Bypass Flow Description (Optional):				
Minor Bypass Flow Received, Q_b (cfs)	0.00	0.07	0.00	0.00
Major Bypass Flow Received, Q_b (cfs)	0.00	3.64	0.00	0.00

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	4.00	6.07	2.00	2.00
Major Total Design Peak Flow, Q (cfs)	11.00	19.64	5.00	5.00
Minor Inlet Interception Capacity, Q_a (cfs)	3.93	8.28	5.38	2.00
Major Inlet Interception Capacity, Q_a (cfs)	7.36	25.53	12.26	4.66
Minor Flow Bypassed Downstream, Qb (cfs)	0.07	N/A	N/A	0.00
Major Flow Bypassed Downstream, Qb (cfs)	3.64	N/A	N/A	0.34
Minor Flow Capture Percentage, C%	98%	100%	100%	100%
Major Flow Capture Percentage, C%	67%	100%	100%	93%

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

roject: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-5	DP-6	DP-7	DP-8	DP-9
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	In Sump	In Sump	In Sump	In Sump	In Sump
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening
Number of Inlet Units	1	1	1	1	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	4.00	2.00	2.00	0.30	2.00
Major Peak Flow, Q (cfs)	11.00	4.00	5.00	0.80	6.00

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	No Bypass Flow Received	No Bypass Flow Received	No Bypass Flow Received	No Bypass Flow Received	No Bypass Flow Received
Bypass Flow Description (Optional):					
Minor Bypass Flow Received, Q_b (cfs)	0.00	0.00	0.00	0.00	0.00
Major Bypass Flow Received, Q_b (cfs)	0.00	0.00	0.00	0.00	0.00

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	4.00	2.00	2.00	0.30	2.00
Major Total Design Peak Flow, Q (cfs)	11.00	4.00	5.00	0.80	6.00
Minor Inlet Interception Capacity, Q_a (cfs)	5.38	5.38	5.38	5.38	5.38
Major Inlet Interception Capacity, Q_a (cfs)	12.26	12.26	12.26	12.26	12.26
Minor Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	N/A	N/A	N/A
Major Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	N/A	N/A	N/A
Minor Flow Capture Percentage, C%	100%	100%	100%	100%	100%
Major Flow Capture Percentage, C%	100%	100%	100%	100%	100%

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

roject: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-10	DP-11	DP-12	DP-13	DP-14
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	In Sump	In Sump	In Sump	In Sump	In Sump
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening
Number of Inlet Units	1	1	1	1	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	1.10	3.00	0.80	2.00	0.70
Major Peak Flow, Q (cfs)	2.60	7.00	2.00	5.00	1.80

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	No Bypass Flow Received	No Bypass Flow Received	No Bypass Flow Received	No Bypass Flow Received	No Bypass Flow Received
Bypass Flow Description (Optional):					
Minor Bypass Flow Received, Q_b (cfs)	0.00	0.00	0.00	0.00	0.00
Major Bypass Flow Received, Q_b (cfs)	0.00	0.00	0.00	0.00	0.00

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	1.10	3.00	0.80	2.00	0.70
Major Total Design Peak Flow, Q (cfs)	2.60	7.00	2.00	5.00	1.80
Minor Inlet Interception Capacity, Q_a (cfs)	5.38	5.38	5.38	5.38	5.38
Major Inlet Interception Capacity, Q_a (cfs)	12.26	12.26	12.26	12.26	12.26
Minor Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	N/A	N/A	N/A
Major Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	N/A	N/A	N/A
Minor Flow Capture Percentage, C%	100%	100%	100%	100%	100%
Major Flow Capture Percentage, C%	100%	100%	100%	100%	100%

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

roject: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-15	DP-16	DP-17	DP-18	DP-19
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	In Sump	In Sump	On Grade	In Sump	In Sump
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening
Number of Inlet Units	1	1	1	1	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	0.60	2.00	3.00	2.00	0.70
Major Peak Flow, Q (cfs)	1.50	5.00	8.00	5.00	1.80

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	No Bypass Flow Received	No Bypass Flow Received	DP-4	No Bypass Flow Received	No Bypass Flow Received
Bypass Flow Description (Optional):					
Minor Bypass Flow Received, Q_b (cfs)	0.00	0.00	0.00	0.00	0.00
Major Bypass Flow Received, Q_b (cfs)	0.00	0.00	0.34	0.00	0.00

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	0.60	2.00	3.00	2.00	0.70
Major Total Design Peak Flow, Q (cfs)	1.50	5.00	8.34	5.00	1.80
Minor Inlet Interception Capacity, Q_a (cfs)	5.38	5.38	3.00	5.38	5.38
Major Inlet Interception Capacity, Q_a (cfs)	12.26	12.26	6.38	12.26	12.26
Minor Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	0.00	N/A	N/A
Major Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	1.96	N/A	N/A
Minor Flow Capture Percentage, C%	100%	100%	100%	100%	100%
Major Flow Capture Percentage, C%	100%	100%	77%	100%	100%

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

roject: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-22	DP-23	DP-29	DP-37	DP-38
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	In Sump	In Sump	On Grade	On Grade	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening
Number of Inlet Units	1	1	1	1	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	6.00	4.00	4.00	5.00	5.00
Major Peak Flow, Q (cfs)	16.00	9.00	9.00	10.00	9.00

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:					
Bypass Flow Description (Optional):					
Minor Bypass Flow Received, Q_b (cfs)					
Major Bypass Flow Received, Q_b (cfs)					

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	6.00	4.00	4.00	5.00	5.00
Major Total Design Peak Flow, Q (cfs)	16.00	9.00	9.00	10.00	9.00
Minor Inlet Interception Capacity, Q_a (cfs)	8.28	5.38	3.94	5.00	5.00
Major Inlet Interception Capacity, Q_a (cfs)	25.53	12.26	6.68	9.23	8.56
Minor Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	0.06	0.00	0.00
Major Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	2.32	0.77	0.44
Minor Flow Capture Percentage, C%	100%	100%	99%	100%	100%
Major Flow Capture Percentage, C%	100%	100%	74%	92%	95%

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

roject: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-47	DP-49	DP-50	DP-52	DP-53
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	On Grade	On Grade	On Grade	On Grade	On Grade
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening
Number of Inlet Units	1	1	1	1	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	4.00	3.00	2.20	12.20	5.40
Major Peak Flow, Q (cfs)	10.00	7.00	4.60	25.00	11.80

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:		DP-37	DP-38	DP-47	DP-52
Bypass Flow Description (Optional):					
Minor Bypass Flow Received, Q_b (cfs)		0.00	0.00	0.00	1.83
Major Bypass Flow Received, Q_b (cfs)		0.77	0.44	0.80	10.43

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	4.00	3.00	2.20	12.20	7.23
Major Total Design Peak Flow, Q (cfs)	10.00	7.77	5.04	25.80	22.23
Minor Inlet Interception Capacity, Q_a (cfs)	4.00	3.00	2.20	10.37	7.15
Major Inlet Interception Capacity, Q_a (cfs)	9.20	7.64	5.04	15.37	14.34
Minor Flow Bypassed Downstream, Qb (cfs)	0.00	0.00	0.00	1.83	0.08
Major Flow Bypassed Downstream, Qb (cfs)	0.80	0.13	0.00	10.43	7.89
Minor Flow Capture Percentage, C%	100%	100%	100%	85%	99%
Major Flow Capture Percentage, C%	92%	98%	100%	60%	65%

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

roject: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-54	DP-55	DP-25	DP-26	DP-45
Inlet Application (Street or Area)	STREET	STREET	STREET	STREET	STREET
Hydraulic Condition	In Sump	In Sump	In Sump	In Sump	In Sump
Inlet Type	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening	CDOT Type R Curb Opening
Number of Inlet Units	1	1	1	1	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	11.20	7.00	2.00	5.00	4.00
Major Peak Flow, Q (cfs)	23.30	13.00	5.00	13.00	10.00

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	User-Defined				
Bypass Flow Description (Optional):					
Minor Bypass Flow Received, Q_b (cfs)	0.02				
Major Bypass Flow Received, Q_b (cfs)	9.19				

CALCULATED OUTPUT

Minor Total Design Peak Flow, Q (cfs)	11.22	7.00	2.00	5.00	4.00
Major Total Design Peak Flow, Q (cfs)	32.49	13.00	5.00	13.00	10.00
Minor Inlet Interception Capacity, Q_a (cfs)	12.48	9.73	5.38	8.28	8.28
Major Inlet Interception Capacity, Q_a (cfs)	52.66	39.07	12.26	25.53	25.53
Minor Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	N/A	N/A	N/A
Major Flow Bypassed Downstream, Qb (cfs)	N/A	N/A	N/A	N/A	N/A
Minor Flow Capture Percentage, C%	100%	100%	100%	100%	100%
Major Flow Capture Percentage, C%	100%	100%	100%	100%	100%

MHFD-Inlet, Version 6.00 (August 2025)

INLET MANAGEMENT

roject: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Minor: 5-year
Major: 100-year

Worksheet Protected

INLET NAME	DP-46
Inlet Application (Street or Area)	STREET
Hydraulic Condition	In Sump
Inlet Type	CDOT Type R Curb Opening
Number of Inlet Units	1

USER-DEFINED INPUT

User-Defined Peak Flows

Minor Peak Flow, Q (cfs)	6.00
Major Peak Flow, Q (cfs)	16.00

Bypass (Carry-Over) Flow from Upstream

Receive Bypass Flow from:	
Bypass Flow Description (Optional):	
Minor Bypass Flow Received, Q_b (cfs)	
Major Bypass Flow Received, Q_b (cfs)	

CALCULATED OUTPUT

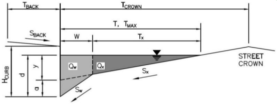
Minor Total Design Peak Flow, Q (cfs)	6.00
Major Total Design Peak Flow, Q (cfs)	16.00
Minor Inlet Interception Capacity, Q_a (cfs)	8.28
Major Inlet Interception Capacity, Q_a (cfs)	25.53
Minor Flow Bypassed Downstream, Qb (cfs)	N/A
Major Flow Bypassed Downstream, Qb (cfs)	N/A
Minor Flow Capture Percentage, C%	100%
Major Flow Capture Percentage, C%	100%

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-1



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.015	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

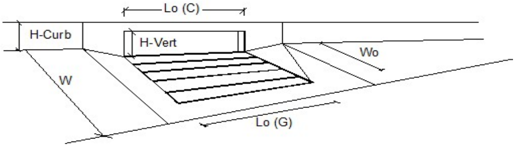
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**13.3**	**13.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 4.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 11.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)	CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**3.9**	**7.4**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.1**	**3.6**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**98**	**67**	**%**

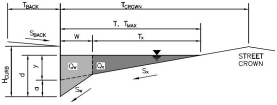
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**

Inlet ID: **DP-2**



Gutter Geometry:

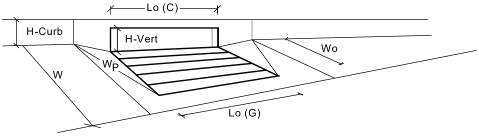
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



		MINOR	MAJOR	
Design Information (Input)		MINOR	MAJOR	
Type of Inlet CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	6.1	19.6	cfs

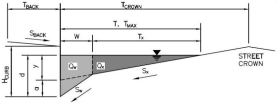
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-3



Gutter Geometry:

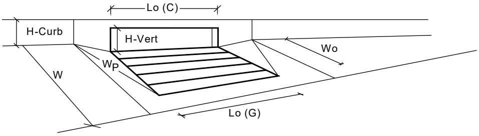
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



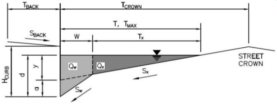
Design Information (Input) CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-4



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.020	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

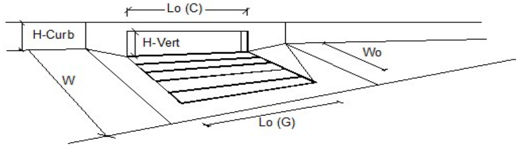
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**15.4**	**15.4**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 2.00 cfs on sheet 'Inlet Management'
Major storm max. allowable capacity GOOD - greater than the design peak flow of 5.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**2.0**	**4.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.3**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**100**	**93**	**%**

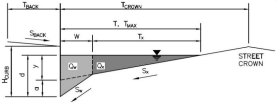
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**

Inlet ID: **DP-5**



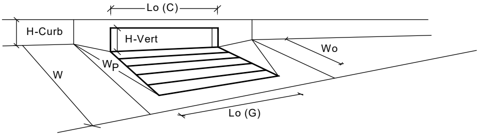
Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



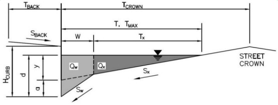
Design Information (Input) CDOT Type R Curb Opening		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	4.0	11.0	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**
Inlet ID: **DP-6**



Gutter Geometry:

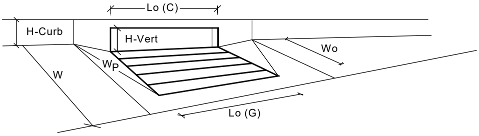
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)

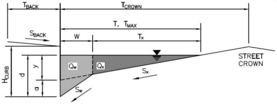


		MINOR	MAJOR	
Design Information (Input)	CDOT Type R Curb Opening ▼			
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	4.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**
Inlet ID: **DP-7**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

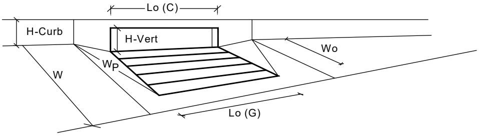
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

MINOR STORM Allowable Capacity is not applicable to Sump Condition
MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

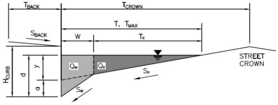
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-8



Gutter Geometry:

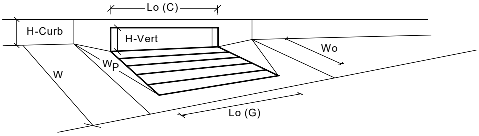
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)	CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	12.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)		$Q_{PEAK\ REQUIRED}$ =	0.3	0.8	cfs

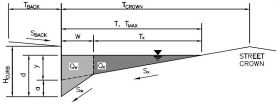
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**

Inlet ID: **DP-9**



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

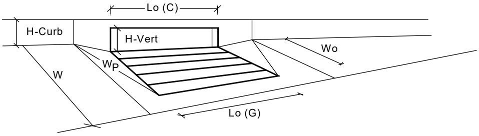
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

MINOR STORM Allowable Capacity is not applicable to Sump Condition
MAJOR STORM Allowable Capacity is not applicable to Sump Condition

		Minor Storm	Major Storm	
	Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



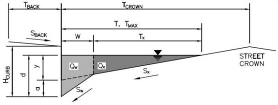
Design Information (Input)	CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	12.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)		$Q_{PEAK\ REQUIRED}$ =	2.0	6.0	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-10



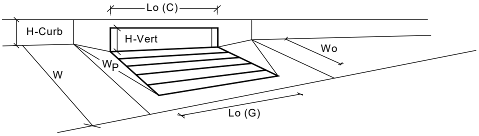
Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	1.1	2.6	cfs

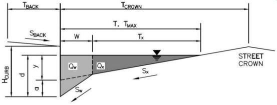
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**

Inlet ID: **DP-11**



Gutter Geometry:

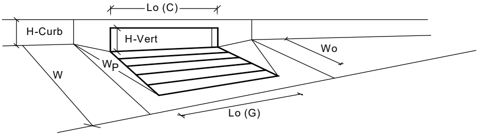
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



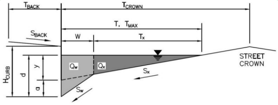
Design Information (Input)	CDOT Type R Curb Opening ▼	MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	3.0	7.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-12



Gutter Geometry:

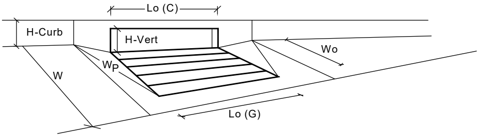
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



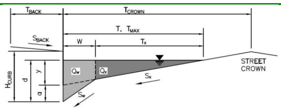
Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	12.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)		$Q_{PEAK\ REQUIRED}$ =	0.8	2.0	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-13



Gutter Geometry:

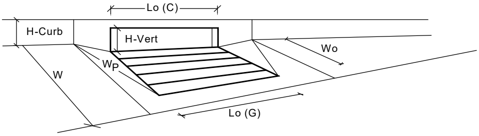
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



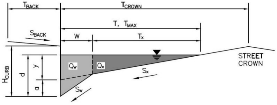
Design Information (Input) CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-14



Gutter Geometry:

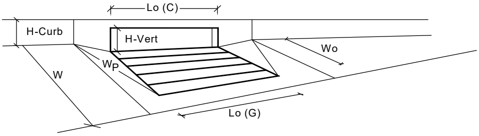
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



CDOT Type R Curb Opening ▼

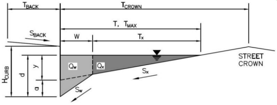
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.7	1.8	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**
Inlet ID: **DP-15**



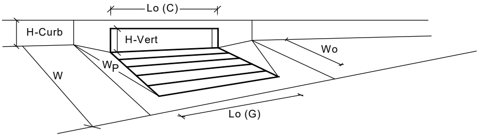
Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



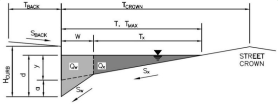
Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.6	1.5	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-16



Gutter Geometry:

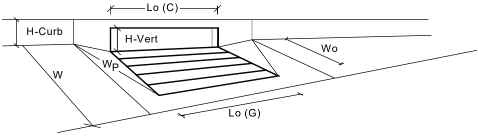
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

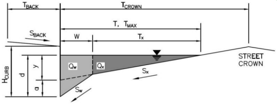
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-17



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.018	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

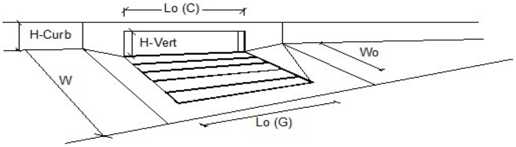
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**14.6**	**14.6**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 3.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 8.34 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



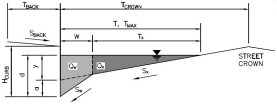
Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q_a =**	**3.0**	**6.4**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**2.0**	**cfs**
Capture Percentage = Q_a/Q_o		**C% =**	**100**	**77**	**%**

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-18



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

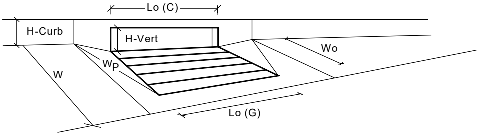
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



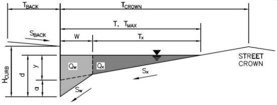
Design Information (Input) CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-19

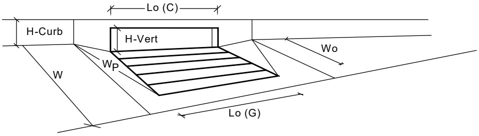


Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	0.7	1.8	cfs

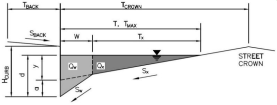
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-22



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

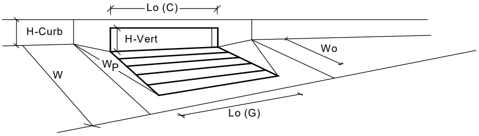
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)

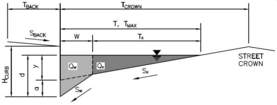


		MINOR	MAJOR	
Design Information (Input)				
Type of Inlet — CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	6.0	16.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**
Inlet ID: **DP-23**



Gutter Geometry:

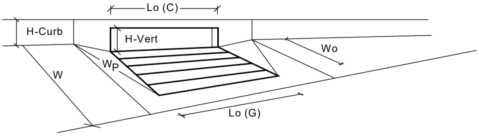
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



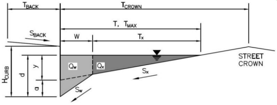
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening	
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	4.0	9.0	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-25



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	32.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

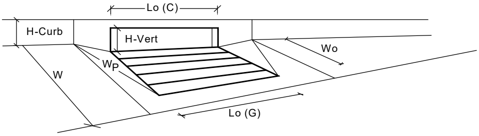
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	25.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

MINOR STORM Allowable Capacity is not applicable to Sump Condition
MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



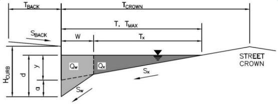
Design Information (Input) CDOT Type R Curb Opening		MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	1.00	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**5.4**	**12.3**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	2.0	5.0	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-26



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	24.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

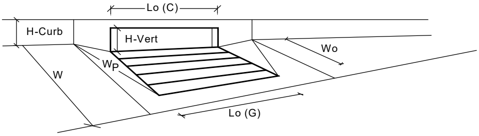
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	24.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

MINOR STORM Allowable Capacity is not applicable to Sump Condition
MAJOR STORM Allowable Capacity is not applicable to Sump Condition

	Minor Storm	Major Storm	
Q_{allow} =	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	5.0	13.0	cfs

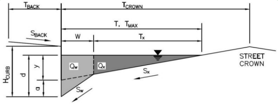
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**

Inlet ID: **DP-29**



Gutter Geometry:

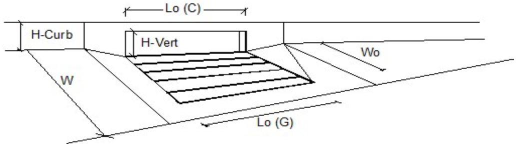
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.025		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.2**	**17.2**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 4.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 9.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**3.9**	**6.7**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.1**	**2.3**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**99**	**74**	**%**

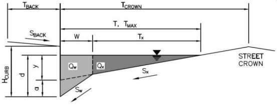
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-37



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	26.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.035	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

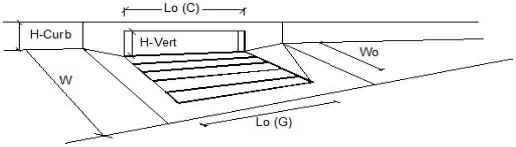
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.0**	**62.1**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 5.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 10.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



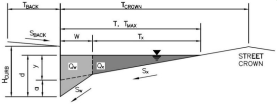
Design Information (Input)	CDOT Type R Curb Opening ▼		MINOR	MAJOR	
Type of Inlet		Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**5.0**	**9.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.8**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**100**	**92**	**%**

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-38



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	26.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.035	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

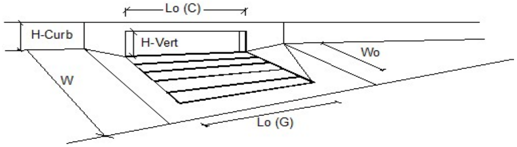
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion				
MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.0**	**62.1**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 5.00 cfs on sheet 'Inlet Management'
Major storm max. allowable capacity GOOD - greater than the design peak flow of 9.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



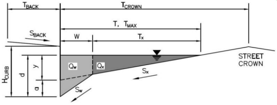
Design Information (Input)		MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**5.0**	**8.6**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.4**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**100**	**95**	**%**

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-45

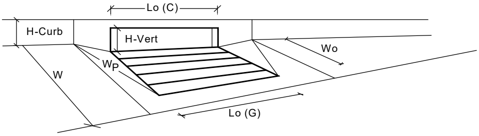


Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



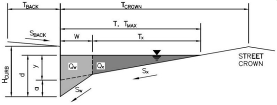
Design Information (Input)		MINOR	MAJOR	
Type of Inlet CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	4.0	10.0	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-46



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

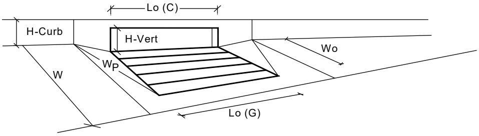
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	12.0	inches
Grate Information			MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate		L_o (G) =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C_o (G) =	N/A	N/A	
Curb Opening Information			MINOR	MAJOR	
Length of a Unit Curb Opening		L_o (C) =	10.00	10.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)			MINOR	MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	0.93	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	N/A	N/A	
			MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)		**Q_a =**	**8.3**	**25.5**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)		$Q_{PEAK\ REQUIRED}$ =	6.0	16.0	cfs

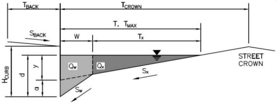
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-47



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	7.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	17.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.025	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	17.0	17.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

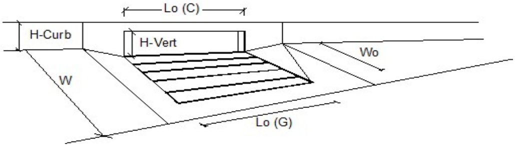
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Spread Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.2**	**17.2**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 4.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 10.00 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



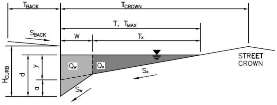
Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q_a =**	**4.0**	**9.2**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.8**	**cfs**
Capture Percentage = Q_a/Q_o		**C% =**	**100**	**92**	**%**

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-49



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	26.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.033		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

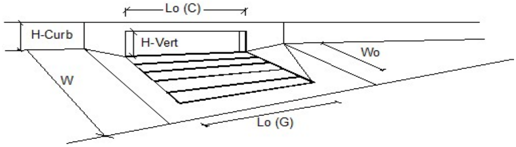
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.3**	**60.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 3.00 cfs on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design peak flow of 7.77 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



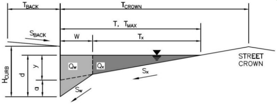
Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'			MINOR	MAJOR	
Total Inlet Interception Capacity		**Q_a =**	**3.0**	**7.6**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)		**Q_b =**	**0.0**	**0.1**	**cfs**
Capture Percentage = Q_a/Q_o		**C% =**	**100**	**98**	**%**

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-50



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	13.5	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	

Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	26.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.033	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

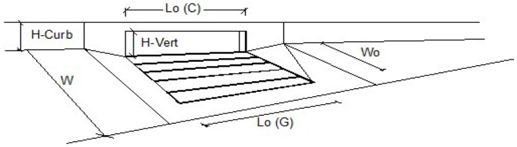
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**17.3**	**60.3**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 2.20 cfs on sheet 'Inlet Management'
Major storm max. allowable capacity GOOD - greater than the design peak flow of 5.04 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)			MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_f (C) =	0.10	0.10	

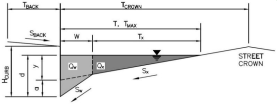
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**2.2**	**5.0**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.0**	**0.0**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**100**	**100**	**%**

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT
Inlet ID: DP-52



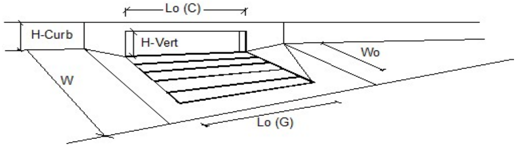
Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0		ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020		ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013		
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00		inches
Distance from Curb Face to Street Crown	T_{CROWN} =	57.0		ft
Gutter Width	W =	2.00		ft
Street Transverse Slope	S_X =	0.020		ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083		ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.009		ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016		
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	
		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**12.7**	**30.6**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 12.20 cfs on sheet 'Inlet Management'
Major storm max. allowable capacity GOOD - greater than the design peak flow of 25.80 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)		MINOR	MAJOR	
Type of Inlet CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f (C) =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**10.4**	**15.4**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**1.8**	**10.4**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**85**	**60**	**%**

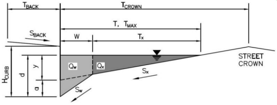
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Inlet ID: DP-53



Gutter Geometry:

Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	57.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.009	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

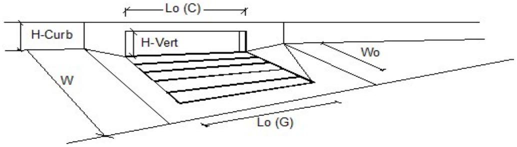
		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Allow Flow Depth at Street Crown (check box for yes, leave blank for no)		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is based on Depth Criterion MAJOR STORM Allowable Capacity is based on Spread Criterion	**Q_{allow} =**	**12.7**	**30.6**	**cfs**

Minor storm max. allowable capacity GOOD - greater than the design peak flow of 7.23 cfs on sheet 'Inlet Management'
Major storm max. allowable capacity GOOD - greater than the design peak flow of 22.23 cfs on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

MHFD-Inlet, Version 6.00 (August 2025)



Design Information (Input)	CDOT Type R Curb Opening ▼	MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')	a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)	No =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)	L_o =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W_o =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C_f (G) =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C_f (C) =	0.10	0.10	

Street Hydraulics: OK - Q < Allowable Street Capacity'		MINOR	MAJOR	
Total Inlet Interception Capacity	**Q_a =**	**7.2**	**14.3**	**cfs**
Total Inlet Carry-Over Flow (flow bypassing inlet)	**Q_b =**	**0.1**	**7.9**	**cfs**
Capture Percentage = Q_a/Q_o	**C% =**	**99**	**65**	**%**

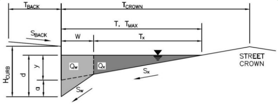
MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**

Inlet ID: **DP-54**



Gutter Geometry:

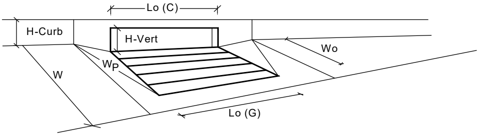
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	56.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



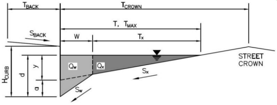
Design Information (Input)		MINOR	MAJOR	
Type of Inlet — CDOT Type R Curb Opening ▼	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	20.00	20.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.79	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	
		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**12.5**	**52.7**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	11.2	32.5	cfs

MHFD-Inlet, Version 6.00 (August 2025)

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**
Inlet ID: **DP-55**



Gutter Geometry:

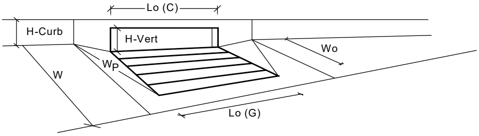
Maximum Allowable Width for Spread Behind Curb	T_{BACK} =	10.0	ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	S_{BACK} =	0.020	ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	n_{BACK} =	0.013	
Height of Curb at Gutter Flow Line	H_{CURB} =	6.00	inches
Distance from Curb Face to Street Crown	T_{CROWN} =	56.0	ft
Gutter Width	W =	2.00	ft
Street Transverse Slope	S_X =	0.020	ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	S_W =	0.083	ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	S_O =	0.000	ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	n_{STREET} =	0.016	

		Minor Storm	Major Storm	
Max. Allowable Spread for Minor & Major Storm	T_{MAX} =	26.0	26.0	ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	d_{MAX} =	6.0	12.0	inches
Check boxes are not applicable in SUMP conditions		☐	☐	

		Minor Storm	Major Storm	
MINOR STORM Allowable Capacity is not applicable to Sump Condition MAJOR STORM Allowable Capacity is not applicable to Sump Condition	**Q_{allow} =**	**SUMP**	**SUMP**	**cfs**

INLET IN A SUMP OR SAG LOCATION

MHFD-Inlet, Version 6.00 (August 2025)



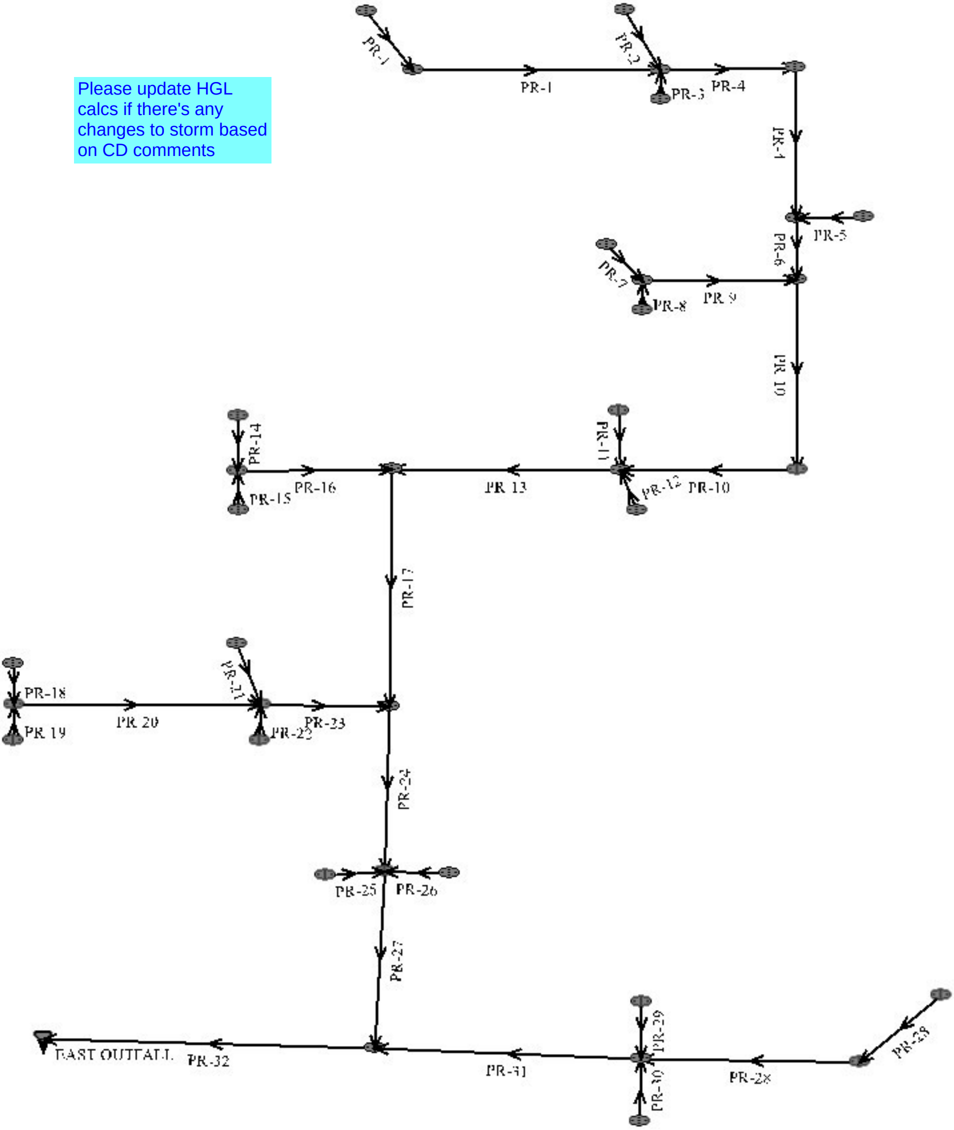
Design Information (Input)	CDOT Type R Curb Opening ▼	MINOR	MAJOR	
Type of Inlet	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	No =	1	1	
Water Depth at Flowline (outside of local depression)	Ponding Depth =	6.0	12.0	inches
Grate Information		MINOR	MAJOR	☑ Override Depths
Length of a Unit Grate	L_o (G) =	N/A	N/A	feet
Width of a Unit Grate	W_o =	N/A	N/A	feet
Open Area Ratio for a Grate (typical values 0.15-0.90)	A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	C_f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	C_w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	C_o (G) =	N/A	N/A	
Curb Opening Information		MINOR	MAJOR	
Length of a Unit Curb Opening	L_o (C) =	15.00	15.00	feet
Height of Vertical Curb Opening in Inches	H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	H_{throat} =	6.00	6.00	inches
Angle of Throat	Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	C_f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	C_w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	C_o (C) =	0.67	0.67	

Low Head Performance Reduction (Calculated)		MINOR	MAJOR	
Depth for Grate Midwidth	d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation	d_{Curb} =	0.33	0.83	ft
Grated Inlet Performance Reduction Factor for Long Inlets	RF_{Grate} =	N/A	N/A	
Curb Opening Performance Reduction Factor for Long Inlets	RF_{Curb} =	0.79	1.00	
Combination Inlet Performance Reduction Factor for Long Inlets	$RF_{Combination}$ =	N/A	N/A	

		MINOR	MAJOR	
Total Inlet Interception Capacity (assumes clogged condition)	**Q_a =**	**9.7**	**39.1**	**cfs**
Inlet Capacity IS GOOD for Minor and Major Storms (>Q Peak)	$Q_{PEAK\ REQUIRED}$ =	7.0	13.0	cfs

East 48" RCP Storm Outfall
100-yr. HGL Map

Please update HGL calcs if there's any changes to storm based on CD comments


PR-1
PR-1
PR-2
PR-3
PR-4
PR-4
PR-5
PR-6
PR-7
PR-8
PR 9
PR 10
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PR-12
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PR 13
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PR-32
EAST OUTFALL

System Input Summary (East 48” RCP Storm Outfall – 100yr. HGL)

Rainfall Parameters

Rainfall Return Period: 100
Rainfall Calculation Method: Formula

One Hour Depth (in): 2.52
Rainfall Constant "A": 28.5
Rainfall Constant "B": 10
Rainfall Constant "C": 0.786

Rational Method Constraints

Minimum Urban Runoff Coeff.: 0.20
Maximum Rural Overland Len. (ft): 500
Maximum Urban Overland Len. (ft): 300
Used UDFCD Tc. Maximum: Yes

Sizer Constraints

Minimum Sewer Size (in): 18.00
Maximum Depth to Rise Ratio: 0.90
Maximum Flow Velocity (fps): 18.0
Minimum Flow Velocity (fps): 2.0

Backwater Calculations:

Tailwater Elevation (ft): 7100.59

Manhole Input Summary:

		Given Flow		Sub Basin Information						
Element Name	**Ground Elevation (ft)**	**Total Known Flow (cfs)**	**Local Contribution (cfs)**	**Drainage Area (Ac.)**	**Runoff Coefficient**	**5yr Coefficient**	**Overland Length (ft)**	**Overland Slope (%)**	**Gutter Length (ft)**	**Gutter Velocity (fps)**
EAST OUTFALL	7102.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-32	7115.00	90.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-27	7113.60	78.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-24	7116.20	73.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-23	7115.33	15.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-20	7116.87	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-19	7117.09	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-18	7117.09	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-21	7115.41	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-22	7115.33	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-17	7128.88	59.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-16	7128.21	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-15	7128.44	2.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-14	7128.44	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-13	7126.22	52.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-10	7127.45	47.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-10	7133.44	47.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-9	7132.21	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PR-7	7132.50	11.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-8	7132.44	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-6	7134.64	34.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-4	7139.43	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-4	7138.41	29.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-2	7138.62	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-1	7141.50	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-1	7141.80	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-3	7138.55	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-5	7134.80	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-11	7126.44	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-12	7126.44	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-25	7113.97	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-26	7113.97	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-31	7112.00	13.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-28	7113.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-28	7114.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-30	7112.24	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-29	7112.24	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Manhole Output Summary:

	Local Contribution					Total Design Flow				
Element Name	**Overland Time (min)**	**Gutter Time (min)**	**Basin Tc (min)**	**Intensity (in/hr)**	**Local Contrib (cfs)**	**Coeff. Area**	**Intensity (in/hr)**	**Manhole Tc (min)**	**Peak Flow (cfs)**	**Comment**
EAST OUTFALL	0.00	0.00	0.00	0.00	0.00	7.90	11.39	0.41	90.00	
PR-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.00	
PR-27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.00	
PR-24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	73.00	
PR-23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	
PR-20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	
PR-19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	
PR-18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	
PR-21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	
PR-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.00	
PR-16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	
PR-15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.60	
PR-14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	
PR-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.00	
PR-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.00	
PR-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.00	
PR-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	
PR-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	
PR-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	

PR-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.00	
PR-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.00	
PR-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.00	
PR-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00	
PR-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	
PR-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	
PR-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	
PR-25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	
PR-26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	
PR-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	
PR-28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	
PR-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	
PR-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	

Sewer Input Summary:

		Elevation			Loss Coefficients			Given Dimensions		
Element Name	**Sewer Length (ft)**	**Downstream Invert (ft)**	**Slope (%)**	**Upstream Invert (ft)**	**Mannings n**	**Bend Loss**	**Lateral Loss**	**Cross Section**	**Rise (ft or in)**	**Span (ft or in)**
PR-32	177.55	7098.75	2.1	7102.48	0.013	0.03	1.00	CIRCULAR	48.00 in	48.00 in
PR-27	91.37	7102.98	3.0	7105.72	0.013	1.32	1.00	CIRCULAR	42.00 in	42.00 in
PR-24	114.13	7106.22	1.1	7107.51	0.013	0.05	1.00	CIRCULAR	42.00 in	42.00 in
PR-23	89.26	7108.51	1.0	7109.41	0.013	1.32	0.00	CIRCULAR	30.00 in	30.00 in
PR-20	306.24	7109.91	0.7	7112.05	0.013	0.05	0.00	CIRCULAR	24.00 in	24.00 in
PR-19	5.67	7112.55	3.0	7112.72	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-18	24.67	7112.55	1.0	7112.80	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-21	26.51	7110.41	2.0	7110.94	0.013	1.06	0.00	CIRCULAR	18.00 in	18.00 in
PR-22	5.67	7110.41	5.0	7110.69	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-17	290.50	7108.01	3.0	7116.73	0.013	0.05	1.00	CIRCULAR	36.00 in	36.00 in
PR-16	160.50	7119.23	2.2	7122.76	0.013	1.32	0.00	CIRCULAR	24.00 in	24.00 in
PR-15	5.67	7123.26	5.0	7123.54	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-14	24.67	7123.26	1.0	7123.51	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-13	180.09	7117.23	1.2	7119.39	0.013	1.32	1.00	CIRCULAR	36.00 in	36.00 in
PR-10	99.91	7119.89	1.0	7120.89	0.013	0.05	1.00	CIRCULAR	36.00 in	36.00 in
PR-10	285.50	7121.39	1.5	7125.67	0.013	1.32	1.00	CIRCULAR	36.00 in	36.00 in
PR-9	90.51	7126.67	0.5	7127.12	0.013	1.32	0.00	CIRCULAR	24.00 in	24.00 in
PR-7	26.32	7127.62	1.0	7127.88	0.013	0.83	0.00	CIRCULAR	24.00 in	24.00 in
PR-8	5.67	7128.12	2.0	7128.23	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-6	49.67	7126.17	3.0	7127.66	0.013	0.05	1.00	CIRCULAR	30.00 in	30.00 in

PR-4	230.83	7128.16	1.5	7131.62	0.013	0.05	1.00	CIRCULAR	30.00 in	30.00 in
PR-4	88.97	7132.12	1.0	7133.01	0.013	1.32	1.00	CIRCULAR	30.00 in	30.00 in
PR-2	25.97	7133.51	1.5	7133.90	0.013	0.83	0.00	CIRCULAR	24.00 in	24.00 in
PR-1	221.09	7133.51	1.0	7135.72	0.013	0.63	0.00	CIRCULAR	24.00 in	24.00 in
PR-1	29.37	7136.22	1.0	7136.51	0.013	0.63	0.00	CIRCULAR	24.00 in	24.00 in
PR-3	5.67	7134.01	3.0	7134.18	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-5	24.67	7129.66	3.0	7130.40	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-11	24.67	7121.39	2.0	7121.88	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-12	9.96	7121.39	5.0	7121.89	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-25	5.67	7108.22	5.0	7108.50	0.013	1.32	1.00	CIRCULAR	18.00 in	18.00 in
PR-26	24.67	7108.22	4.0	7109.21	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-31	187.00	7104.48	1.6	7107.41	0.013	0.05	1.00	CIRCULAR	24.00 in	24.00 in
PR-28	79.98	7107.91	1.0	7108.71	0.013	0.05	0.00	CIRCULAR	18.00 in	18.00 in
PR-28	52.72	7109.21	1.0	7109.74	0.013	0.31	1.00	CIRCULAR	18.00 in	18.00 in
PR-30	25.17	7107.91	1.0	7108.16	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in
PR-29	6.17	7107.91	0.5	7107.94	0.013	1.32	0.00	CIRCULAR	18.00 in	18.00 in

Sewer Flow Summary:

	Full Flow Capacity		Critical Flow		Normal Flow						
Element Name	**Flow (cfs)**	**Velocity (fps)**	**Depth (in)**	**Velocity (fps)**	**Depth (in)**	**Velocity (fps)**	**Froude Number**	**Flow Condition**	**Flow (cfs)**	**Surcharged Length (ft)**	**Comment**
PR-32	208.72	16.61	34.51	9.31	22.03	15.99	2.37	Supercritical	90.00	0.00	
PR-27	174.73	18.16	33.14	9.58	19.66	17.65	2.76	Supercritical Jump	78.00	22.78	
PR-24	107.23	11.15	32.11	9.25	25.42	11.99	1.58	Supercritical	73.00	0.00	
PR-23	41.31	8.41	15.67	5.78	12.50	7.75	1.54	Supercritical Jump	15.00	62.92	
PR-20	18.98	6.04	12.08	5.05	10.87	5.78	1.22	Supercritical	8.00	0.00	
PR-19	18.24	10.32	6.40	3.55	4.02	6.78	2.46	Supercritical	2.00	0.00	
PR-18	10.53	5.96	12.29	5.45	10.72	6.38	1.30	Supercritical	7.00	0.00	
PR-21	14.90	8.43	10.32	4.77	7.18	7.60	2.00	Supercritical	5.00	0.00	
PR-22	23.55	13.33	6.06	3.45	3.37	7.88	3.14	Supercritical	1.80	0.00	
PR-17	115.87	16.39	29.80	9.43	18.19	16.47	2.66	Supercritical	59.00	0.00	
PR-16	33.64	10.71	12.08	5.05	7.97	8.78	2.22	Supercritical	8.00	0.00	
PR-15	23.55	13.33	7.33	3.84	4.04	8.77	3.18	Supercritical	2.60	0.00	
PR-14	10.53	5.96	11.35	5.11	9.73	6.15	1.34	Supercritical	6.00	0.00	
PR-13	73.25	10.36	28.13	8.77	22.40	11.25	1.57	Supercritical Jump	52.00	147.03	
PR-10	66.88	9.46	26.79	8.33	22.25	10.25	1.44	Supercritical	47.00	0.00	
PR-10	81.91	11.59	26.79	8.33	19.55	11.98	1.84	Supercritical	47.00	0.00	
PR-9	16.04	5.11	16.17	6.22	17.36	5.75	0.87	Pressurized	14.00	90.51	

PR-7	22.68	7.22	14.27	5.65	11.79	7.17	1.44	Supercritical Jump	11.00	10.78	
PR-8	14.90	8.43	9.18	4.41	6.37	7.15	2.02	Pressurized	4.00	5.67	
PR-6	71.24	14.51	23.79	8.15	14.60	14.34	2.60	Supercritical	34.00	0.00	
PR-4	50.37	10.26	22.03	7.51	16.33	10.62	1.79	Supercritical	29.00	0.00	
PR-4	41.13	8.38	22.03	7.51	18.59	9.08	1.39	Supercritical	29.00	0.00	
PR-2	27.78	8.84	18.34	6.99	14.07	9.41	1.68	Supercritical Jump	18.00	14.27	
PR-1	22.68	7.22	11.26	4.83	9.15	6.36	1.49	Supercritical Jump	7.00	20.15	
PR-1	22.68	7.22	11.26	4.83	9.15	6.36	1.49	Supercritical	7.00	0.00	
PR-3	18.24	10.32	10.32	4.77	6.44	8.80	2.47	Pressurized	5.00	5.67	
PR-5	18.24	10.32	10.32	4.77	6.44	8.80	2.47	Supercritical	5.00	0.00	
PR-11	14.90	8.43	10.32	4.77	7.18	7.60	2.00	Supercritical	5.00	0.00	
PR-12	23.55	13.33	3.99	2.74	2.27	6.19	3.03	Supercritical Jump	0.80	0.82	
PR-25	23.55	13.33	5.51	3.27	3.08	7.46	3.12	Pressurized	1.50	5.67	
PR-26	21.07	11.92	10.32	4.77	5.97	9.77	2.86	Supercritical	5.00	0.00	
PR-31	28.39	9.04	15.56	6.03	11.40	8.84	1.82	Supercritical Jump	13.00	40.27	
PR-28	10.53	5.96	11.35	5.11	9.73	6.15	1.34	Supercritical	6.00	0.00	
PR-28	10.53	5.96	11.35	5.11	9.73	6.15	1.34	Supercritical	6.00	0.00	
PR-30	10.53	5.96	6.06	3.45	5.03	4.45	1.43	Supercritical	1.80	0.00	
PR-29	7.45	4.21	10.32	4.77	10.79	4.52	0.92	Subcritical	5.00	0.00	

- A Froude number of 0 indicates that pressured flow occurs (adverse slope or undersized pipe).
- If the sewer is not pressurized, full flow represents the maximum gravity flow in the sewer.

- If the sewer is pressurized, full flow represents the pressurized flow conditions.

Sewer Sizing Summary:

			Existing		Calculated		Used			
Element Name	**Peak Flow (cfs)**	**Cross Section**	**Rise**	**Span**	**Rise**	**Span**	**Rise**	**Span**	**Area (ft^2)**	**Comment**
PR-32	90.00	CIRCULAR	48.00 in	48.00 in	36.00 in	36.00 in	48.00 in	48.00 in	12.57	
PR-27	78.00	CIRCULAR	42.00 in	42.00 in	33.00 in	33.00 in	42.00 in	42.00 in	9.62	
PR-24	73.00	CIRCULAR	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	9.62	
PR-23	15.00	CIRCULAR	30.00 in	30.00 in	21.00 in	21.00 in	30.00 in	30.00 in	4.91	
PR-20	8.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-19	2.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-18	7.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-21	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-22	1.80	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-17	59.00	CIRCULAR	36.00 in	36.00 in	30.00 in	30.00 in	36.00 in	36.00 in	7.07	
PR-16	8.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-15	2.60	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-14	6.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-13	52.00	CIRCULAR	36.00 in	36.00 in	33.00 in	33.00 in	36.00 in	36.00 in	7.07	
PR-10	47.00	CIRCULAR	36.00 in	36.00 in	33.00 in	33.00 in	36.00 in	36.00 in	7.07	
PR-10	47.00	CIRCULAR	36.00 in	36.00 in	30.00 in	30.00 in	36.00 in	36.00 in	7.07	

PR-9	14.00	CIRCULAR	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	3.14	
PR-7	11.00	CIRCULAR	24.00 in	24.00 in	21.00 in	21.00 in	24.00 in	24.00 in	3.14	
PR-8	4.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-6	34.00	CIRCULAR	30.00 in	30.00 in	24.00 in	24.00 in	30.00 in	30.00 in	4.91	
PR-4	29.00	CIRCULAR	30.00 in	30.00 in	27.00 in	27.00 in	30.00 in	30.00 in	4.91	
PR-4	29.00	CIRCULAR	30.00 in	30.00 in	27.00 in	27.00 in	30.00 in	30.00 in	4.91	
PR-2	18.00	CIRCULAR	24.00 in	24.00 in	21.00 in	21.00 in	24.00 in	24.00 in	3.14	
PR-1	7.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-1	7.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-3	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-5	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-11	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-12	0.80	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-25	1.50	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-26	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-31	13.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-28	6.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-28	6.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-30	1.80	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-29	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	

- Calculated diameter was determined by sewer hydraulic capacity rounded up to the nearest commercially available size.
- Sewer sizes should not decrease downstream.
- All hydraulics where calculated using the 'Used' parameters.

Grade Line Summary:

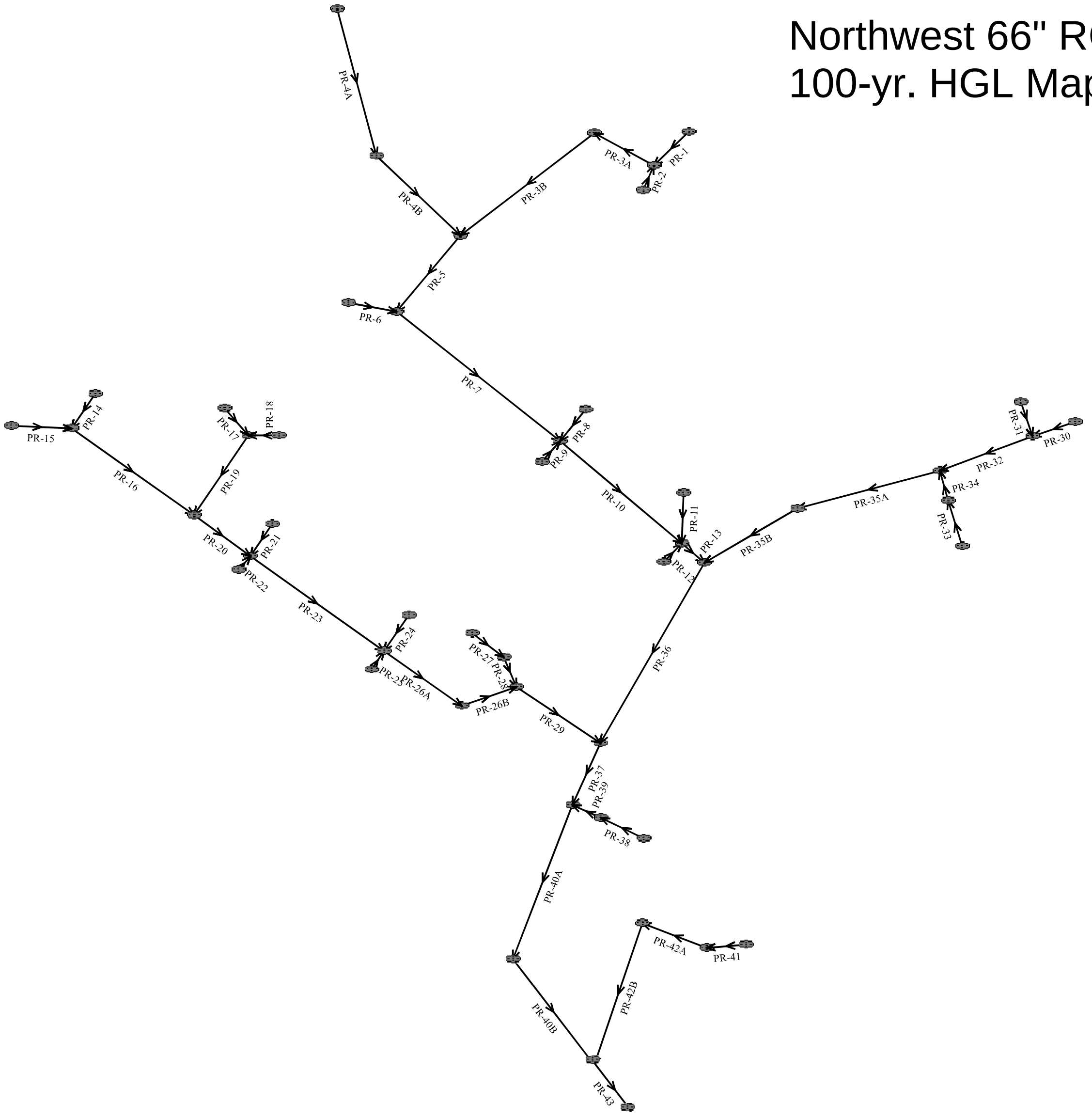
Tailwater Elevation (ft): 7100.59

	Invert Elev.		Downstream Manhole Losses		HGL		EGL		
Element Name	**Downstream (ft)**	**Upstream (ft)**	**Bend Loss (ft)**	**Lateral Loss (ft)**	**Downstream (ft)**	**Upstream (ft)**	**Downstream (ft)**	**Friction Loss (ft)**	**Upstream (ft)**
PR-32	7098.75	7102.48	0.00	0.00	7100.59	7105.36	7104.56	2.14	7106.70
PR-27	7102.98	7105.72	1.35	0.00	7107.03	7108.48	7108.05	1.86	7109.91
PR-24	7106.22	7107.51	0.04	0.13	7108.65	7110.19	7110.57	0.94	7111.51
PR-23	7108.51	7109.41	0.19	0.00	7111.56	7111.62	7111.71	0.08	7111.79
PR-20	7109.91	7112.05	0.01	0.00	7111.68	7113.06	7111.79	1.66	7113.45
PR-19	7112.55	7112.72	0.03	0.00	7113.08	7113.53	7113.60	0.00	7113.60
PR-18	7112.55	7112.80	0.32	0.00	7113.44	7113.82	7114.07	0.21	7114.28
PR-21	7110.41	7110.94	0.13	0.00	7111.79	7111.80	7111.92	0.23	7112.15
PR-22	7110.41	7110.69	0.02	0.00	7111.79	7111.79	7111.81	0.01	7111.82
PR-17	7108.01	7116.73	0.05	0.00	7110.24	7119.21	7113.74	6.86	7120.59
PR-16	7119.23	7122.76	0.13	0.00	7119.89	7123.77	7121.09	3.07	7124.16
PR-15	7123.26	7123.54	0.04	0.00	7123.81	7124.75	7124.79	0.00	7124.79
PR-14	7123.26	7123.51	0.24	0.00	7124.07	7124.45	7124.66	0.20	7124.86
PR-13	7117.23	7119.39	1.11	0.24	7121.10	7121.73	7121.94	0.98	7122.93
PR-10	7119.89	7120.89	0.03	0.15	7121.92	7123.12	7123.37	0.83	7124.20
PR-10	7121.39	7125.67	0.91	0.00	7124.03	7127.91	7125.25	3.73	7128.98

PR-9	7126.67	7127.12	0.41	0.00	7129.08	7129.43	7129.39	0.34	7129.73
PR-7	7127.62	7127.88	0.16	0.00	7129.70	7129.71	7129.89	0.03	7129.92
PR-8	7128.12	7128.23	0.11	0.00	7129.76	7129.77	7129.84	0.01	7129.85
PR-6	7126.17	7127.66	0.04	0.00	7127.94	7129.64	7130.58	0.09	7130.67
PR-4	7128.16	7131.62	0.03	0.20	7129.87	7133.46	7131.27	3.06	7134.33
PR-4	7132.12	7133.01	0.72	0.00	7134.48	7134.85	7135.05	0.67	7135.72
PR-2	7133.51	7133.90	0.42	0.00	7135.63	7135.63	7136.14	0.09	7136.23
PR-1	7133.51	7135.72	0.05	0.00	7135.69	7136.66	7135.77	1.25	7137.02
PR-1	7136.22	7136.51	0.05	0.00	7136.98	7137.45	7137.61	0.20	7137.82
PR-3	7134.01	7134.18	0.16	0.00	7135.76	7135.77	7135.88	0.01	7135.90
PR-5	7129.66	7130.40	0.16	0.00	7130.20	7131.26	7131.40	0.21	7131.61
PR-11	7121.39	7121.88	0.16	0.00	7121.93	7122.74	7123.09	0.00	7123.10
PR-12	7121.39	7121.89	0.00	0.00	7122.93	7122.93	7122.93	0.00	7122.94
PR-25	7108.22	7108.50	0.01	1.01	7110.92	7110.92	7110.93	0.00	7110.93
PR-26	7108.22	7109.21	0.16	0.00	7108.72	7110.07	7110.20	0.22	7110.42
PR-31	7104.48	7107.41	0.01	0.53	7106.98	7108.71	7107.24	2.03	7109.27
PR-28	7107.91	7108.71	0.01	0.00	7108.72	7109.66	7109.31	0.75	7110.06
PR-28	7109.21	7109.74	0.06	0.00	7110.02	7110.69	7110.61	0.48	7111.09
PR-30	7107.91	7108.16	0.02	0.00	7109.28	7109.28	7109.29	0.01	7109.30
PR-29	7107.91	7107.94	0.16	0.00	7109.30	7109.31	7109.44	0.01	7109.45

- Bend and Lateral losses only apply when there is an outgoing sewer. The system outfall, sewer #0, is not considered a sewer.
- Bend loss = Bend K * V_fi ^ 2/(2*g)
- Lateral loss = V_fo ^ 2/(2*g)- Junction Loss K * V_fi ^ 2/(2*g).
- Friction loss is always Upstream EGL - Downstream EGL.

Northwest 66" RCP Storm Outfall
100-yr. HGL Map


PR-4A
PR-3A
PR-1
PR-2
PR-4B
PR-3B
PR-5
PR-6
PR-7
PR-8
PR-9
PR-10
PR-11
PR-12
PR-13
PR-14
PR-15
PR-16
PR-17
PR-18
PR-19
PR-20
PR-21
PR-22
PR-23
PR-24
PR-25
PR-26A
PR-26B
PR-27
PR-28
PR-29
PR-31
PR-30
PR-32
PR-34
PR-33
PR-35A
PR-35B
PR-36
PR-37
PR-39
PR-38
PR-40A
PR-40B
PR-41
PR-42A
PR-42B
PR-43

System Input Summary (NW 66” RCP Storm Outfall – 100 yr. HGL)

Rainfall Parameters

Rainfall Return Period: 100
Rainfall Calculation Method: Formula

One Hour Depth (in): 2.52
Rainfall Constant "A": 28.5
Rainfall Constant "B": 10
Rainfall Constant "C": 0.786

Rational Method Constraints

Minimum Urban Runoff Coeff.: 0.20
Maximum Rural Overland Len. (ft): 500
Maximum Urban Overland Len. (ft): 300
Used UDFCD Tc. Maximum: Yes

Sizer Constraints

Minimum Sewer Size (in): 18.00
Maximum Depth to Rise Ratio: 0.90
Maximum Flow Velocity (fps): 18.0
Minimum Flow Velocity (fps): 2.0

Backwater Calculations:

Tailwater Elevation (ft): 7101.78

Manhole Input Summary:

		Given Flow		Sub Basin Information						
Element Name	Ground Elevation (ft)	Total Known Flow (cfs)	Local Contribution (cfs)	Drainage Area (Ac.)	Runoff Coefficient	5yr Coefficient	Overland Length (ft)	Overland Slope (%)	Gutter Length (ft)	Gutter Velocity (fps)
NW OUTFALL	7102.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-43C	7109.50	313.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-43B	7121.00	313.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-43A	7127.53	313.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-42	7127.53	25.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-41	7126.04	16.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-40	7133.62	295.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-37B	7137.14	283.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-37A	7137.04	283.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-36	7150.63	231.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-13	7150.30	84.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-35B	7158.19	165.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-35A	7159.31	165.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-34	7158.32	18.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-33	7158.32	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-32	7160.00	154.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-30	7162.00	72.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-31	7161.00	82.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PR-29	7139.80	62.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-39	7132.81	19.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PR-38	7132.81	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Manhole Output Summary:

	Local Contribution					**Total Design Flow**				
Element Name	**Overland Time (min)**	**Gutter Time (min)**	**Basin Tc (min)**	**Intensity (in/hr)**	**Local Contrib (cfs)**	**Coeff. Area**	**Intensity (in/hr)**	**Manhole Tc (min)**	**Peak Flow (cfs)**	**Comment**
NW OUTFALL	0.00	0.00	0.00	0.00	0.00	26.70	11.72	0.04	313.00	
PR-43C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	313.00	Surface Water Present (Downstream)
PR-43B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	313.00	
PR-43A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	313.00	
PR-42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	
PR-41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	
PR-40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	295.00	
PR-37B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	283.00	
PR-37A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	283.00	
PR-36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	231.00	
PR-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.00	
PR-35B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	165.00	
PR-35A	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	165.00	

PR-34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00	
PR-33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
PR-32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	154.00	
PR-30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.00	
PR-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	82.00	
PR-29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.00	
PR-39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.00	
PR-38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	

Sewer Input Summary:

		Elevation			**Loss Coefficients**			**Given Dimensions**		
Element Name	**Sewer Length (ft)**	**Downstream Invert (ft)**	**Slope (%)**	**Upstream Invert (ft)**	**Mannings n**	**Bend Loss**	**Lateral Loss**	**Cross Section**	**Rise (ft or in)**	**Span (ft or in)**
PR-43C	30.00	7099.50	1.0	7099.80	0.013	0.03	1.00	CIRCULAR	66.00 in	66.00 in
PR-43B	88.67	7099.80	6.0	7105.12	0.013	0.05	1.00	CIRCULAR	66.00 in	66.00 in
PR-43A	130.03	7105.12	6.0	7112.92	0.013	0.15	1.00	CIRCULAR	66.00 in	66.00 in
PR-42	120.00	7118.77	1.0	7119.97	0.013	1.32	0.00	CIRCULAR	30.00 in	30.00 in
PR-41	47.56	7120.47	1.0	7120.95	0.013	0.05	0.00	CIRCULAR	24.00 in	24.00 in
PR-40	169.25	7115.92	3.0	7121.00	0.013	0.05	1.00	CIRCULAR	66.00 in	66.00 in
PR-37B	93.35	7122.50	1.0	7123.43	0.013	0.05	1.00	CIRCULAR	66.00 in	66.00 in
PR-37A	99.27	7124.94	1.0	7125.93	0.013	1.32	1.00	CIRCULAR	66.00 in	66.00 in
PR-36	588.27	7127.52	1.8	7138.11	0.013	1.32	1.00	CIRCULAR	54.00 in	54.00 in
PR-13	20.00	7140.11	1.0	7140.31	0.013	1.32	0.00	CIRCULAR	42.00 in	42.00 in

PR-35B	339.56	7139.71	1.5	7144.80	0.013	0.05	1.00	CIRCULAR	48.00 in	48.00 in
PR-35A	303.56	7145.30	1.5	7149.85	0.013	0.05	1.00	CIRCULAR	48.00 in	48.00 in
PR-34	18.33	7152.36	2.1	7152.74	0.013	1.32	0.00	CIRCULAR	24.00 in	24.00 in
PR-33	59.34	7153.24	1.0	7153.83	0.013	0.05	0.00	CIRCULAR	18.00 in	18.00 in
PR-32	114.98	7150.36	1.5	7152.08	0.013	0.05	1.00	CIRCULAR	48.00 in	48.00 in
PR-30	73.90	7152.58	2.0	7154.06	0.013	0.05	1.00	CIRCULAR	42.00 in	42.00 in
PR-31	23.77	7152.58	1.0	7152.82	0.013	1.32	0.00	CIRCULAR	42.00 in	42.00 in
PR-29	8.00	7128.43	1.0	7128.51	0.013	0.05	0.00	CIRCULAR	42.00 in	42.00 in
PR-39	22.33	7126.00	3.3	7126.74	0.013	1.32	0.00	CIRCULAR	24.00 in	24.00 in
PR-38	53.33	7127.25	1.0	7127.78	0.013	0.05	0.00	CIRCULAR	24.00 in	24.00 in

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Sewer Flow Summary:

	Full Flow Capacity		**Critical Flow**		**Normal Flow**						
Element Name	**Flow (cfs)**	**Velocity (fps)**	**Depth (in)**	**Velocity (fps)**	**Depth (in)**	**Velocity (fps)**	**Froude Number**	**Flow Condition**	**Flow (cfs)**	**Surcharged Length (ft)**	**Comment**
PR-43C	336.71	14.17	58.10	14.13	50.34	16.10	1.39	Supercritical	313.00	0.00	
PR-43B	824.78	34.72	58.10	14.13	28.19	32.33	4.27	Supercritical	313.00	0.00	Velocity is Too High
PR-43A	824.78	34.72	58.10	14.13	28.19	32.33	4.27	Supercritical Jump	313.00	106.51	Velocity is Too High
PR-42	41.13	8.38	20.44	7.02	16.89	8.78	1.45	Supercritical	25.00	0.00	
PR-41	22.68	7.22	17.30	6.60	14.87	7.82	1.34	Supercritical	16.00	0.00	
PR-40	583.20	24.55	56.81	13.56	33.23	24.62	2.94	Supercritical	295.00	0.00	Velocity is Too High
PR-37B	336.71	14.17	55.86	13.20	46.34	15.88	1.49	Supercritical	283.00	0.00	

Velocities are too high in these pipes

PR-37A	336.71	14.17	55.86	13.20	46.34	15.88	1.49	Pressurized	283.00	99.27	
PR-36	264.54	16.63	50.45	14.94	39.07	18.75	1.89	Pressurized	231.00	588.27	Velocity is Too High
PR-13	100.88	10.49	34.28	9.99	29.28	11.73	1.39	Pressurized	84.00	20.00	
PR-35B	176.40	14.04	44.38	13.60	36.82	15.95	1.61	Pressurized	165.00	339.56	
PR-35A	176.40	14.04	44.38	13.60	36.82	15.95	1.61	Pressurized	165.00	303.56	
PR-34	32.87	10.46	18.34	6.99	12.67	10.70	2.05	Pressurized	18.00	18.33	
PR-33	10.53	5.96	10.32	4.77	8.73	5.88	1.38	Pressurized	5.00	59.34	
PR-32	176.40	14.04	43.51	12.86	34.72	15.82	1.69	Pressurized	154.00	114.98	
PR-30	142.67	14.83	31.89	9.18	21.12	14.86	2.23	Pressurized	72.00	73.90	
PR-31	100.88	10.49	33.91	9.85	28.75	11.68	1.40	Pressurized	82.00	23.77	
PR-29	100.88	10.49	29.61	8.55	23.80	11.02	1.53	Pressurized	62.00	8.00	
PR-39	41.21	13.12	18.82	7.19	11.45	12.85	2.63	Supercritical	19.00	0.00	
PR-38	22.68	7.22	12.08	5.05	9.84	6.59	1.48	Supercritical	8.00	0.00	

- A Froude number of 0 indicates that pressured flow occurs (adverse slope or undersized pipe).
- If the sewer is not pressurized, full flow represents the maximum gravity flow in the sewer.
- If the sewer is pressurized, full flow represents the pressurized flow conditions.

Sewer Sizing Summary:

			Existing		**Calculated**		**Used**			
Element Name	**Peak Flow (cfs)**	**Cross Section**	**Rise**	**Span**	**Rise**	**Span**	**Rise**	**Span**	**Area (ft^2)**	**Comment**
PR-43C	313.00	CIRCULAR	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	23.76	

PR-43B	313.00	CIRCULAR	66.00 in	66.00 in	48.00 in	48.00 in	66.00 in	66.00 in	23.76	
PR-43A	313.00	CIRCULAR	66.00 in	66.00 in	48.00 in	48.00 in	66.00 in	66.00 in	23.76	
PR-42	25.00	CIRCULAR	30.00 in	30.00 in	27.00 in	27.00 in	30.00 in	30.00 in	4.91	
PR-41	16.00	CIRCULAR	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	24.00 in	3.14	
PR-40	295.00	CIRCULAR	66.00 in	66.00 in	54.00 in	54.00 in	66.00 in	66.00 in	23.76	
PR-37B	283.00	CIRCULAR	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	23.76	
PR-37A	283.00	CIRCULAR	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	66.00 in	23.76	
PR-36	231.00	CIRCULAR	54.00 in	54.00 in	54.00 in	54.00 in	54.00 in	54.00 in	15.90	
PR-13	84.00	CIRCULAR	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	9.62	
PR-35B	165.00	CIRCULAR	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	12.57	
PR-35A	165.00	CIRCULAR	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	12.57	
PR-34	18.00	CIRCULAR	24.00 in	24.00 in	21.00 in	21.00 in	24.00 in	24.00 in	3.14	
PR-33	5.00	CIRCULAR	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	18.00 in	1.77	
PR-32	154.00	CIRCULAR	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	48.00 in	12.57	
PR-30	72.00	CIRCULAR	42.00 in	42.00 in	33.00 in	33.00 in	42.00 in	42.00 in	9.62	
PR-31	82.00	CIRCULAR	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	42.00 in	9.62	
PR-29	62.00	CIRCULAR	42.00 in	42.00 in	36.00 in	36.00 in	42.00 in	42.00 in	9.62	
PR-39	19.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	
PR-38	8.00	CIRCULAR	24.00 in	24.00 in	18.00 in	18.00 in	24.00 in	24.00 in	3.14	

- Calculated diameter was determined by sewer hydraulic capacity rounded up to the nearest commercially available size.
- Sewer sizes should not decrease downstream.
- All hydraulics where calculated using the 'Used' parameters.

Grade Line Summary:

Tailwater Elevation (ft): 7101.78

	Invert Elev.		Downstream Manhole Losses		HGL		EGL		
Element Name	**Downstream (ft)**	**Upstream (ft)**	**Bend Loss (ft)**	**Lateral Loss (ft)**	**Downstream (ft)**	**Upstream (ft)**	**Downstream (ft)**	**Friction Loss (ft)**	**Upstream (ft)**
PR-43C	7099.50	7099.80	0.00	0.00	7103.70	7104.64	7107.72	0.02	7107.74
PR-43B	7099.80	7105.12	0.13	0.00	7104.78	7115.68	7118.38	0.00	7118.38
PR-43A	7105.12	7112.92	0.40	0.00	7116.09	7117.76	7118.78	2.08	7120.86
PR-42	7118.77	7119.97	0.53	0.00	7120.16	7121.67	7121.39	1.04	7122.44
PR-41	7120.47	7120.95	0.02	0.00	7121.71	7122.39	7122.66	0.40	7123.07
PR-40	7115.92	7121.00	0.12	0.30	7118.69	7125.73	7128.10	0.49	7128.59
PR-37B	7122.50	7123.43	0.11	0.19	7126.36	7128.09	7130.27	0.52	7130.79
PR-37A	7124.94	7125.93	2.91	0.00	7131.49	7132.20	7133.70	0.70	7134.40
PR-36	7127.52	7138.11	4.32	0.00	7136.52	7144.59	7139.80	8.07	7147.87
PR-13	7140.11	7140.31	1.56	0.00	7148.25	7148.39	7149.43	0.14	7149.57
PR-35B	7139.71	7144.80	0.13	0.60	7145.92	7150.38	7148.60	4.46	7153.06
PR-35A	7145.30	7149.85	0.13	0.00	7150.52	7154.50	7153.19	3.98	7157.18
PR-34	7152.36	7152.74	0.67	0.00	7157.34	7157.46	7157.85	0.12	7157.96
PR-33	7153.24	7153.83	0.01	0.00	7157.85	7157.98	7157.97	0.13	7158.10
PR-32	7150.36	7152.08	0.12	0.35	7155.31	7156.62	7157.64	1.31	7158.95
PR-30	7152.58	7154.06	0.04	1.46	7159.59	7159.97	7160.46	0.38	7160.84
PR-31	7152.58	7152.82	1.49	0.00	7159.31	7159.47	7160.44	0.16	7160.60

PR-29	7128.43	7128.51	0.03	0.00	7133.79	7133.82	7134.43	0.03	7134.46
PR-39	7126.00	7126.74	0.75	0.00	7127.14	7128.31	7128.79	0.32	7129.11
PR-38	7127.25	7127.78	0.01	0.00	7129.00	7129.00	7129.12	0.13	7129.25

- Bend and Lateral losses only apply when there is an outgoing sewer. The system outfall, sewer #0, is not considered a sewer.
- Bend loss = Bend K * V_fi ^ 2/(2*g)
- Lateral loss = V_fo ^ 2/(2*g)- Junction Loss K * V_fi ^ 2/(2*g).
- Friction loss is always Upstream EGL - Downstream EGL.

STORMWATER QUALITY CALCULATIONS

DP-20 (4' trickle channel)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.010 ft/ft	
Bottom Width	4.00 ft	
Discharge	1.80 cfs	* Based on 2% of 100-yr flows

Results

Normal Depth	1.8 in
Flow Area	0.6 ft²
Wetted Perimeter	4.3 ft
Hydraulic Radius	1.7 in
Top Width	4.00 ft
Critical Depth	2.2 in
Critical Slope	0.005 ft/ft
Velocity	3.04 ft/s
Velocity Head	0.14 ft
Specific Energy	0.29 ft
Froude Number	1.394
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	Dry
Profile Headloss	0.00 ft
Downstream Velocity	∞ ft/s
Upstream Velocity	∞ ft/s
Normal Depth	1.8 in
Critical Depth	2.2 in
Channel Slope	0.010 ft/ft
Critical Slope	0.005 ft/ft

DP-51 (4' trickle channel)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.010 ft/ft	
Bottom Width	4.00 ft	
Discharge	1.80 cfs	* Based on 2% of 100-yr flows

Results

Normal Depth	1.8 in
Flow Area	0.6 ft²
Wetted Perimeter	4.3 ft
Hydraulic Radius	1.7 in
Top Width	4.00 ft
Critical Depth	2.2 in
Critical Slope	0.005 ft/ft
Velocity	3.04 ft/s
Velocity Head	0.14 ft
Specific Energy	0.29 ft
Froude Number	1.394
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	Dry
Profile Headloss	0.00 ft
Downstream Velocity	∞ ft/s
Upstream Velocity	∞ ft/s
Normal Depth	1.8 in
Critical Depth	2.2 in
Channel Slope	0.010 ft/ft
Critical Slope	0.005 ft/ft

DP-39 (7' trickle channel)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.010 ft/ft	
Bottom Width	7.00 ft	
Discharge	6.14 cfs	* Based on 2% of 100-yr flows

Results

Normal Depth	2.6 in
Flow Area	1.5 ft^2
Wetted Perimeter	7.4 ft
Hydraulic Radius	2.5 in
Top Width	7.00 ft
Critical Depth	3.5 in
Critical Slope	0.004 ft/ft
Velocity	3.99 ft/s
Velocity Head	0.25 ft
Specific Energy	0.47 ft
Froude Number	1.503
Flow Type	Supercritical

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	Dry
Profile Headloss	0.00 ft
Downstream Velocity	∞ ft/s
Upstream Velocity	∞ ft/s
Normal Depth	2.6 in
Critical Depth	3.5 in
Channel Slope	0.010 ft/ft
Critical Slope	0.004 ft/ft

Figure 13-12c. Emergency Spillway Protection

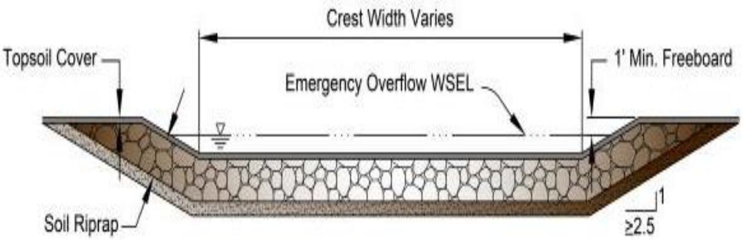
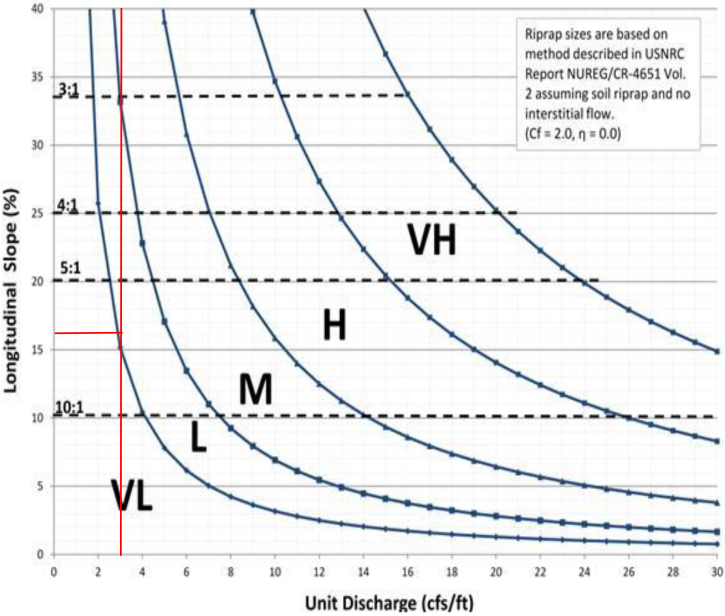

Crest Width Varies
Topsoil Cover
1' Min. Freeboard
Emergency Overflow WSEL
Soil Riprap
1
≥2.5

Figure 13-12d. Riprap Types for Emergency Spillway Protection



USE TYPE L
RIP-RAP

ULTIMATE &
INTERIM
CONDITION

Design Procedure Form: Extended Detention Basin (EDB)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 3

Designer: **Marc A. Whorton, P.E.**
Company: **Classic Consulting**
Date: **May 1, 2026**
Project: **Sterling Ranch East Filing No. 6 - Final Plat**
Location: **Easterly Forebay**

1. Basin Storage Volume	
A) Effective Imperviousness of Tributary Area, I_a	I_a = 51.1 %
B) Tributary Area's Imperviousness Ratio ($i = I_a / 100$)	i = 0.511
C) Contributing Watershed Area	Area = 33.400 ac
D) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm	d_6 = 0.42 in
E) Design Concept (Select EURV when also designing for flood control)	Choose One ○ Water Quality Capture Volume (WQCV) ● Excess Urban Runoff Volume (EURV)
F) Design Volume (WQCV) Based on 40-hour Drain Time ($V_{DESIGN} = (1.0 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i) / 12 * Area$)	V_{DESIGN}= ac-ft
G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume ($V_{WQCV\ OTHER} = (d_6*(V_{DESIGN}/0.43))$	$V_{DESIGN\ OTHER}$= 0.569 ac-ft
H) User Input of Water Quality Capture Volume (WQCV) Design Volume (Only if a different WQCV Design Volume is desired)	$V_{DESIGN\ USER}$= ac-ft
I) NRCS Hydrologic Soil Groups of Tributary Watershed	
i) Percentage of Watershed consisting of Type A Soils	HSG_A = 50 %
ii) Percentage of Watershed consisting of Type B Soils	HSG_B = 50 %
iii) Percentage of Watershed consisting of Type C/D Soils	$HSG_{C/D}$ = 0 %
J) Excess Urban Runoff Volume (EURV) Design Volume For HSG A: $EURV_A = 1.68 * i^{1.28}$ For HSG B: $EURV_B = 1.36 * i^{1.08}$ For HSG C/D: $EURV_{C/D} = 1.20 * i^{1.08}$	$EURV_{DESIGN}$ = 1.907 ac-f t
K) User Input of Excess Urban Runoff Volume (EURV) Design Volume (Only if a different EURV Design Volume is desired)	$EURV_{DESIGN\ USER}$= ac-f t
2. Basin Shape: Length to Width Ratio (A basin length to width ratio of at least 2:1 will improve TSS reduction.)	L : W = 2.0 : 1
3. Basin Side Slopes	
A) Basin Maximum Side Slopes (Horizontal distance per unit vertical, 4:1 or flatter preferred)	Z = 4.00 ft / ft
4. Inlet	
A) Describe means of providing energy dissipation at concentrated inflow locations:	
5. Forebay	
A) Minimum Forebay Volume (V_{FMIN} = 3% of the WQCV)	V_{FMIN} = 0.017 ac-ft
B) Actual Forebay Volume	V_F = 0.017 ac-ft
C) Forebay Depth (D_F = 18 inch maximum)	D_F = 18.0 in
D) Forebay Discharge	
i) Undetained 100-year Peak Discharge	Q_{100} = 90.00 cfs
ii) Forebay Discharge Design Flow ($Q_F = 0.02 * Q_{100}$)	Q_F = 1.80 cfs
E) Forebay Discharge Design	Choose One ○ Berm With Pipe ● Wall with Rect. Notch ○ Wall with V-Notch Weir **Flow too small for berm w/ pipe**
F) Discharge Pipe Size (minimum 8-inches)	Calculated D_P = in
G) Rectangular Notch Width	Calculated W_N = 7.1 in

Design Procedure Form: Extended Detention Basin (EDB)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 3

Designer: **Marc A. Whorton, P.E.**
Company: **Classic Consulting**
Date: **July 27, 2026**
Project: **Sterling Ranch East Filing No. 6 - Final Plat**
Location: **Northwest Forebay**

1. Basin Storage Volume	
A) Effective Imperviousness of Tributary Area, I_a	I_a = 49.1 %
B) Tributary Area's Imperviousness Ratio ($i = I_a / 100$)	i = 0.491
C) Contributing Watershed Area	Area = 136.000 ac
D) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm	d_6 = 0.42 in
E) Design Concept (Select EURV when also designing for flood control)	Choose One ○ Water Quality Capture Volume (WQCV) ● Excess Urban Runoff Volume (EURV)
F) Design Volume (WQCV) Based on 40-hour Drain Time ($V_{DESIGN} = (1.0 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i) / 12 * Area$)	V_{DESIGN}= ac-ft
G) For Watersheds Outside of the Denver Region, Water Quality Capture Volume (WQCV) Design Volume ($V_{WQCV\ OTHER} = (d_6*(V_{DESIGN}/0.43))$)	$V_{DESIGN\ OTHER}$= 2.256 ac-ft
H) User Input of Water Quality Capture Volume (WQCV) Design Volume (Only if a different WQCV Design Volume is desired)	$V_{DESIGN\ USER}$= ac-ft
I) NRCS Hydrologic Soil Groups of Tributary Watershed	
i) Percentage of Watershed consisting of Type A Soils	HSG_A = 50 %
ii) Percentage of Watershed consisting of Type B Soils	HSG_B = 50 %
iii) Percentage of Watershed consisting of Type C/D Soils	$HSG_{C/D}$ = 0 %
J) Excess Urban Runoff Volume (EURV) Design Volume For HSG A: $EURV_A = 1.68 * i^{1.28}$ For HSG B: $EURV_B = 1.36 * i^{1.08}$ For HSG C/D: $EURV_{C/D} = 1.20 * i^{1.08}$	$EURV_{DESIGN}$ = 7.405 ac-f t
K) User Input of Excess Urban Runoff Volume (EURV) Design Volume (Only if a different EURV Design Volume is desired)	$EURV_{DESIGN\ USER}$= ac-f t
2. Basin Shape: Length to Width Ratio (A basin length to width ratio of at least 2:1 will improve TSS reduction.)	L : W = 2.0 : 1
3. Basin Side Slopes	
A) Basin Maximum Side Slopes (Horizontal distance per unit vertical, 4:1 or flatter preferred)	Z = 4.00 ft / ft
4. Inlet	
A) Describe means of providing energy dissipation at concentrated inflow locations:	
5. Forebay	
A) Minimum Forebay Volume (V_{FMIN} = 3% of the WQCV)	V_{FMIN} = 0.068 ac-ft
B) Actual Forebay Volume	V_F = 0.068 ac-ft
C) Forebay Depth (D_F = 30 inch maximum)	D_F = 30.0 in
D) Forebay Discharge	
i) Undetained 100-year Peak Discharge	Q_{100} = 307.00 cfs
ii) Forebay Discharge Design Flow ($Q_F = 0.02 * Q_{100}$)	Q_F = 6.14 cfs
E) Forebay Discharge Design	Choose One ○ Berm With Pipe ● Wall with Rect. Notch ○ Wall with V-Notch Weir
F) Discharge Pipe Size (minimum 8-inches)	Calculated D_P = in
G) Rectangular Notch Width	Calculated W_N = 11.6 in

Since this forebay is existing (built with another SF), then you can remove this calc sheet.

Design Procedure Form: Extended Detention Basin (EDB)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 3

Designer: **Marc A. Whorton, P.E.**
Company: **Classic Consulting**
Date: **July 29, 2026**
Project: **Sterling Ranch East Filing No. 6 - Final Plat**
Location: **Southwest Forebay**

1. Basin Storage Volume

A) Effective Imperviousness of Tributary Area, I_a — I_a = 52.0 %

B) Tributary Area's Imperviousness Ratio ($i = I_a / 100$) — i = 0.520

C) Contributing Watershed Area — Area = 33.000 ac

D) For Watersheds Outside of the Denver Region, Depth of Average Runoff Producing Storm — d_6 = 0.42 in

E) Design Concept
(Select EURV when also designing for flood control)

Choose One
○ Water Quality Capture Volume (WQCV)
● Excess Urban Runoff Volume (EURV)

F) Design Volume (WQCV) Based on 40-hour Drain Time
($V_{DESIGN} = (1.0 * (0.91 * i^3 - 1.19 * i^2 + 0.78 * i) / 12 * Area)$) — V_{DESIGN}= ac-ft

G) For Watersheds Outside of the Denver Region,
Water Quality Capture Volume (WQCV) Design Volume
($V_{WQCV\ OTHER} = (d_6*(V_{DESIGN}/0.43))$) — $V_{DESIGN\ OTHER}$= 0.569 ac-ft

H) User Input of Water Quality Capture Volume (WQCV) Design Volume
(Only if a different WQCV Design Volume is desired) — $V_{DESIGN\ USER}$= ac-ft

I) NRCS Hydrologic Soil Groups of Tributary Watershed
- i) Percentage of Watershed consisting of Type A Soils — HSG_A = 50 %
- ii) Percentage of Watershed consisting of Type B Soils — HSG_B = 50 %
- iii) Percentage of Watershed consisting of Type C/D Soils — $HSG_{C/D}$ = 0 %

J) Excess Urban Runoff Volume (EURV) Design Volume
For HSG A: $EURV_A = 1.68 * i^{1.28}$
For HSG B: $EURV_B = 1.36 * i^{1.08}$
For HSG C/D: $EURV_{C/D} = 1.20 * i^{1.08}$
— $EURV_{DESIGN}$ = 1.923 ac-f t

K) User Input of Excess Urban Runoff Volume (EURV) Design Volume
(Only if a different EURV Design Volume is desired) — $EURV_{DESIGN\ USER}$= ac-f t

2. Basin Shape: Length to Width Ratio
(A basin length to width ratio of at least 2:1 will improve TSS reduction.) — L : W = 2.0 : 1

3. Basin Side Slopes

A) Basin Maximum Side Slopes
(Horizontal distance per unit vertical, 4:1 or flatter preferred) — Z = 4.00 ft / ft

4. Inlet

A) Describe means of providing energy dissipation at concentrated inflow locations:

5. Forebay

A) Minimum Forebay Volume
(V_{FMIN} = 3% of the WQCV) — V_{FMIN} = 0.017 ac-ft

B) Actual Forebay Volume — V_F = 0.017 ac-ft

C) Forebay Depth
(D_F = 18 inch maximum) — D_F = 18.0 in

D) Forebay Discharge

i) Undetained 100-year Peak Discharge — Q_{100} = 90.00 cfs

ii) Forebay Discharge Design Flow
($Q_F = 0.02 * Q_{100}$) — Q_F = 1.80 cfs

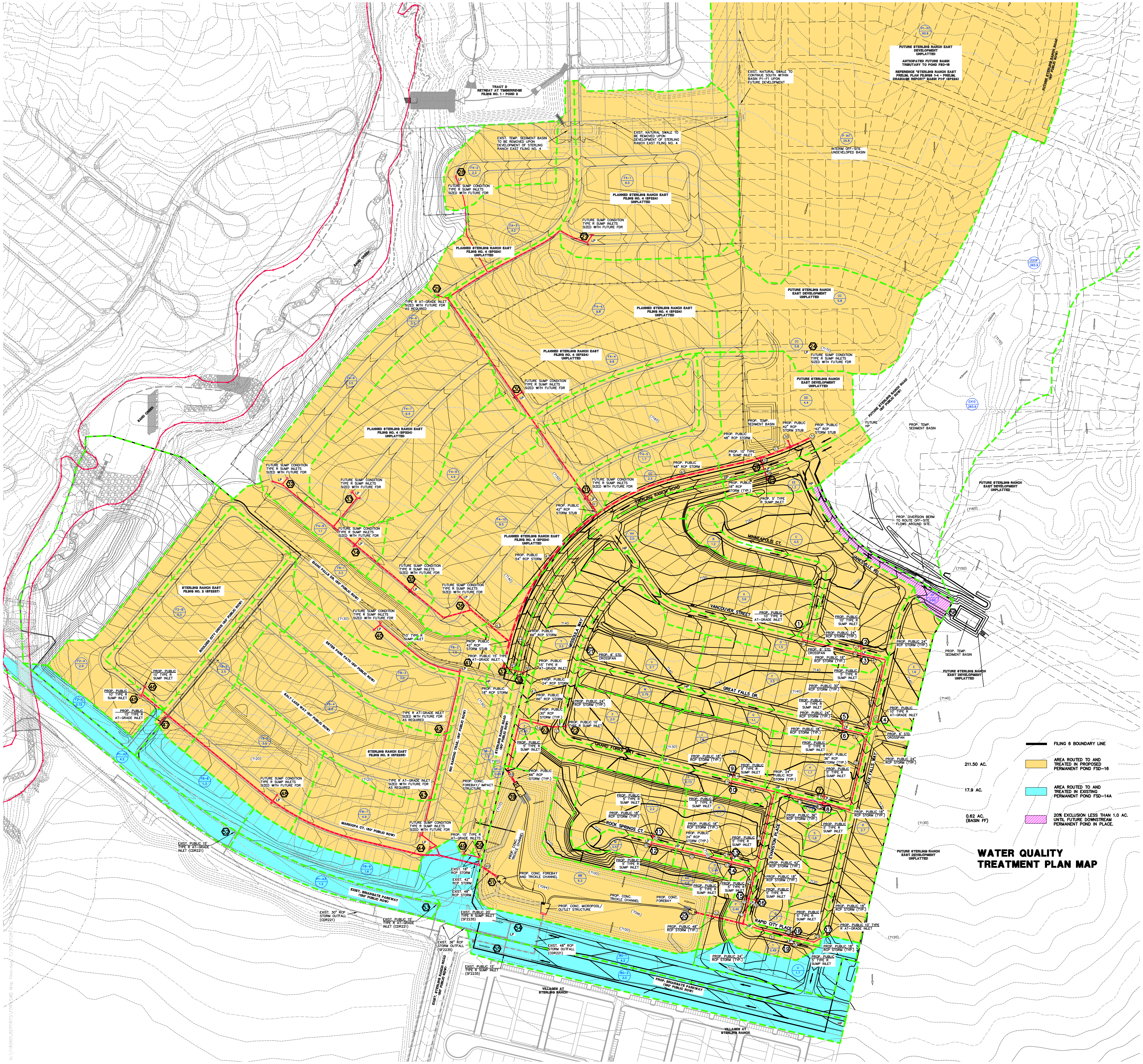
E) Forebay Discharge Design

Choose One
○ Berm With Pipe
● Wall with Rect. Notch
○ Wall with V-Notch Weir

Flow too small for berm w/ pipe

F) Discharge Pipe Size (minimum 8-inches) — Calculated D_P = in

G) Rectangular Notch Width — Calculated W_N = 7.1 in


FILING 6 BOUNDARY LINE
211.50 AC.
AREA ROUTED TO AND TREATED IN PROPOSED PERMANENT POND FSD-16
17.9 AC.
AREA ROUTED TO AND TREATED IN EXISTING PERMANENT POND FSD-14A
0.62 AC. (BASIN FF)
20% EXCLUSION LESS THAN 1.0 AC. UNTIL FUTURE DOWNSTREAM PERMANENT POND IN PLACE.
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
ANTICIPATED FUTURE BASIN TRIBUTARY TO POND FSD-16
REFERENCE "STERLING RANCH EAST PRELIM. PLAN FILINGS 1-4 - PRELIM. DRAINAGE REPORT" BASIN P1-F (SP224)
P1-F1 60.6
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1-F1 UPON FUTURE DEVELOPMENT
P INT 25.8
INTERIM OFF-SITE UNDEVELOPED BASIN
TRACT D RETREAT AT TIMBERRIDGE FILING NO. 1 - POND 2
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR AS REQUIRED
F4-1 9.0
F4-2 2.2
F4-3 3.2
F4-4 9.8
LP
HP
FUTURE HP
FUTURE STERLING RANCH ROAD (60' PUBLIC ROW)
PROP. TEMP. SEDIMENT BASIN
PROP. PUBLIC 42" RCP STORM STUB
PROP. PUBLIC 48" RCP STORM
PROP. 10' TYPE R SUMP INLET
PROP. PUBLIC 18" RCP STORM (TYP.)
PROP. 5' TYPE R SUMP INLET
PROP. DIVERSION BERM TO ROUTE OFF-SITE FLOWS AROUND SITE.
EX10 265.9
DD 4.4
EE 1.3
FF 0.62
A 3.6
B 1.2
C 4.5
D 1.5
E 1.6
F 3.5
MINNEAPOLIS CT.
JANESVILLE RD.
VANCOUVER STREET
GREAT FALLS DR.
GRAND FORKS WAY
ROCK SPRINGS CT.
EVANSTON PLACE
RAPID CITY PLACE
STERLING RANCH ROAD (80' PUBLIC ROW)
RIO RANCHO TRAIL (50' PUBLIC ROW)
PROP. PUBLIC 10' TYPE R AT-GRADE INLET
PROP. PUBLIC 10' TYPE R SUMP INLET
PROP. PUBLIC 24" RCP STORM (TYP.)
PROP. 6' STD. CROSSPAN
PROP. PUBLIC 5' TYPE R SUMP INLET
PROP. PUBLIC 30" RCP STORM (TYP.)
PROP. PUBLIC 66" RCP STORM (TYP.)
PROP. CONC. FOREBAY/ IMPACT STRUCTURE
PROP. CONC. TRICKLE CHANNEL
PROP. CONC. FOREBAY AND TRICKLE CHANNEL
PROP. CONC. MICROPOOL/ OUTLET STRUCTURE
PROP. CONC. FOREBAY
PROP. PUBLIC 48" RCP STORM (TYP.)
PROP. 15' TYPE R AT-GRADE INLETS
EXIST. 18" RCP STORM
EXIST. 42" RCP STORM
EXIST. 48" RCP STORM
EXIST. PUBLIC 20' TYPE R SUMP INLET (SF2235)
EXIST. 36" RCP STORM OUTFALL (SF2235)
EXIST. 48" RCP STORM OUTFALL (CDR221)
EXIST. PUBLIC 15' TYPE R SUMP INLET (SF2235)
EXIST. STERLING RANCH ROAD (80' PUBLIC ROW)
PROP. BRIARGATE PARKWAY (130' PUBLIC ROW)
EXIST. BRIARGATE PARKWAY (130' PUBLIC ROW)
VILLAGES AT STERLING RANCH
SR-1 1.2
SR-2 0.65
Z 0.50
X 2.0
J 1.9
K 0.73
L 2.2
M 0.57
N 1.7
O 0.49
P 0.40
AA 2.6
BB 6.2
BG-1 4.2
BG-2 3.0
(7094)
(7096)
(7100)
(7110)
(7120)
(7130)
(7140)
(7150)
(7160)

WATER QUALITY TREATMENT PLAN MAP

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
JOB NUMBER: ***1183.60***
DATE: ***07/30/26***
CALCULATED BY: ***MAW***

POND FSD-16 TRIBUTARY BASINS (Ultimate)

TRIBUTARY BASIN	BASIN AREA (AC)	WEIGHTED % IMPERVIOUS
A	3.60	52.5%
B	1.20	52.5%
C	4.50	46.4%
D	1.50	52.5%
E	1.60	52.5%
F	3.50	52.5%
G	1.10	52.5%
H	1.70	52.5%
I	0.22	52.5%
J	1.90	52.5%
K	0.73	52.5%
L	2.20	46.0%
M	0.57	46.0%
N	1.70	52.5%
O	0.49	52.5%
P	0.40	52.5%
Q	1.70	52.5%
R	2.70	52.5%
S	1.60	52.5%
T	0.49	52.5%
V	2.70	34.9%
W	0.79	52.5%
X	2.00	52.5%
Y	3.20	46.0%
Z	0.30	26.5%
AA	2.60	42.3%
BB	6.20	7.0%
CC	5.80	31.2%
DD	4.40	48.4%
EE	1.30	50.5%
GG	2.50	63.9%
HH	2.00	76.3%
F4-1	9.00	46.0%
F4-2	2.20	46.0%
F4-3	3.20	46.0%
F4-4	9.80	31.3%
F4-5	1.70	52.5%
F4-6	3.50	46.0%
F4-7	6.90	52.5%
F4-8	1.10	52.5%
F4-9	4.90	52.5%
F4-10	8.50	52.5%
F2-A	2.90	52.5%
F2-B	5.00	52.5%
F8-1	3.30	49.7%
F8-2	1.00	41.3%
F8-3	3.00	60.2%
F8-4	5.00	62.1%
F8-5	2.50	53.6%
F8-6	3.50	45.1%
F8-7	4.90	63.2%
SR-1	1.20	65.1%
SR-2	0.65	75.7%
P1-F1	60.60	52.5%
TOTAL	**211.5**	**49.1%**

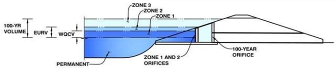
POND FSD-16 (Ultimate) EFF. IMPERVIOUS % **49.1%**

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Basin ID: POND FSD-16 (ULTIMATE)



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**			
Watershed Area =	211.50	acres		
Watershed Length =	4,000	ft		
Watershed Length to Centroid =	2,000	ft		
Watershed Slope =	0.040	ft/ft		
Watershed Imperviousness =	49.10%	percent		
Percentage Hydrologic Soil Group A =	75.0%	percent		
Percentage Hydrologic Soil Group B =	25.0%	percent		
Percentage Hydrologic Soil Groups C/D =	0.0%	percent		
Target WQCV Drain Time =	40.0	hours		
Location for 1-hr Rainfall Depths =	User Input			

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	3.592	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	11.706	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	9.253	acre-feet	1.19	inches
5-yr Runoff Volume (P1 = 1.5 in.) =	12.236	acre-feet	1.50	inches
10-yr Runoff Volume (P1 = 1.75 in.) =	15.137	acre-feet	1.75	inches
25-yr Runoff Volume (P1 = 2 in.) =	20.045	acre-feet	2.00	inches
50-yr Runoff Volume (P1 = 2.25 in.) =	23.974	acre-feet	2.25	inches
100-yr Runoff Volume (P1 = 2.52 in.) =	29.280	acre-feet	2.52	inches
500-yr Runoff Volume (P1 = 3 in.) =	37.677	acre-feet	3.00	inches
Approximate 2-yr Detention Volume =	7.828	acre-feet		
Approximate 5-yr Detention Volume =	10.426	acre-feet		
Approximate 10-yr Detention Volume =	13.041	acre-feet		
Approximate 25-yr Detention Volume =	15.483	acre-feet		
Approximate 50-yr Detention Volume =	17.000	acre-feet		
Approximate 100-yr Detention Volume =	19.152	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	3.592	acre-feet
Zone 2 Volume (EURV - Zone 1) =	8.114	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	7.446	acre-feet
Total Detention Basin Volume =	19.152	acre-feet
Initial Surcharge Volume (ISV) =	user	ft ^{3}
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft ^{2}
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft ^{2}
Volume of Basin Floor (V_{FLOOR}) =	user	ft ^{3}
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft ^{2}
Volume of Main Basin (V_{MAIN}) =	user	ft ^{3}
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

I think that all pond calcs (besides for the proposed forebays and trickle channels) should be under the Reference Materials section below since you aren't proposing any changes in the grading or outlet structure of the two ponds.

Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft ^{2})	Optional Override Area (ft ^{2})	Area (acre)	Volume (ft ^{3})	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	1,027	0.024		
7092	--	0.50	--	--	--	1,027	0.024	514	0.012
7094	--	2.50	--	--	--	17,010	0.390	18,550	0.426
7096	--	4.50	--	--	--	60,913	1.398	96,473	2.215
7098	--	6.50	--	--	--	141,508	3.249	298,894	6.862
7100	--	8.50	--	--	--	168,799	3.875	609,201	13.985
7102	--	10.50	--	--	--	187,503	4.304	965,503	22.165
7104	--	12.50	--	--	--	206,914	4.750	1,359,920	31.219
7106	--	14.50	--	--	--	226,802	5.207	1,793,636	41.176
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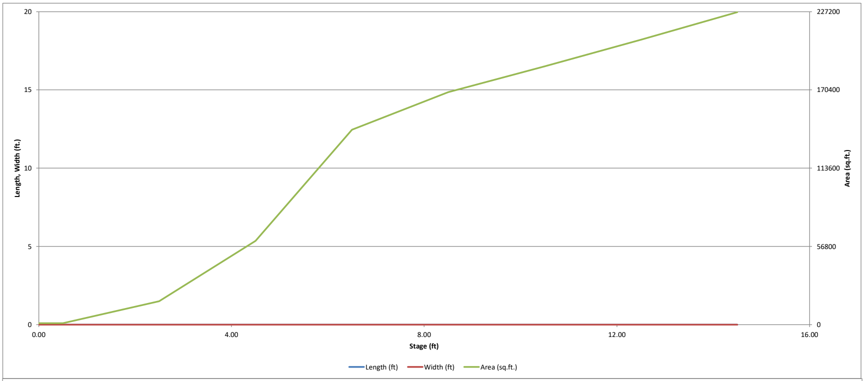
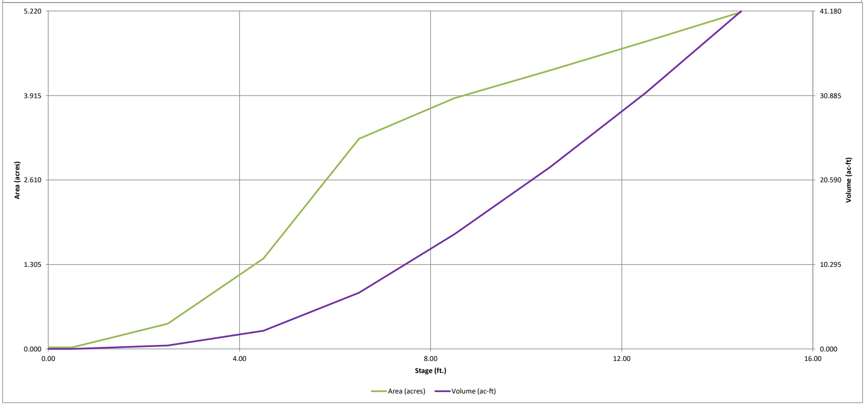
DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)



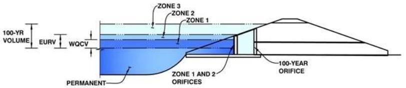


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Basin ID: POND FSD-16 (ULTIMATE)



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	5.29	3.592	Orifice Plate
Zone 2 (EURV)	7.90	8.114	Orifice Plate
Zone 3 (100-year)	9.79	7.446	Weir&Pipe (Restrict)
Total (all zones)		19.152	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)	Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Calculated Parameters for Plate

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	N/A	ft^2
Depth at top of Zone using Orifice Plate =	8.50	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	20.40	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	N/A	sq. inches	Elliptical Slot Area =	N/A	ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.70	3.40	5.10	6.80			
Orifice Area (sq. inches)	7.00	9.00	16.00	16.00	16.00			

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected			Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area =	N/A	N/A	ft^2
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid =	N/A	N/A	feet
Vertical Orifice Diameter =	N/A	N/A	inches				

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected			Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	8.50	N/A	ft (relative to basin bottom at Stage = 0 ft)	Height of Grate Upper Edge, H_t =	8.50	N/A	feet
Overflow Weir Front Edge Length =	20.00	N/A	feet	Overflow Weir Slope Length =	4.00	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V	Grate Open Area / 100-yr Orifice Area =	7.65	N/A	
Horiz. Length of Weir Sides =	4.00	N/A	feet	Overflow Grate Open Area w/o Debris =	55.68	N/A	ft^2
Overflow Grate Type =	Type C Grate	N/A		Overflow Grate Open Area w/ Debris =	27.84	N/A	ft^2
Debris Clogging % =	50%	N/A	%				

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected			Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.50	N/A	ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area =	7.28	N/A	ft^2
Outlet Pipe Diameter =	48.00	N/A	inches	Outlet Orifice Centroid =	1.28	N/A	feet
Restrictor Plate Height Above Pipe Invert =	27.00		inches	Half-Central Angle of Restrictor Plate on Pipe =	1.70	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Calculated Parameters for Spillway

Spillway Invert Stage=	12.50	ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth=	1.00	feet
Spillway Crest Length =	170.00	feet	Stage at Top of Freeboard =	14.50	feet
Spillway End Slopes =	6.00	H:V	Basin Area at Top of Freeboard =	5.21	acres
Freeboard above Max Water Surface =	1.00	feet	Basin Volume at Top of Freeboard =	41.18	acre-ft

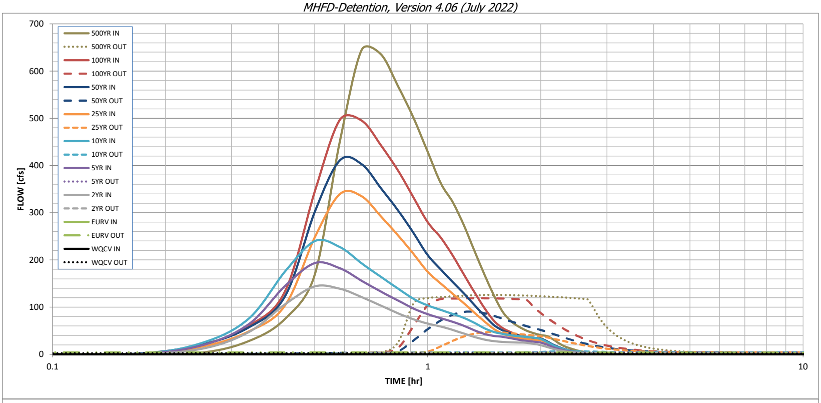
Routed Hydrograph Results

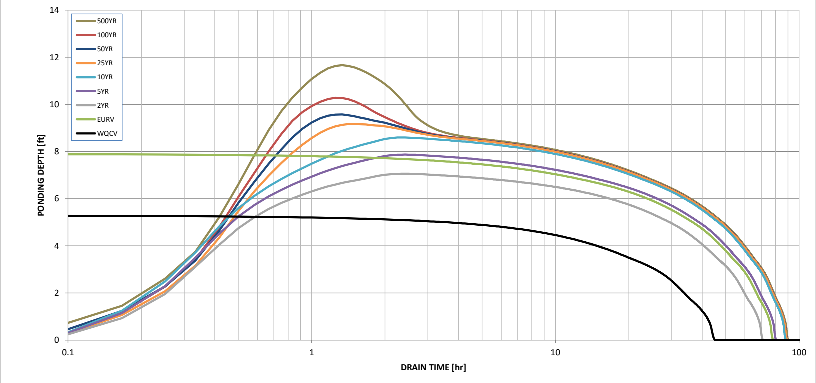
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

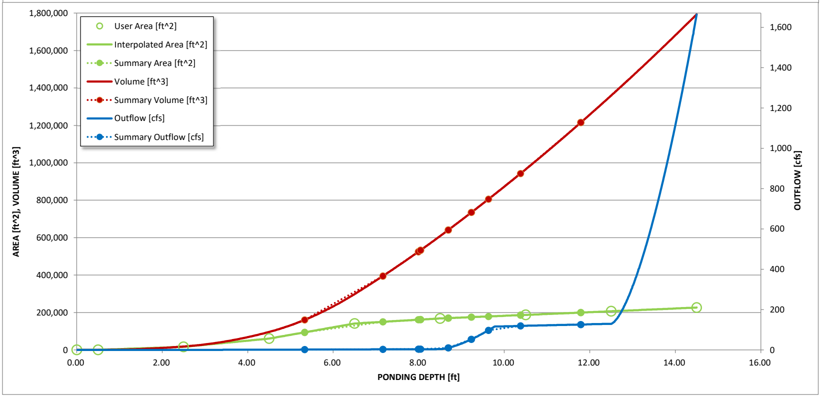
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.00
CUHP Runoff Volume (acre-ft) =	3.592	11.706	9.253	12.236	15.137	20.045	23.974	29.280	37.677
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	9.253	12.236	15.137	20.045	23.974	29.280	37.677
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	2.5	4.3	22.1	90.6	133.2	193.1	288.1
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.02	0.10	0.43	0.63	0.91	1.36
Peak Inflow Q (cfs) =	N/A	N/A	143.7	193.1	239.7	339.3	410.9	496.7	644.7
Peak Outflow Q (cfs) =	2.1	4.0	3.4	4.0	6.7	46.9	90.4	118.8	125.8
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.9	0.3	0.5	0.7	0.6	0.4
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Outlet Plate 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	0.0	0.8	1.5	2.0	2.2
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	39	65	59	67	73	71	69	67	64
Time to Drain 99% of Inflow Volume (hours) =	**42**	71	65	74	80	79	78	77	76
Maximum Ponding Depth (ft) =	5.29	7.90	7.06	7.87	8.59	9.17	9.57	10.28	11.66
Area at Maximum Ponding Depth (acres) =	2.13	3.69	3.42	3.67	3.89	4.02	4.10	4.26	4.56
Maximum Volume Stored (acre-ft) =	3.608	11.717	8.696	11.569	14.335	16.590	18.214	21.181	27.308

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename:

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.13	3.39
	0:15:00	0.00	0.00	11.65	19.15	23.83	16.06	20.69	19.72	27.90
	0:20:00	0.00	0.00	46.85	63.75	75.65	48.28	56.84	60.25	75.15
	0:25:00	0.00	0.00	106.07	144.99	175.45	103.46	122.86	133.31	168.33
	0:30:00	0.00	0.00	143.73	193.12	239.69	247.59	301.25	344.55	451.33
	0:35:00	0.00	0.00	138.94	182.21	227.19	339.27	410.94	496.71	644.73
	0:40:00	0.00	0.00	121.06	155.82	192.62	334.63	402.74	495.18	635.82
	0:45:00	0.00	0.00	103.22	132.94	164.08	292.18	351.96	442.95	568.16
	0:50:00	0.00	0.00	86.94	113.98	139.19	252.14	305.11	389.41	500.94
	0:55:00	0.00	0.00	74.00	96.99	117.48	212.59	256.95	332.11	428.69
	1:00:00	0.00	0.00	65.12	84.92	103.42	174.63	209.95	279.70	362.27
	1:05:00	0.00	0.00	58.95	76.44	94.01	149.83	179.66	247.17	322.10
	1:10:00	0.00	0.00	51.60	68.88	85.51	128.14	153.08	208.94	272.24
	1:15:00	0.00	0.00	43.69	60.14	76.99	107.82	128.33	168.10	218.36
	1:20:00	0.00	0.00	36.72	50.84	66.61	87.96	103.98	131.06	169.24
	1:25:00	0.00	0.00	31.17	43.17	55.03	69.86	81.75	98.12	125.49
	1:30:00	0.00	0.00	27.83	39.03	47.42	53.63	62.17	71.28	90.42
	1:35:00	0.00	0.00	26.22	36.96	43.23	43.84	50.55	55.51	70.02
	1:40:00	0.00	0.00	25.38	33.94	40.36	38.19	43.73	46.64	58.28
	1:45:00	0.00	0.00	24.88	30.76	38.27	34.76	39.53	40.62	50.18
	1:50:00	0.00	0.00	24.50	28.47	36.84	32.36	36.64	36.64	44.74
	1:55:00	0.00	0.00	22.27	26.79	35.21	30.84	34.83	33.88	40.92
	2:00:00	0.00	0.00	19.45	24.99	32.40	29.75	33.54	31.91	38.24
	2:05:00	0.00	0.00	15.47	20.13	25.81	24.31	27.35	25.70	30.64
	2:10:00	0.00	0.00	11.39	14.65	18.68	17.60	19.75	18.57	22.06
	2:15:00	0.00	0.00	8.35	10.68	13.53	12.76	14.30	13.48	15.98
	2:20:00	0.00	0.00	6.06	7.72	9.79	9.27	10.38	9.86	11.67
	2:25:00	0.00	0.00	4.35	5.42	6.97	6.58	7.35	7.01	8.29
	2:30:00	0.00	0.00	3.03	3.71	4.88	4.59	5.12	4.88	5.75
	2:35:00	0.00	0.00	2.06	2.56	3.40	3.25	3.62	3.45	4.07
	2:40:00	0.00	0.00	1.31	1.70	2.22	2.17	2.41	2.29	2.69
	2:45:00	0.00	0.00	0.74	1.03	1.29	1.30	1.44	1.36	1.59
	2:50:00	0.00	0.00	0.35	0.52	0.62	0.65	0.72	0.67	0.78
	2:55:00	0.00	0.00	0.13	0.18	0.20	0.22	0.24	0.22	0.25
	3:00:00	0.00	0.00	0.02	0.02	0.01	0.00	0.00	0.00	0.00
	3:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Summary Stage-Area-Volume-Discharge Relationships

The user can create a summary S-A-V-D by entering the desired stage increments and the remainder of the table will populate automatically.
The user should graphically compare the summary S-A-V-D table to the full S-A-V-D table in the chart to confirm it captures all key transition points.

Stage - Storage Description	**Stage [ft]**	**Area [ft^2]**	**Area [acres]**	**Volume [ft^3]**	**Volume [ac-ft]**	**Total Outflow [cfs]**
WQCV	5.33	94,360	2.166	160,911	3.694	2.11
2-yr.	7.16	150,514	3.455	395,261	9.074	3.46
5-yr.	7.99	161,840	3.715	524,888	12.050	4.06
EURV	8.04	162,522	3.731	532,997	12.236	4.09
10-yr.	8.69	170,576	3.916	641,442	14.725	10.87
25-yr.	9.23	175,626	4.032	734,916	16.871	52.98
50-yr.	9.63	179,367	4.118	805,915	18.501	97.83
100-yr.	10.38	186,381	4.279	943,070	21.650	119.37
500-yr.	11.79	200,023	4.592	1,215,457	27.903	126.42

For best results, include the stages of all grade slope changes (e.g. ISV and Floor) from the S-A-V table on Sheet 'Basin'.

Also include the inverts of all outlets (e.g. vertical orifice, overflow grate, and spillway, where applicable).

JOB NAME: ***STERLING RANCH EAST FILING NO. 6 - FINAL PLAT***
JOB NUMBER: ***1183.60***
DATE: ***07/30/26***
CALCULATED BY: ***MAW***

POND FSD-16 TRIBUTARY BASINS (Interim)

TRIBUTARY BASIN	BASIN AREA (AC)	WEIGHTED % IMPERVIOUS
A	3.60	52.5%
B	1.20	52.5%
C	4.50	46.4%
D	1.50	52.5%
E	1.60	52.5%
F	3.50	52.5%
G	1.10	52.5%
H	1.70	52.5%
I	0.22	52.5%
J	1.90	52.5%
K	0.73	52.5%
L	2.20	46.0%
M	0.57	46.0%
N	1.70	52.5%
O	0.49	52.5%
P	0.40	52.5%
Q	1.70	52.5%
R	2.70	52.5%
S	1.60	52.5%
T	0.49	52.5%
V	2.70	34.9%
W	0.79	52.5%
X	2.00	52.5%
Y	3.20	46.0%
Z	0.30	26.5%
AA	2.60	42.3%
BB	6.20	7.0%
CC	5.80	31.2%
DD	4.40	48.4%
EE	1.30	50.5%
GG	2.50	63.9%
HH	2.00	76.3%
F4-1	9.00	46.0%
F4-2	2.20	46.0%
F4-3	3.20	46.0%
F4-4	9.80	31.3%
F4-5	1.70	52.5%
F4-6	3.50	46.0%
F4-7	6.90	52.5%
F4-8	1.10	52.5%
F4-9	4.90	52.5%
F4-10	8.50	52.5%
F2-A	2.90	52.5%
F2-B	5.00	52.5%
F8-1	3.70	48.8%
F8-2	1.00	42.1%
F8-3	3.40	54.8%
F8-4	4.70	61.3%
F8-5	3.00	55.5%
F8-6	2.80	51.5%
F8-7	4.60	63.1%
SR-1	1.20	65.1%
SR-2	0.65	75.7%
P1-INT	33.40	2.0%
TOTAL	**184.3**	**39.4%**

POND FSD-16 (Ultimate) EFF. IMPERVIOUS % **39.4%**

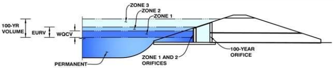
Interim?

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)

Project: **STERLING RANCH EAST FILING NO. 6 - FINAL PLAT**

Basin ID: **POND FSD-16 (INTERIM)**



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	**EDB**	
Watershed Area =	184.30	acres
Watershed Length =	4,000	ft
Watershed Length to Centroid =	2,000	ft
Watershed Slope =	0.020	ft/ft
Watershed Imperviousness =	39.40%	percent
Percentage Hydrologic Soil Group A =	75.0%	percent
Percentage Hydrologic Soil Group B =	25.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	2.738	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	7.778	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	6.205	acre-feet	1.19	inches
5-yr Runoff Volume (P1 = 1.5 in.) =	8.308	acre-feet	1.50	inches
10-yr Runoff Volume (P1 = 1.75 in.) =	10.542	acre-feet	1.75	inches
25-yr Runoff Volume (P1 = 2 in.) =	14.825	acre-feet	2.00	inches
50-yr Runoff Volume (P1 = 2.25 in.) =	18.119	acre-feet	2.25	inches
100-yr Runoff Volume (P1 = 2.52 in.) =	22.767	acre-feet	2.52	inches
500-yr Runoff Volume (P1 = 3 in.) =	29.988	acre-feet	3.00	inches
Approximate 2-yr Detention Volume =	5.140	acre-feet		
Approximate 5-yr Detention Volume =	6.911	acre-feet		
Approximate 10-yr Detention Volume =	8.815	acre-feet		
Approximate 25-yr Detention Volume =	10.617	acre-feet		
Approximate 50-yr Detention Volume =	11.772	acre-feet		
Approximate 100-yr Detention Volume =	13.648	acre-feet		

Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	2.738	acre-feet
Zone 2 Volume (EURV - Zone 1) =	5.041	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	5.869	acre-feet
Total Detention Basin Volume =	13.648	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	**user**	acre-feet

Depth Increment = ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	1,027	0.024		
7092	--	0.50	--	--	--	1,027	0.024	514	0.012
7094	--	2.50	--	--	--	17,010	0.390	18,550	0.426
7096	--	4.50	--	--	--	60,913	1.398	96,473	2.215
7098	--	6.50	--	--	--	141,508	3.249	298,894	6.862
7100	--	8.50	--	--	--	168,799	3.875	609,201	13.985
7102	--	10.50	--	--	--	187,503	4.304	965,503	22.165
7104	--	12.50	--	--	--	206,914	4.750	1,359,920	31.219
7106	--	14.50	--	--	--	226,802	5.207	1,793,636	41.176
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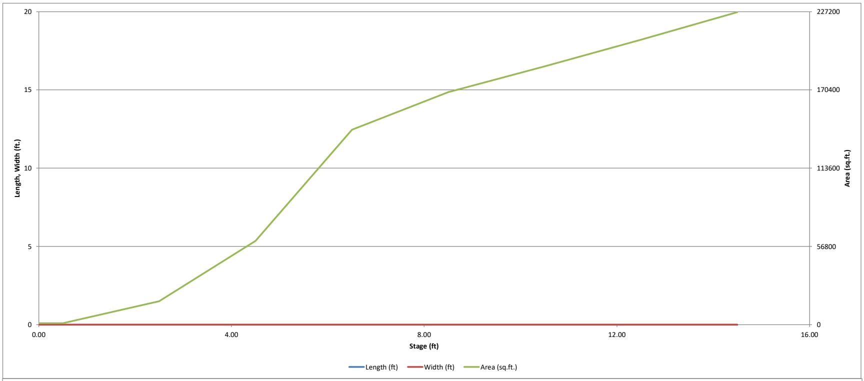
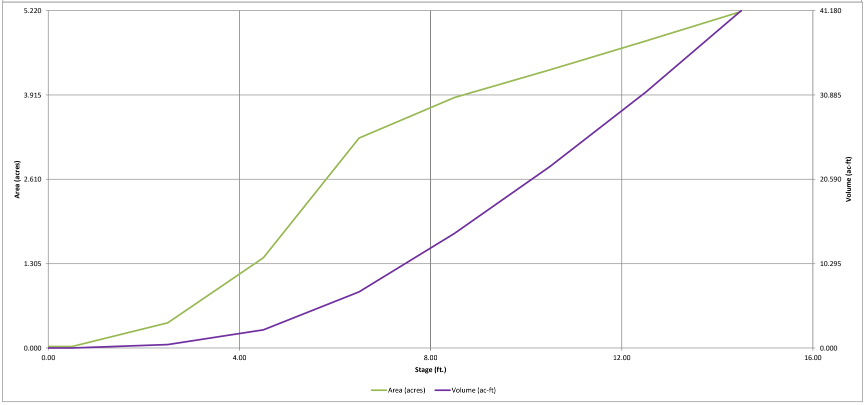
DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.06 (July 2022)



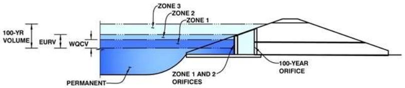


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: STERLING RANCH EAST FILING NO. 6 - FINAL PLAT

Basin ID: POND FSD-16 (INTERIM)



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	4.84	2.738	Orifice Plate
Zone 2 (EURV)	6.78	5.041	Orifice Plate
Zone 3 (100-year)	8.42	5.869	Weir&Pipe (Restrict)
Total (all zones)		13.648	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth =	N/A	ft (distance below the filtration media surface)
Underdrain Orifice Diameter =	N/A	inches

Calculated Parameters for Underdrain

Underdrain Orifice Area =	N/A	ft^2
Underdrain Orifice Centroid =	N/A	feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice =	0.00	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate =	8.50	ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing =	20.40	inches
Orifice Plate: Orifice Area per Row =	N/A	sq. inches

Calculated Parameters for Plate

WQ Orifice Area per Row =	N/A	ft^2
Elliptical Half-Width =	N/A	feet
Elliptical Slot Centroid =	N/A	feet
Elliptical Slot Area =	N/A	ft^2

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (required)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	0.00	1.70	3.40	5.10	6.80			
Orifice Area (sq. inches)	4.00	4.00	25.00	25.00	25.00			

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

	Not Selected	Not Selected	
Invert of Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice =	N/A	N/A	ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter =	N/A	N/A	inches

Calculated Parameters for Vertical Orifice

	Not Selected	Not Selected	
Vertical Orifice Area =	N/A	N/A	ft^2
Vertical Orifice Centroid =	N/A	N/A	feet

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	8.50	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	20.00	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V
Horiz. Length of Weir Sides =	4.00	N/A	feet
Overflow Grate Type =	Type C Grate	N/A	
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow Weir

	Zone 3 Weir	Not Selected	
Height of Grate Upper Edge, H_t =	8.50	N/A	feet
Overflow Weir Slope Length =	4.00	N/A	feet
Grate Open Area / 100-yr Orifice Area =	4.43	N/A	
Overflow Grate Open Area w/o Debris =	55.68	N/A	ft^2
Overflow Grate Open Area w/ Debris =	27.84	N/A	ft^2

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	2.50	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	48.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	48.00		inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

	Zone 3 Restrictor	Not Selected	
Outlet Orifice Area =	12.57	N/A	ft^2
Outlet Orifice Centroid =	2.00	N/A	feet
Half-Central Angle of Restrictor Plate on Pipe =	3.14	N/A	radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	12.50	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	170.00	feet
Spillway End Slopes =	6.00	H:V
Freeboard above Max Water Surface =	1.00	feet

Calculated Parameters for Spillway

Spillway Design Flow Depth=	1.00	feet
Stage at Top of Freeboard =	14.50	feet
Basin Area at Top of Freeboard =	5.21	acres
Basin Volume at Top of Freeboard =	41.18	acre-ft

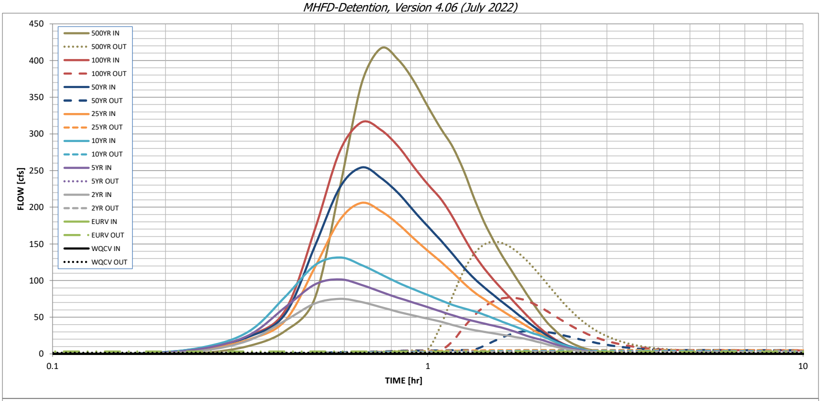
Routed Hydrograph Results

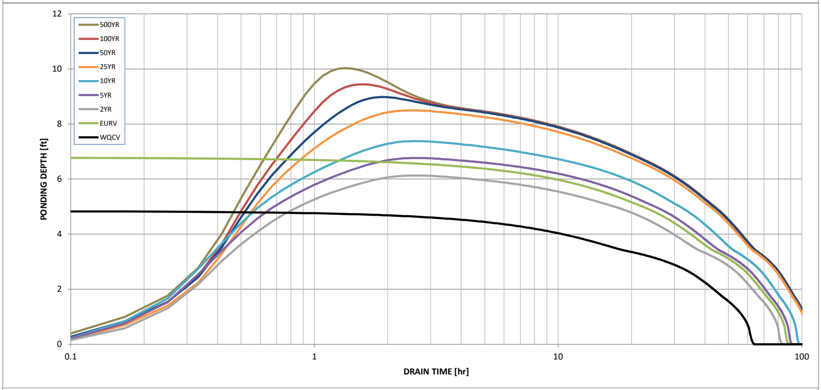
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

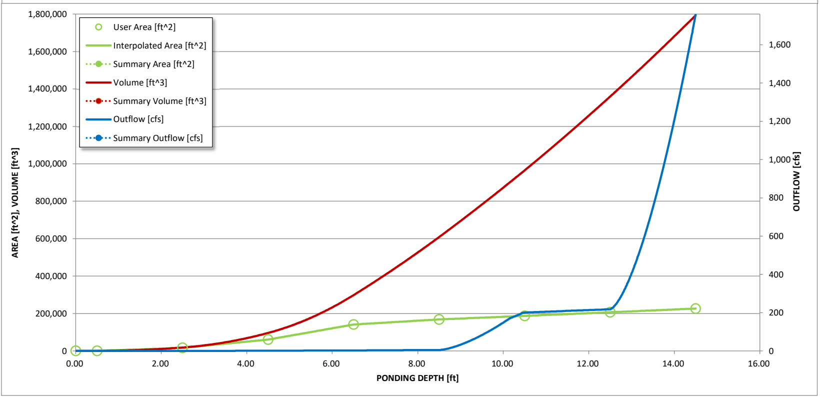
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.00
CUHP Runoff Volume (acre-ft) =	2.738	7.778	6.205	8.308	10.542	14.825	18.119	22.767	29.988
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	6.205	8.308	10.542	14.825	18.119	22.767	29.988
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	1.8	3.1	15.8	65.0	96.2	142.8	213.5
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.02	0.09	0.35	0.52	0.77	1.16
Peak Inflow Q (cfs) =	N/A	N/A	74.9	101.6	131.5	205.8	254.1	315.8	416.7
Peak Outflow Q (cfs) =	1.5	3.3	2.8	3.3	4.2	5.3	31.4	76.8	152.9
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.1	0.3	0.1	0.3	0.5	0.7
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Plate	Plate	Overflow Weir 1	Overflow Weir 1	verflow Weir
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	0.5	1.3	2.6
Max Velocity through Grate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	54	69	66	71	75	80	78	74	67
Time to Drain 99% of Inflow Volume (hours) =	**59**	79	75	82	87	94	93	91	88
Maximum Ponding Depth (ft) =	4.84	6.78	6.13	6.76	7.38	8.49	8.98	9.44	10.03
Area at Maximum Ponding Depth (acres) =	1.71	3.34	2.90	3.33	3.52	3.87	3.98	4.08	4.20
Maximum Volume Stored (acre-ft) =	2.744	7.784	5.694	7.717	9.806	13.947	15.870	17.723	20.166

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)







S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename:

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.05	1.27
	0:15:00	0.00	0.00	4.29	7.09	8.85	5.98	7.85	7.39	10.79
	0:20:00	0.00	0.00	18.34	25.40	30.42	19.55	23.32	24.46	31.11
	0:25:00	0.00	0.00	45.26	63.45	77.81	44.99	54.16	58.91	75.47
	0:30:00	0.00	0.00	68.58	94.61	120.65	117.42	146.19	169.14	227.05
	0:35:00	0.00	0.00	74.93	101.65	131.45	182.79	226.99	276.69	368.73
	0:40:00	0.00	0.00	70.61	93.90	121.06	205.84	254.10	315.83	416.68
	0:45:00	0.00	0.00	63.82	84.61	108.48	194.65	240.06	305.55	401.36
	0:50:00	0.00	0.00	57.45	76.50	97.17	177.27	219.51	283.20	372.66
	0:55:00	0.00	0.00	52.26	69.88	88.00	157.58	195.34	255.45	337.48
	1:00:00	0.00	0.00	48.00	63.78	80.29	140.61	173.93	231.28	307.31
	1:05:00	0.00	0.00	43.87	57.84	73.10	125.52	154.63	211.29	281.84
	1:10:00	0.00	0.00	39.39	52.52	66.66	110.71	135.86	186.29	248.48
	1:15:00	0.00	0.00	35.27	48.02	61.99	95.91	117.33	158.39	210.73
	1:20:00	0.00	0.00	32.25	44.43	58.02	83.73	102.28	134.64	178.98
	1:25:00	0.00	0.00	29.98	41.24	53.35	74.33	90.43	116.18	153.98
	1:30:00	0.00	0.00	27.91	38.29	48.39	66.08	79.96	100.71	132.80
	1:35:00	0.00	0.00	25.96	35.48	43.76	58.43	70.28	87.45	114.60
	1:40:00	0.00	0.00	24.02	32.11	39.41	51.24	61.27	75.22	97.84
	1:45:00	0.00	0.00	22.09	28.38	35.24	44.47	52.78	63.66	82.12
	1:50:00	0.00	0.00	20.17	24.79	31.34	38.02	44.73	52.85	67.48
	1:55:00	0.00	0.00	17.72	21.75	27.75	32.07	37.27	43.02	54.22
	2:00:00	0.00	0.00	15.27	19.36	24.70	26.82	30.73	34.32	42.60
	2:05:00	0.00	0.00	12.80	16.63	21.13	21.72	24.84	27.06	33.64
	2:10:00	0.00	0.00	10.50	13.63	17.33	17.06	19.46	20.84	25.87
	2:15:00	0.00	0.00	8.49	10.99	14.00	13.38	15.21	15.87	19.58
	2:20:00	0.00	0.00	6.92	8.89	11.34	10.60	11.98	12.18	14.89
	2:25:00	0.00	0.00	5.59	7.16	9.11	8.40	9.47	9.32	11.26
	2:30:00	0.00	0.00	4.50	5.77	7.28	6.66	7.47	7.10	8.45
	2:35:00	0.00	0.00	3.58	4.58	5.72	5.21	5.82	5.37	6.33
	2:40:00	0.00	0.00	2.84	3.58	4.44	4.04	4.50	4.16	4.90
	2:45:00	0.00	0.00	2.26	2.78	3.43	3.13	3.47	3.23	3.78
	2:50:00	0.00	0.00	1.78	2.16	2.68	2.45	2.72	2.55	2.99
	2:55:00	0.00	0.00	1.39	1.66	2.08	1.91	2.11	1.99	2.33
	3:00:00	0.00	0.00	1.04	1.24	1.57	1.44	1.59	1.50	1.74
	3:05:00	0.00	0.00	0.75	0.88	1.12	1.05	1.15	1.08	1.24
	3:10:00	0.00	0.00	0.50	0.60	0.76	0.72	0.78	0.73	0.83
	3:15:00	0.00	0.00	0.31	0.39	0.46	0.45	0.48	0.44	0.50
	3:20:00	0.00	0.00	0.16	0.22	0.24	0.24	0.25	0.23	0.25
	3:25:00	0.00	0.00	0.07	0.10	0.10	0.10	0.10	0.08	0.08
	3:30:00	0.00	0.00	0.02	0.02	0.02	0.02	0.01	0.01	0.00
	3:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

REFERENCE MATERIALS

INNOVATIVE DESIGN. CLASSIC RESULTS.

STERLING RANCH MDDP AMENDMENT NO. 2 & PRELIMINARY DRAINAGE REPORT
FOR
STERLING RANCH EAST
PRELIMINARY PLAN NO. 1

FOR REFERENCE ONLY

Prepared for:
CLASSIC SRJ LAND, LLC
2138 FLYING HORSE CLUB DRIVE
COLORADO SPRINGS CO 80921
(719) 592-9333

Prepared by:
CLASSIC CONSULTING
619 N. CASCADE AVE SUITE 200
COLORADO SPRINGS CO 80903
(719) 785-0790

Job No. 1183.22

PCD Project No.
SKP-22-004 / SP-22-004

CLASSIC CONSULTING

STERLING RANCH MDDP AMENDMENT NO. 2 & PRELIM. DRAINAGE REPORT FOR STERLING RANCH EAST PRELIMINARY PLAN NO. 1

ENGINEER'S STATEMENT:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the County for drainage reports and said report is in conformity with the applicable master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.

MARC ALAN WHORTON
37155

11/11/2022

Marc A. Whorton Colorado P.E. #37155 — Date

FOR REFERENCE ONLY

OWNER'S/DEVELOPER'S STATEMENT:

I, the owner/developer, have read and will comply with all of the requirements specified in this drainage report and plan.

Business Name:	CLASSIC SRJ LAND, LLC
By:	LOREN J. MORELAND
Title:	VICE PRESIDENT
Address:	2138 Flying Horse Club Drive Colorado Springs, CO 80921

EL PASO COUNTY:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

APPROVED
Engineering Department
01/19/2023 5:04:07 PM
dsdnijkamp
EPC Department of Public Works

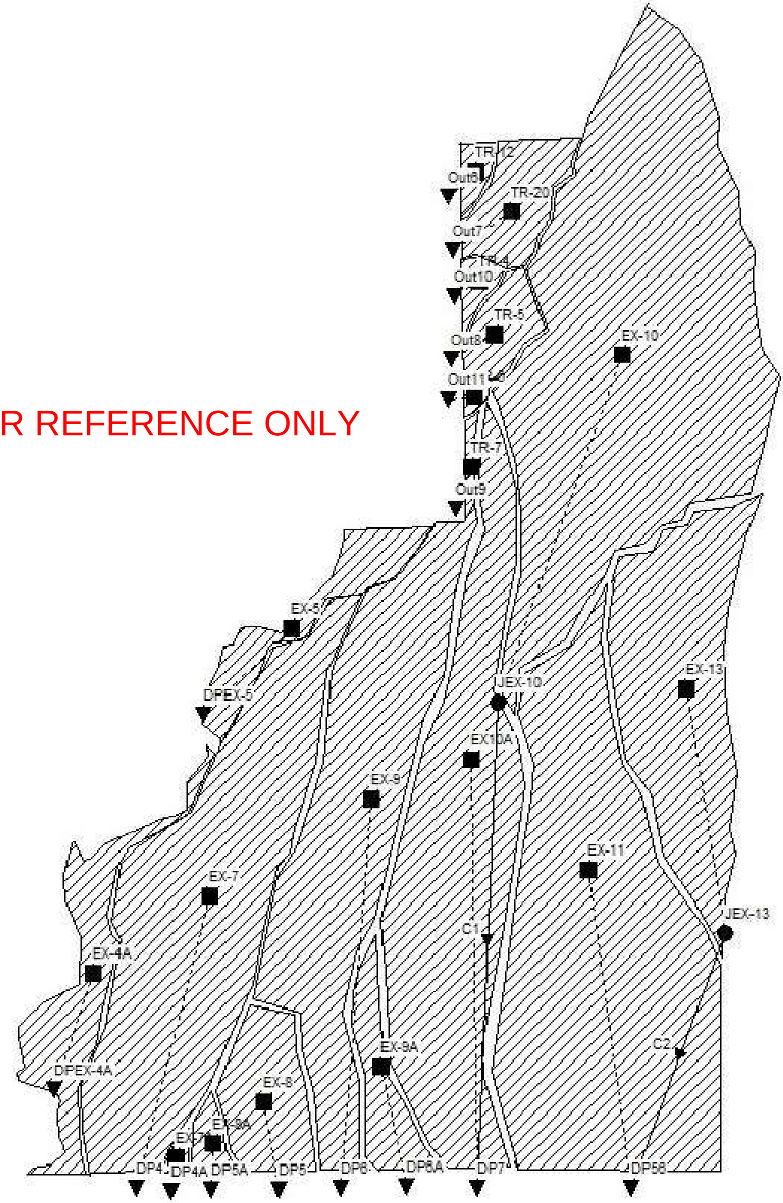
For County Engineer, / ECM Administrator

Conditions:

Note: This report is acceptable until the version under review with SP-22-004 is approved, which will supersede this version.

EXISTING CONDITIONS SWMM MODEL MAP

FOR REFERENCE ONLY


TR-12
Out6
TR-20
Out7
TR-4
Out10
TR-5
Out8
EX-10
Out11
L-6
TR-7
Out9
EX-5
DPEX-5
JEX-10
EX-13
EX10A
EX-9
EX-11
EX-7
JEX-13
C1
EX-4A
C2
EX-9A
DIPEX-4A
EX-8
EX-8A
EX-7
DP4
DP4A
DP5A
DP5
DP6
DP6A
DP7
DP58

STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Pre-Developed Surface Routing

Design Point (South Bndy.)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
4	**46**	**105**
4A	**1**	**5**
5	**5**	**23**
5A	**2**	**9**
6	**59**	**122**
6A	**7**	**19**
7	**110**	**249**
56	**60**	**160**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	*SWMM Width (Lw) (ft.)	*SWMM Slope (Sw) (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	3365	3.41%	**105**	**222**
EX10A	153.5	5%	1857	4.05%	**46**	**103**
EX-11 +	214.3	4%	3255	3.01%	**54**	**129**
EX-13 +	94.8	6%	1877	3.97%	**36**	**85**
EX-4A	44.2	8%	3355	1.09%	**19**	**50**
EX-5	26.2	8%	1959	1.65%	**12**	**32**
EX-7	152.8	5%	2234	3.13%	**46**	**105**
EX-7A	2.4	2%	416	2.70%	**1**	**5**
EX-8	32.2	2%	1679	1.47%	**5**	**23**
EX-8A	6.6	2%	698	1.80%	**2**	**9**
EX-9	139.3	8%	1837	3.19%	**59**	**122**
EX-9A	21.8	5%	786	3.01%	**7**	**19**
TR-12 +	4.7	5%	544	4.13%	**2**	**9**
TR-20 +	23.2	7%	1388	3.21%	**10**	**32**
TR-4 +	4.4	5%	645	2.76%	**2**	**9**
TR-5 +	13.7	5%	990	2.70%	**5**	**17**
TR-6 +	1.5	5%	519	1.55%	**1**	**4**
TR-7 +	2.6	5%	233	5.84%	**1**	**5**

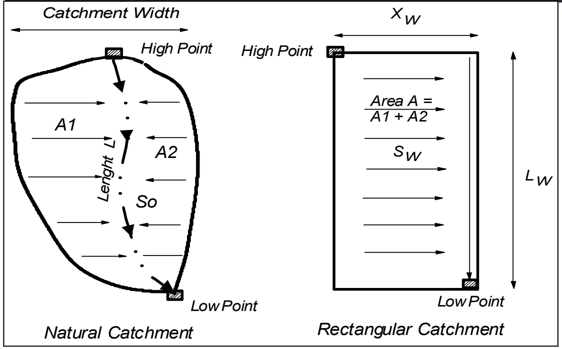
* Reference SWMM Catchment Shape Parameter Finder for calculations

FOR REFERENCE ONLY

CATCHMENT SHAPE PARAMETER FINDER

FOR REFERENCE ONLY

Convert Natural Catchment to a Rectangular Shape



Subcatchment Center	Z=0.5
Side Collector	Z=1
Skewed Location	0.5<Z<1

Dimensionless Variables

$$Y = \frac{L}{L_w}; \qquad X = \frac{A}{L^2}$$

$$Y = (1.5 - Z)(2.286X - 0.286X^2)$$

$$\frac{Lw}{L} = (1.5 - Z)[2.286(\frac{A}{L^2}) - 0.286(\frac{A}{L^2})^2]$$

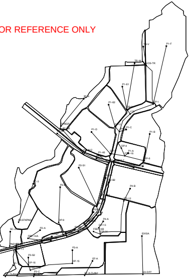
$$S_o/S_w = A/(LL_w) + L_w/L$$

$$X_w = A/L_w$$

Subarea ID	Area acre	A1 acre	A2 acre	L ft	High Pt Elev. ft	Low Pt Elev. ft	Z=Am/A	$X=A/L^2$	Y=Lw/L	Lw ft	Xw ft	So %	So/Sw	Sw %
EX-7	152.80	82.00	70.80	6,430	7160.0	6997.0	0.54	0.16	0.35	2,234	2,980	2.53	0.81	3.13
EX-9	139.30	65.00	74.30	7,190	7190.0	7026.0	0.53	0.12	0.26	1,837	3,302	2.28	0.71	3.19
EX10A	153.50	75.00	78.50	8,030	7,236	7,015	0.51	0.10	0.23	1,857	3,600	2.75	0.68	4.05
EX10	265.90	120.00	145.90	7,280	7,380	7,148	0.55	0.22	0.46	3,365	3,442	3.19	0.94	3.41
EX-11	214.30	100.00	114.30	6,140	7,192	7,008	0.53	0.25	0.53	3,255	2,867	3.00	1.00	3.01
EX-13	94.80	47.00	47.80	4,900	7,232	7,070	0.50	0.17	0.38	1,877	2,200	3.31	0.83	3.97
TR-4	4.40	2.20	2.20	640	7,270	7,244	0.50	0.47	1.01	645	297	4.06	1.47	2.76
TR-5	13.70	7.50	6.20	1,250	7,273	7,230	0.55	0.38	0.79	990	603	3.44	1.27	2.70
TR-6	1.50	0.75	0.75	250	7,238	7,228	0.50	1.05	2.08	519	126	4.00	2.58	1.55
TR-7	2.60	1.30	1.30	1,100	7,234	7,192	0.50	0.09	0.21	233	487	3.82	0.65	5.84
TR-12	4.70	2.50	2.20	800	7,300	7,262	0.53	0.32	0.68	544	377	4.75	1.15	4.13
TR-20	23.20	12.00	11.20	1,550	7,314	7,246	0.52	0.42	0.90	1,388	728	4.39	1.37	3.21
EX-4A	44.20	22.10	22.10	750	7,044	7,001	0.50	3.42	4.47	3,355	574	5.73	5.24	1.09
EX-5	26.20	13.10	13.10	1,200	7,186	7,144	0.50	0.79	1.63	1,959	583	3.50	2.12	1.65
EX-7A	2.40	1.20	1.20	550	7,039	7,021	0.50	0.35	0.76	416	251	3.27	1.21	2.70
EX-8A	6.60	3.30	3.30	900	7,045	7,025	0.50	0.35	0.78	698	412	2.22	1.23	1.80
EX-8A	32.20	17.00	15.20	1,750	7,062	7,025	0.53	0.46	0.96	1,679	835	2.11	1.44	1.47
EX-9A	21.80	11.80	10.00	2,600	7,082	7,022	0.54	0.14	0.30	786	1,208	2.31	0.77	3.01

DEVELOPED CONDITIONS SWMM MODEL MAP

FOR REFERENCE ONLY


TR-V
P1-F
TR-W
JOS-TR
P1-E1
SD-4
P1-S2
DP-1
J10
P1-C
P1-D
P1-B
DP-4
P1-A
P1-A3
DP-15
DP-6
P2-S1
SC-3
P2-S2
P4-B
DP-12
DP-13
DP-14
EXSTKPND
DP-9
P4-A
SC-2
P2-A
FSD-14A
FSD-14B
EX10A
DP-11
P3-A
P3-S2
DP-16
DP-15
EF-A
P3-C
EF-A-Outfall
EX-DP7

SWMM 5.1

FOR REFERENCE ONLY

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWWM Imperv. (%)	*SWMM Width (Lw) (ft.)	*SWMM Slope (Sw) (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EF-A	8.2	15%	1064	1.57%	**7**	**20**
EX10A +	60.4	5%	2452	1.79%	**18**	**50**
EX-9 +	6.0	5%	578	1.70%	**2**	**8**
EX-9A +	12.7	5%	1080	1.94%	**4**	**16**
P1-A	12.7	8%	1276	1.29%	**6**	**19**
P1-A1	5.0	45%	258	1.66%	**11**	**21**
P1-A2	6.4	45%	258	0.77%	**12**	**23**
P1-A3	1.8	50%	196	1.17%	**5**	**9**
P1-A4	2.0	50%	208	1.12%	**5**	**10**
P1-A5	5.7	45%	417	1.38%	**13**	**25**
P1-A6	2.8	50%	205	1.75%	**7**	**14**
P1-B (Dev.)	35.5	38%	873	1.36%	**55**	**108**
P1-B (Un-dev.)	35.5	5%	873	1.36%	**10**	**23**
P1-C	8.9	50%	581	3.69%	**23**	**46**
P1-D	31.4	38%	1033	1.27%	**53**	**102**
P1-E1	30.4	35%	1148	1.56%	**50**	**97**
P1-E2	21.8	40%	1048	1.23%	**41**	**80**
P1-F (Dev.)	76.7	30%	2322	2.18%	**111**	**215**
P1-F (Un-dev.)	76.7	5%	2322	2.18%	**22**	**59**
P2-A	24.4	10%	2164	2.11%	**15**	**43**
P2-B	57.8	38%	1215	1.64%	**88**	**173**
P2-B1	2.5	50%	201	3.37%	**7**	**13**
P2-B10	1.7	50%	187	3.43%	**5**	**10**
P2-B2	1.9	50%	148	3.54%	**5**	**10**
P2-B3	2.8	45%	245	2.15%	**7**	**13**
P2-B4	1.6	50%	138	2.49%	**4**	**8**
P2-B5	1.9	45%	230	1.86%	**5**	**9**
P2-B6	1.1	50%	141	2.28%	**3**	**6**
P2-B7	2.5	45%	272	1.78%	**6**	**12**
P2-B8	1.2	50%	141	2.34%	**3**	**7**
P2-B9	2.0	50%	226	3.27%	**5**	**11**
P2-S1	35.6	40%	1756	1.44%	**68**	**133**
P3-A	52.6	40%	1290	1.37%	**85**	**166**
P3-C	1.7	11%	446	1.31%	**1**	**5**
P3-S2	11.9	40%	1103	1.27%	**25**	**50**
P4-A	25.8	35%	920	1.21%	**41**	**80**
P4-B	37.3	35%	1773	1.34%	**63**	**123**
SC-1 +	3.6	8%	306	2.20%	**2**	**6**
SC-2 +	10.8	8%	1211	2.44%	**6**	**20**
SC-3 +	27.2	8%	616	2.68%	**12**	**26**
SC-4 +	16.4	8%	1918	1.48%	**8**	**27**
TR-V	2.1	19%	162	4.13%	**2**	**6**
TR-W	1.4	38%	90	1.30%	**3**	**5**

*** Reference SWMM Catchment Shape Parameter Finder for calculations**

+ Basin not changed from pre-development conditions

FOR REFERENCE ONLY

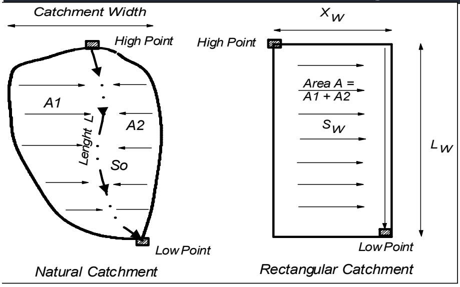
STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Developed Surface Routing

Design Point (On-Site)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
DP-1	112	219
DP-2	53	103
DP-3	41	80
DP-4	218	379
DP-5	53	102
DP-6	55	108
DP-7	20	39
DP-8	68	133
DP-9	88	173
DP-10	223	441
DP-11	10	21
DP-12	63	123
DP-13	41	80
DP-14	97	189
DP-15	85	166
DP-16	34	69
Pond FSD-11B	115	227
Pond FSD-14A	234	486
Pond FSD-14B	97	189
Pond FSD-16 (Ultimate)	323	499
Pond FSD-16 (Interim)	197	410
Design Point (South Bndy.)	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**
4	0.5	3.5
4A	0.5	3.5
5	4	10
5A	2	7
6	2.0	48.9
6A	4	16
7	18	50

FOR REFERENCE ONLY

Convert Natural Catchment to a Rectangular Shape



Subcatchment Center	Z=0.5
Side Collector	Z=1
Skewed Location	0.5<Z<1

Dimensionless Variables

$$Y = \frac{L}{L_W}; \qquad X = \frac{A}{L^2}$$

$$Y = (1.5 - Z)(2.286X - 0.286X^2)$$

$$\frac{Lw}{L} = (1.5 - Z)[2.286(\frac{A}{L^2}) - 0.286(\frac{A}{L^2})^2]$$

$$S_o/S_w = A/(LL_w) + L_w/L$$

$$X_w = A/L_w$$

Subarea ID	Area acre	A1 acre	A2 acre	*L* ft	*High Pt* Elev. ft	*Low Pt* Elev. ft	*Z=Am/A*	*X=A/L²*	*Y=Lw/L*	*Lw* ft	*Xw* ft	*So* %	*So/Sw*	*Sw* %
EF-A	8.20	4.10	4.10	260	7050.0	7028.0	0.50	5.28	4.09	1,064	336	8.46	5.38	1.57
P3-C	1.70	0.50	1.20	260	7027.0	7019.0	0.71	1.10	1.72	446	166	3.08	2.35	1.31
P1-A	12.70	7.00	5.70	850	7,124	7,102	0.55	0.77	1.50	1,276	433	2.59	2.01	1.29
P1-B	35.50	10.00	25.50	3,100	7,160	7,124	0.72	0.16	0.28	873	1,770	1.16	0.85	1.36
P1-C	8.90	4.50	4.40	1,700	7,158	7,122	0.51	0.13	0.30	510	761	2.12	0.75	2.83
P1-D	31.40	14.00	17.40	2,800	7,136	7,106	0.55	0.17	0.37	1,033	1,324	1.07	0.84	1.27
P1-E1	30.40	16.00	14.40	2,500	7,188	7,152	0.53	0.21	0.46	1,148	1,154	1.44	0.92	1.56
P1-E2	21.80	11.00	10.80	2,000	7,158	7,134	0.50	0.24	0.52	1,048	906	1.20	0.98	1.23
P1-F	76.70	35.00	41.70	3,000	7,240	7,158	0.54	0.37	0.77	2,322	1,439	2.73	1.25	2.18
TR-W	1.40	0.70	0.70	90	7,192	7,182	0.50	7.53	1.00	90	678	11.11	8.53	1.30
TR-V	2.10	1.50	0.60	1,000	7,220	7,190	0.71	0.09	0.16	162	563	3.00	0.73	4.13
P1-A1	5.00	3.10	1.90	2,400	7,134	7,112	0.62	0.04	0.08	182	1,199	0.92	0.58	1.59
P1-A2	6.40	3.20	3.20	2,400	7,134	7,110	0.50	0.05	0.11	264	1,056	1.00	0.55	1.82
P1-A3	1.80	0.70	1.10	800	7,110	7,103	0.61	0.12	0.25	196	400	0.88	0.74	1.17
P1-A4	2.00	1.30	0.70	800	7,112	7,105	0.65	0.14	0.26	208	419	0.88	0.78	1.12
P1-A5	5.70	3.00	2.70	1,300	7,114	7,100	0.53	0.15	0.32	417	595	1.08	0.78	1.38
P1-A6	2.80	1.30	1.50	1,300	7,114	7,100	0.54	0.07	0.16	205	595	1.08	0.62	1.75
P2-A	24.40	13.20	11.20	900	7,056	7,000	0.54	1.31	2.40	2,164	491	6.22	2.95	2.11
P2-B	57.80	18.50	39.30	3,800	7,106	7,052	0.68	0.17	0.32	1,215	2,072	1.42	0.87	1.64
P2-S1	35.60	18.00	17.60	1,900	7,110	7,072	0.51	0.43	0.92	1,756	883	2.00	1.39	1.44
P2-B1	2.50	1.50	1.00	1,100	7,102	7,077	0.60	0.09	0.18	201	541	2.27	0.67	3.37
P2-B2	1.90	1.20	0.70	1,100	7,102	7,077	0.63	0.07	0.13	148	559	2.27	0.64	3.54
P2-B3	2.80	1.70	1.10	1,000	7,077	7,061	0.61	0.12	0.25	245	498	1.60	0.74	2.15
P2-B4	1.60	1.00	0.60	1,000	7,077	7,061	0.63	0.07	0.14	138	504	1.60	0.64	2.49
P2-B5	1.90	1.20	0.70	700	7,061	7,050	0.63	0.17	0.33	230	360	1.57	0.84	1.86
P2-B6	1.10	0.65	0.45	700	7,061	7,050	0.59	0.10	0.20	141	341	1.57	0.69	2.28
P2-B7	2.50	1.60	0.90	770	7,050	7,038	0.64	0.18	0.35	272	401	1.56	0.87	1.78
P2-B8	1.20	0.70	0.50	770	7,050	7,038	0.58	0.09	0.18	141	372	1.56	0.67	2.34
P2-B9	2.00	1.00	1.00	870	7,038	7,018	0.50	0.12	0.26	226	386	2.30	0.70	3.27
P2-B10	1.70	0.90	0.80	870	7,038	7,018	0.53	0.10	0.21	187	397	2.30	0.67	3.43
P3-A	1.70	0.90	0.80	870	7,038	7,018	0.53	0.10	0.21	187	397	2.30	0.67	3.43
P3-S2	11.90	6.00	5.90	1,000	7,036	7,016	0.50	0.52	1.10	1,103	470	2.00	1.57	1.27
P4-A	25.80	20.00	5.80	1,950	7,078	7,052	0.78	0.30	0.47	920	1,222	1.33	1.10	1.21
P4-B	37.30	25.00	12.30	1,600	7,116	7,080	0.67	0.63	1.11	1,773	916	2.25	1.68	1.34
SC-1	3.60	1.80	1.80	150	7,014	6,996	0.50	6.97	2.04	306	512	12.00	5.46	2.20
SC-2	10.80	5.00	5.80	770	7040.0	7001.0	0.54	0.79	1.57	1,211	388	5.06	2.08	2.44
SC-3	27.20	14.00	13.20	4,300	7100.0	7032.0	0.51	0.06	0.14	616	1,925	1.58	0.59	2.68
SC-4	16.40	8.20	8.20	420	7,136	7,102	0.50	4.05	4.57	1,918	372	8.10	5.45	1.48
EX-9	6.00	3.00	3.00	1,000	7,050	7,030	0.50	0.26	0.58	578	452	2.00	1.03	1.94
EX-9A	12.70	6.30	6.40	1,100	7,049	7,022	0.50	0.46	0.98	1,080	512	2.45	1.45	1.70

PROPOSED PONDS
EFFECTIVE IMPERVIOUS AREA CALCULATIONS

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area

(Full Build Out)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	15%
P1-B	35.5	7,500	55%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	12,500	35%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	**220.9**		**46%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area

(Prelim. Plan 1 & Foursquare PUD Only)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	15%
P1-B	35.5	Un dev.	2%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	Un dev.	2%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	**220.9**		**26%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-14A Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A1	5.0	N/A	70%
P1-A2	6.4	N/A	70%
P1-A3	1.8	N/A	70%
P1-A4	2.0	N/A	70%
P1-A5	5.7	N/A	70%
P1-A6	2.8	N/A	70%
P2-S1	35.6	School	50%
P2-A	24.4	Park	7%
P2-B	57.8	7,000	57%
P2-B1	2.5	N/A	50%
P2-B2	1.9	N/A	70%
P2-B3	2.8	N/A	50%
P2-B4	1.6	N/A	70%
P2-B5	1.9	N/A	50%
P2-B6	1.1	N/A	70%
P2-B7	2.5	N/A	25%
P2-B8	1.2	N/A	70%
TOTAL	**157.0**		**49%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-14B Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P4-A	25.8	6,500	60%
P4-B	37.3	6,500	60%
TOTAL	**63.1**		**60%**

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-11B Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P2-B9	2.0	N/A	70%
P2-B10	1.7	N/A	70%
P3-S2	11.9	School	65%
P3-A	52.6	7,000	57%
TOTAL	**68.2**		**59%**

FOR REFERENCE ONLY

FOR REFERENCE ONLY

STERLING RANCH EAST PRELIMINARY PLAN NO. 1

Flow Comparison along South Boundary

	This Report (SWMM 5.1) Pre-Dev. Conditions		This Report (SWMM 5.1) Developed Conditions		2018 SR MDDP (HEC-HMS) Pre-Dev. Conditions	
Design Point (South Bndy.)	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**	**Peak Runoff 5 yr. (CFS)**	**Peak Runoff 100 yr. (CFS)**
4	**46**	**105**	**0.5**	**3.5**	**21.5**	**107.4**
4A	**1**	**5**	**0.5**	**3.5**		
5	**5**	**23**	**4**	**10**	**1.7**	**20.5**
5A	**2**	**9**	**2**	**7**		
6	**59**	**122**	**2.0**	**48.9**	**23.9**	**125.2**
6A	**7**	**19**	**4**	**11**		
7	**110**	**249**	**18**	**50**	**57.1**	**277.9**
56	**60**	**160**	**60**	**160**	**42.5**	**202.9**

FOR REFERENCE ONLY

Design Procedure Form: Runoff Reduction

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer:	**Marc A. Whorton, P.E.**
Company:	**Classic Consulting**
Date:	**May 31, 2022**
Project:	**Sterling Ranch East Preliminary Plan No. 1**
Location:	**BASINS NOT TRIBUTARY TO PERMANENT SWQ FACILITY**

SITE INFORMATION (User Input in Blue Cells)

WQCV Rainfall Depth	0.53	inches
Depth of Average Runoff Producing Storm, d_6 =	0.42	inches (for Watersheds Outside of the Denver Region, Figure 3-1 in USDCM Vol. 3)

Area Type	UIA:RPA	UIA:RPA	UIA:RPA	UIA:RPA	UIA:RPA							
Area ID	EF-A	SC-3-1	SC-3-2	SC-4-1	SC-4-2							
Downstream Design Point ID	SC	SC	SC	SC	SC							
Downstream BMP Type	None	None	None	None	None							
DCIA (ft^2)	--	--	--	--	--							
UIA (ft^2)	40,000	26,790	19,924	30,053	48,697							
RPA (ft^2)	37,188	17,918	12,924	21,985	28,692							
SPA (ft^2)	--	--	--	--	--							
HSG A (%)	0%	0%	0%	0%	0%							
HSG B (%)	100%	100%	100%	100%	100%							
HSG C/D (%)	0%	0%	0%	0%	0%							
Average Slope of RPA (ft/ft)	0.020	0.040	0.030	0.040	0.040							
UIA:RPA Interface Width (ft)	800.00	700.00	400.00	800.00	1000.00							

CALCULATED RUNOFF RESULTS

Area ID	EF-A	SC-3-1	SC-3-2	SC-4-1	SC-4-2							
UIA:RPA Area (ft^2)	77,188	44,708	32,848	52,038	77,389							
L / W Ratio	0.12	0.09	0.21	0.08	0.08							
UIA / Area	0.5182	0.5992	0.6066	0.5775	0.6292							
Runoff (in)	0.00	0.00	0.00	0.00	0.00							
Runoff (ft^3)	0	0	0	0	0							
Runoff Reduction (ft^3)	1433	960	714	1077	1745							

CALCULATED WQCV RESULTS

Area ID	EF-A	SC-3-1	SC-3-2	SC-4-1	SC-4-2							
WQCV (ft^3)	1628	1090	811	1223	1982							
WQCV Reduction (ft^3)	1628	1090	811	1223	1982							
WQCV Reduction (%)	100%	100%	100%	100%	100%							
Untreated WQCV (ft^3)	0	0	0	0	0							

CALCULATED DESIGN POINT RESULTS (sums results from all columns with the same Downstream Design Point ID)

Downstream Design Point ID	SC											
DCIA (ft^2)	0											
UIA (ft^2)	165,464											
RPA (ft^2)	118,707											
SPA (ft^2)	0											
Total Area (ft^2)	284,171											
Total Impervious Area (ft^2)	165,464											
WQCV (ft^3)	6,734											
WQCV Reduction (ft^3)	6,734											
WQCV Reduction (%)	100%											
Untreated WQCV (ft^3)	0											

CALCULATED SITE RESULTS (sums results from all columns in worksheet)

Total Area (ft^2)	284,171
Total Impervious Area (ft^2)	165,464
WQCV (ft^3)	6,734
WQCV Reduction (ft^3)	6,734
WQCV Reduction (%)	100%
Untreated WQCV (ft^3)	0

SEE SHEET 4

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Subcatchment Runoff

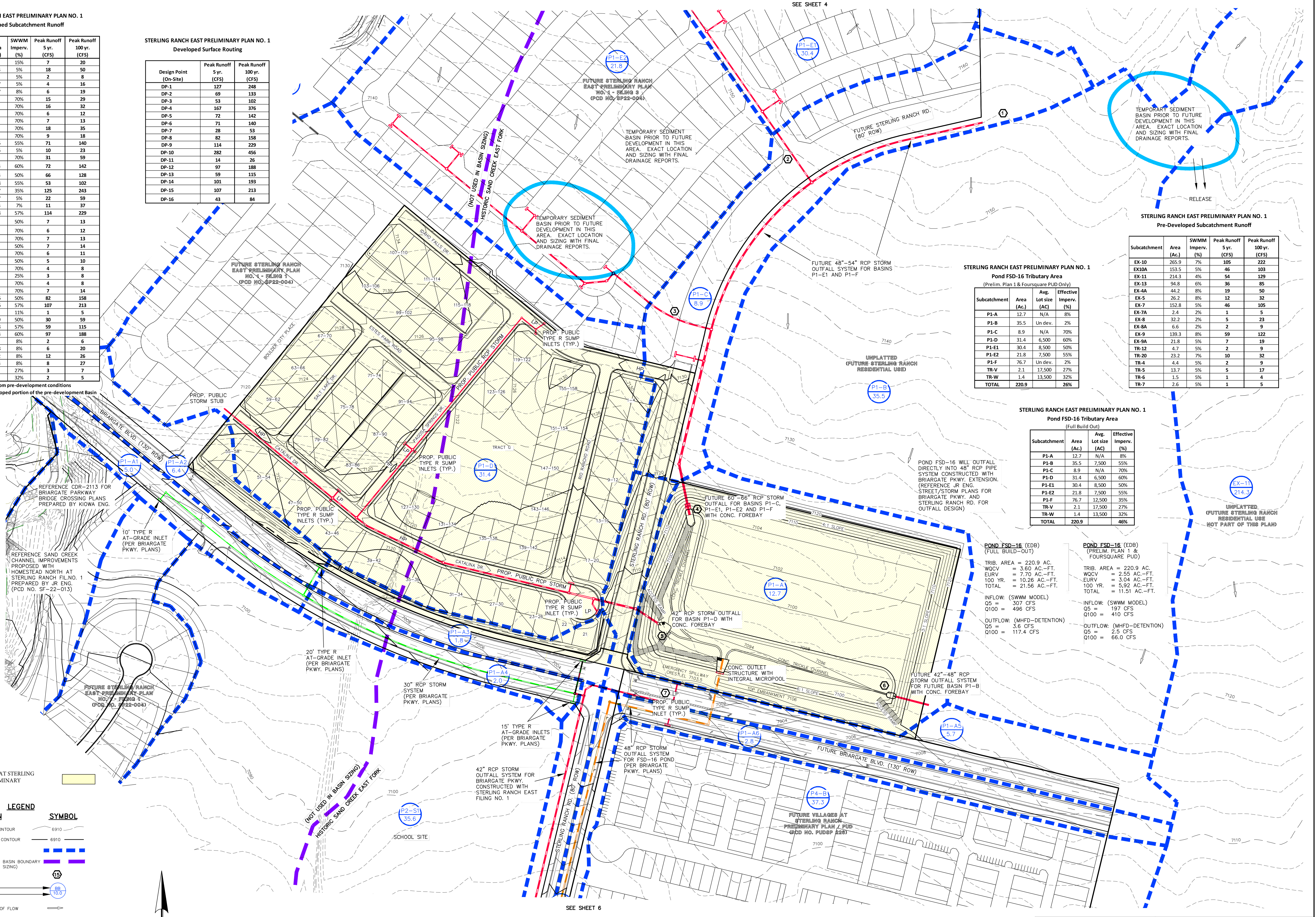
Subcatchment	Area (Ac.)	SWWM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EF-A	8.2	15%	7	20
EX10A ++	60.4	5%	18	50
EX-9 ++	6.0	5%	2	8
EX-9A ++	12.7	5%	4	16
P1-A	12.7	8%	6	19
P1-A1	5.0	70%	15	29
P1-A2	6.4	70%	16	32
P1-A3	1.8	70%	6	12
P1-A4	2.0	70%	7	13
P1-A5	5.7	70%	18	35
P1-A6	2.8	70%	9	18
P1-B (Dev.)	35.5	55%	71	140
P1-B (Un-dev.)	35.5	5%	10	23
P1-C	8.9	70%	31	59
P1-D	31.4	60%	72	142
P1-E1	30.4	50%	66	128
P1-E2	21.8	55%	53	102
P1-F (Dev.)	76.7	35%	125	243
P1-F (Un-dev.)	76.7	5%	22	59
P2-A	24.4	7%	11	37
P2-B	57.8	57%	114	229
P2-B1	2.5	50%	7	13
P2-B10	1.7	70%	6	12
P2-B2	1.9	70%	7	13
P2-B3	2.8	50%	7	14
P2-B4	1.6	70%	6	11
P2-B5	1.9	50%	5	10
P2-B6	1.1	70%	4	8
P2-B7	2.5	25%	3	8
P2-B8	1.2	70%	4	8
P2-B9	2.0	70%	7	14
P2-S1	35.6	50%	82	158
P3-A	52.6	57%	107	213
P3-C	1.7	11%	1	5
P3-S2	11.9	50%	30	59
P4-A	25.8	57%	59	115
P4-B	37.3	60%	97	188
SC-1 +	3.6	8%	2	6
SC-2 +	10.8	8%	6	20
SC-3 +	27.2	8%	12	26
SC-4 +	16.4	8%	8	27
TR-V	2.1	27%	3	7
TR-W	1.4	32%	2	5

+ Basin not changed from pre-development conditions

++ Remaining undeveloped portion of the pre-development Basin

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Surface Routing

Design Point (On-Site)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
DP-1	127	248
DP-2	69	133
DP-3	53	102
DP-4	167	376
DP-5	72	142
DP-6	71	140
DP-7	28	53
DP-8	82	158
DP-9	114	229
DP-10	282	456
DP-11	14	26
DP-12	97	188
DP-13	59	115
DP-14	101	193
DP-15	107	213
DP-16	43	84


P1-E2 21.8
FUTURE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 - FILING 3 (PCD NO. SP22-004)
P1-E1 30.4
TEMPORARY SEDIMENT BASIN PRIOR TO FUTURE DEVELOPMENT IN THIS AREA. EXACT LOCATION AND SIZING WITH FINAL DRAINAGE REPORTS.
FUTURE STERLING RANCH RD. (80' ROW)
TEMPORARY SEDIMENT BASIN PRIOR TO FUTURE DEVELOPMENT IN THIS AREA. EXACT LOCATION AND SIZING WITH FINAL DRAINAGE REPORTS.
RELEASE
(NOT USED IN BASIN SIZING) HISTORIC SAND CREEK EAST FORK
TEMPORARY SEDIMENT BASIN PRIOR TO FUTURE DEVELOPMENT IN THIS AREA. EXACT LOCATION AND SIZING WITH FINAL DRAINAGE REPORTS.
FUTURE 48"–54" RCP STORM OUTFALL SYSTEM FOR BASINS P1–E1 AND P1–F
P1-C 8.9
FUTURE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 - FILING 1 (PCD NO. SP22-004)
PROP. PUBLIC TYPE R SUMP INLETS (TYP.)
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
P1-B 35.5
PROP. PUBLIC STORM STUB
PROP. PUBLIC RCP STORM
BRIARGATE BLVD. (130' ROW)
P1-A1 5.0
P1-A2 6.4
PROP. PUBLIC TYPE R SUMP INLETS (TYP.)
P1-D 31.4
POND FSD–16 WILL OUTFALL DIRECTLY INTO 48" RCP PIPE SYSTEM CONSTRUCTED WITH BRIARGATE PKWY. EXTENSION. (REFERENCE JR ENG. STREET/STORM PLANS FOR BRIARGATE PKWY. AND STERLING RANCH RD. FOR OUTFALL DESIGN)
EX-11 214.3
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE NOT PART OF THIS PLAN)
REFERENCE CDR–2113 FOR BRIARGATE PARKWAY BRIDGE CROSSING PLANS PREPARED BY KIOWA ENG.
PROP. PUBLIC TYPE R SUMP INLETS (TYP.)
FUTURE 60"–66" RCP STORM OUTFALL FOR BASINS P1–C, P1–E1, P1–E2 AND P1–F WITH CONC. FOREBAY
10' TYPE R AT–GRADE INLET (PER BRIARGATE PKWY. PLANS)
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FIL.NO. 1 PREPARED BY JR ENG. (PCD NO. SF–22–013)
STERLING RANCH RD. (80' ROW)
CATALINA DR.
PROP. PUBLIC RCP STORM
P1-A 12.7
CONC. TRICKLE CHANNEL
ACCESS RAMP
4:1 SLOPE
3:1 SLOPE
PROP. PUBLIC TYPE R SUMP INLET (TYP.)
42" RCP STORM OUTFALL FOR BASIN P1–D WITH CONC. FOREBAY
P1-A3 1.8
20' TYPE R AT–GRADE INLET (PER BRIARGATE PKWY. PLANS)
CONC. OUTLET STRUCTURE WITH INTEGRAL MICROPOOL
EMERGENCY SPILLWAY CREST EL 7103.5
TOP EMBANKMENT 7106
6:1 SLOPE
FUTURE 42"–48" RCP STORM OUTFALL SYSTEM FOR FUTURE BASIN P1–B WITH CONC. FOREBAY
P1-A4 2.0
FUTURE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 - FILING 1 (PCD NO. SP22-004)
30" RCP STORM SYSTEM (PER BRIARGATE PKWY. PLANS)
PROP. PUBLIC TYPE R SUMP INLET (TYP.)
P1-A6 2.8
P1-A5 5.7
15' TYPE R AT–GRADE INLETS (PER BRIARGATE PKWY. PLANS)
48" RCP STORM OUTFALL SYSTEM FOR FSD–16 POND (PER BRIARGATE PKWY. PLANS)
FUTURE BRIARGATE BLVD. (130' ROW)
42" RCP STORM OUTFALL SYSTEM FOR BRIARGATE PKWY. CONSTRUCTED WITH STERLING RANCH EAST FILING NO. 1
P4-B 37.3
FUTURE VILLAGES AT STERLING RANCH PRELIMINARY PLAN / PUD (PCD NO. PUDSP 226)
(NOT USED IN BASIN SIZING) HISTORIC SAND CREEK EAST FORK
P2-S1 35.6
SCHOOL SITE
STERLING RANCH RD. (80' ROW)
SEE SHEET 6

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	105	222
EX10A	153.5	5%	46	103
EX-11	214.3	4%	54	129
EX-13	94.8	6%	36	85
EX-4A	44.2	8%	19	50
EX-5	26.2	8%	12	32
EX-7	152.8	5%	46	105
EX-7A	2.4	2%	1	5
EX-8	32.2	2%	5	23
EX-8A	6.6	2%	2	9
EX-9	139.3	8%	59	122
EX-9A	21.8	5%	7	19
TR-12	4.7	5%	2	9
TR-20	23.2	7%	10	32
TR-4	4.4	5%	2	9
TR-5	13.7	5%	5	17
TR-6	1.5	5%	1	4
TR-7	2.6	5%	1	5

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area

(Prelim. Plan 1 & Foursquare PUD Only)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	Un dev.	2%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	Un dev.	2%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	220.9		26%

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area

(Full Build Out)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	7,500	55%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	12,500	35%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	220.9		46%

POND FSD–16 (EDB)
(FULL BUILD–OUT)

TRIB. AREA = 220.9 AC.
WQCV = 3.60 AC.–FT.
EURV = 7.70 AC.–FT.
100 YR. = 10.26 AC.–FT.
TOTAL = 21.56 AC.–FT.

INFLOW: (SWWM MODEL)
Q5 = 307 CFS
Q100 = 496 CFS

OUTFLOW: (MHFD–DETENTION)
Q5 = 3.6 CFS
Q100 = 117.4 CFS

POND FSD–16 (EDB)
(PRELIM. PLAN 1 & FOURSQUARE PUD)

TRIB. AREA = 220.9 AC.
WQCV = 2.55 AC.–FT.
EURV = 3.04 AC.–FT.
100 YR. = 5,92 AC.–FT.
TOTAL = 11.51 AC.–FT.

INFLOW: (SWWM MODEL)
Q5 = 197 CFS
Q100 = 410 CFS

OUTFLOW: (MHFD–DETENTION)
Q5 = 2.5 CFS
Q100 = 66.0 CFS

FOURSQUARE AT STERLING RANCH PRELIMINARY PLAN AREA	▨

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	▬ ▬ ▬
HISTORIC EAST FORK BASIN BOUNDARY (NOT USED IN BASIN SIZING)	▬ ▬
DESIGN POINT	⑮
BASIN IDENTIFIER	BB
AREA IN ACRES	10.0
EXISTING DIRECTION OF FLOW	⇨
PROPOSED DIRECTION OF FLOW	←
PROPOSED STORM SEWER	━
PROPOSED STORM SEWER PER JR ENG. PLANS	━
PROPOSED POND OUTFALL PER JR ENG. PLANS	━

N

100 50 0 100 200

SCALE: 1" = 100'

FOR REFERENCE ONLY

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Colorado Springs, Colorado 80903
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(719)785-0799 (Fax)

FOURSQUARE AT STERLING RANCH
PRELIMINARY PLAN / PUD
PRELIMINARY DRAINAGE REPORT
DEVELOPED DRAINAGE MAP

DESIGNED BY	MAW	SCALE	DATE 9-30-22
DRAWN BY	MAW	(H) 1"= 100'	SHEET 7 OF 7
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.20

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWWM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EF-A	8.2	15%	7	20
EX10A ++	60.4	5%	18	50
EX-9 ++	6.0	5%	2	8
EX-9A ++	12.7	5%	4	16
P1-A	12.7	8%	6	19
P1-A1	5.0	70%	15	29
P1-A2	6.4	70%	16	32
P1-A3	1.8	70%	6	12
P1-A4	2.0	70%	7	13
P1-A5	5.7	70%	18	35
P1-A6	2.8	70%	9	18
P1-B (Dev.)	35.5	55%	71	140
P1-B (Un-dev.)	35.5	5%	10	23
P1-C	8.9	70%	31	59
P1-D	31.4	60%	72	142
P1-E1	30.4	50%	66	128
P1-E2	21.8	55%	53	102
P1-F (Dev.)	76.7	35%	125	243
P1-F (Un-dev.)	76.7	5%	22	59
P2-A	24.4	7%	11	37
P2-B	57.8	57%	114	229
P2-B1	2.5	50%	7	13
P2-B10	1.7	70%	6	12
P2-B2	1.9	70%	7	13
P2-B3	2.8	50%	7	14
P2-B4	1.6	70%	6	11
P2-B5	1.9	50%	5	10
P2-B6	1.1	70%	4	8
P2-B7	2.5	25%	3	8
P2-B8	1.2	70%	4	8
P2-B9	2.0	70%	7	14
P2-S1	35.6	50%	82	158
P3-A	52.6	57%	107	213
P3-C	1.7	11%	1	5
P3-S2	11.9	50%	30	59
P4-A	25.8	57%	59	115
P4-B	37.3	60%	97	188
SC-1 +	3.6	8%	2	6
SC-2 +	10.8	8%	6	20
SC-3 +	27.2	8%	12	26
SC-4 +	16.4	8%	8	27
TR-V	2.1	27%	3	7
TR-W	1.4	32%	2	5

+ Basin not changed from pre-development conditions

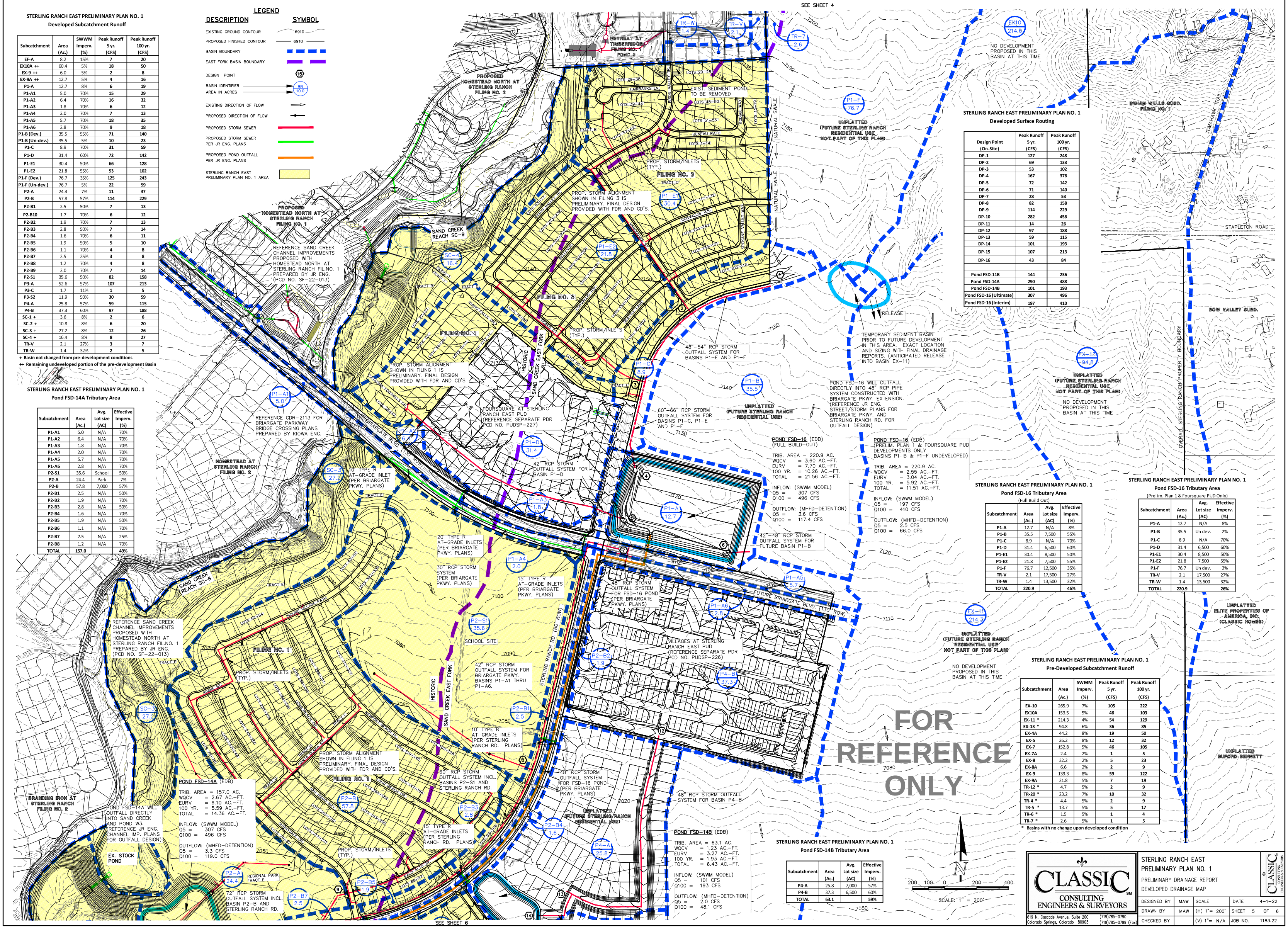
++ Remaining undeveloped portion of the pre-development Basin

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-14A Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A1	5.0	N/A	70%
P1-A2	6.4	N/A	70%
P1-A3	1.8	N/A	70%
P1-A4	2.0	N/A	70%
P1-A5	5.7	N/A	70%
P1-A6	2.8	N/A	70%
P2-S1	35.6	School	50%
P2-A	24.4	Park	7%
P2-B	57.8	7,000	57%
P2-B1	2.5	N/A	50%
P2-B2	1.9	N/A	70%
P2-B3	2.8	N/A	50%
P2-B4	1.6	N/A	70%
P2-B5	1.9	N/A	50%
P2-B6	1.1	N/A	70%
P2-B7	2.5	N/A	25%
P2-B8	1.2	N/A	70%
TOTAL	157.0		49%

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	▬ ▬ ▬
EAST FORK BASIN BOUNDARY	▬ ▬
DESIGN POINT	⑮
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
PROPOSED DIRECTION OF FLOW	←
PROPOSED STORM SEWER	🟥
PROPOSED STORM SEWER PER JR ENG. PLANS	🟩
PROPOSED POND OUTFALL PER JR ENG. PLANS	🟧
STERLING RANCH EAST PRELIMINARY PLAN NO. 1 AREA	🟨


SEE SHEET 4
SEE SHEET 6
RETREAT AT TIMBERRIDGE FILING NO. 1 POND 2
PROPOSED HOMESTEAD NORTH AT STERLING RANCH FILING NO. 2
PROPOSED HOMESTEAD NORTH AT STERLING RANCH FILING NO. 1
HOMESTEAD AT STERLING RANCH FILING NO. 2
BRANDING IRON AT STERLING RANCH FILING NO. 2
SAND CREEK REACH SC-9
SAND CREEK REACH SC-8
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FIL.NO. 1 PREPARED BY JR ENG. (PCD NO. SF-22-013)
REFERENCE CDR-2113 FOR BRIARGATE PARKWAY BRIDGE CROSSING PLANS PREPARED BY KIOWA ENG.
FOURSQUARE AT STERLING RANCH EAST PUD (REFERENCE SEPARATE PDR PCD NO. PUDSP-227)
VILLAGES AT STERLING RANCH EAST PUD (REFERENCE SEPARATE PDR PCD NO. PUDSP-226)
PROP. STORM ALIGNMENT SHOWN IN FILING 3 IS PRELIMINARY. FINAL DESIGN PROVIDED WITH FDR AND CD'S.
PROP. STORM ALIGNMENT SHOWN IN FILING 1 IS PRELIMINARY. FINAL DESIGN PROVIDED WITH FDR AND CD'S.
PROP. STORM/INLETS (TYP.)
EXIST. SEDIMENT POND TO BE REMOVED
FILING NO. 1
FILING NO. 3
HISTORIC SAND CREEK EAST FORK
NATURAL SWALE
STERLING RANCH RD. (80' ROW)
BRIARGATE BLVD. (130' ROW)
FUTURE BRIARGATE BLVD. (130' ROW)
SCHOOL SITE
REGIONAL PARK TRACT E
EX. STOCK POND
48"-54" RCP STORM OUTFALL SYSTEM FOR BASINS P1-E AND P1-F
60"-66" RCP STORM OUTFALL SYSTEM FOR BASINS P1-C, P1-E AND P1-F
42" RCP STORM OUTFALL SYSTEM FOR BASIN P1-D
10' TYPE R AT-GRADE INLET (PER BRIARGATE PKWY. PLANS)
20' TYPE R AT-GRADE INLETS (PER BRIARGATE PKWY. PLANS)
30" RCP STORM SYSTEM (PER BRIARGATE PKWY. PLANS)
15' TYPE R AT-GRADE INLETS (PER BRIARGATE PKWY. PLANS)
42" RCP STORM OUTFALL SYSTEM FOR BRIARGATE PKWY. BASINS P1-A1 THRU P1-A6.
48" RCP STORM OUTFALL SYSTEM FOR FSD-16 POND (PER BRIARGATE PKWY. PLANS)
42"-48" RCP STORM OUTFALL SYSTEM FOR FUTURE BASIN P1-B
10' TYPE R AT-GRADE INLETS (PER STERLING RANCH RD. PLANS)
60" RCP STORM OUTFALL SYSTEM INCL. BASINS P2-S1 AND STERLING RANCH RD.
15' TYPE R AT-GRADE INLETS (PER STERLING RANCH RD. PLANS)
72" RCP STORM OUTFALL SYSTEM INCL. BASIN P2-B AND STERLING RANCH RD.
48" RCP STORM OUTFALL SYSTEM FOR BASIN P4-B
48" RCP STORM OUTFALL SYSTEM FOR FSD-16 POND (PER BRIARGATE PKWY. PLANS)
TEMPORARY SEDIMENT BASIN PRIOR TO FUTURE DEVELOPMENT IN THIS AREA. EXACT LOCATION AND SIZING WITH FINAL DRAINAGE REPORTS. (ANTICIPATED RELEASE INTO BASIN EX-11)
RELEASE
POND FSD-16 WILL OUTFALL DIRECTLY INTO 48" RCP PIPE SYSTEM CONSTRUCTED WITH BRIARGATE PKWY. EXTENSION. (REFERENCE JR ENG. STREET/STORM PLANS FOR BRIARGATE PKWY. AND STERLING RANCH RD. FOR OUTFALL DESIGN)
POND FSD-14A WILL OUTFALL DIRECTLY INTO SAND CREEK AND POND W3. (REFERENCE JR ENG. CHANNEL IMP. PLANS FOR OUTFALL DESIGN)
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE NOT PART OF THIS PLAN)
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
NO DEVELOPMENT PROPOSED IN THIS BASIN AT THIS TIME
INDIAN WELLS SUBD. FILING NO. 1
BOW VALLEY SUBD.
STAPLETON ROAD
TOMAHAWK TRAIL
OVERALL STERLING RANCH PROPERTY BOUNDARY
UNPLATTED ELITE PROPERTIES OF AMERICA, INC. (CLASSIC HOMES)
UNPLATTED BUFORD BENNETT
EX-10 214.6
P1-F 76.7
EX-13 94.8
EX-11 214.3
P1-B 35.5
P1-C 8.9
P1-E1 30.4
P1-E2 21.8
P1-D 31.4
P1-A 12.7
P1-A1 5.0
P1-A2 6.4
P1-A3 1.8
P1-A4 2.0
P1-A5 5.7
P1-A6 2.8
P2-S1 35.6
P2-A 24.4
P2-B 57.8
P2-B1 2.5
P2-B2 1.9
P2-B3 2.8
P2-B4 1.6
P2-B5 1.9
P2-B7 2.5
P4-A 25.8
P4-B 37.3
SC-2 27.2
SC-3 27.2
SC-4 16.4
TR-W 1.4
TR-V 2.1
TR-7 2.6
FOR REFERENCE ONLY
200 100 0 200 400
SCALE: 1" = 200'
N

POND FSD-14A (EDB)

TRIB. AREA = 157.0 AC.
WQCV = 2.67 AC.-FT.
EURV = 6.10 AC.-FT.
100 YR. = 5.59 AC.-FT.
TOTAL = 14.36 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 307 CFS
Q100 = 496 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 3.3 CFS
Q100 = 119.0 CFS

POND FSD-16 (EDB)
(FULL BUILD-OUT)

TRIB. AREA = 220.9 AC.
WQCV = 3.60 AC.-FT.
EURV = 7.70 AC.-FT.
100 YR. = 10.26 AC.-FT.
TOTAL = 21.56 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 307 CFS
Q100 = 496 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 3.6 CFS
Q100 = 117.4 CFS

POND FSD-16 (EDB)
(PRELIM. PLAN 1 & FOURSQUARE PUD
DEVELOPMENTS ONLY
BASINS P1-B & P1-F UNDEVELOPED)

TRIB. AREA = 220.9 AC.
WQCV = 2.55 AC.-FT.
EURV = 3.04 AC.-FT.
100 YR. = 5.92 AC.-FT.
TOTAL = 11.51 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 197 CFS
Q100 = 410 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 2.5 CFS
Q100 = 66.0 CFS

POND FSD-14B (EDB)

TRIB. AREA = 63.1 AC.
WQCV = 1.23 AC.-FT.
EURV = 3.27 AC.-FT.
100 YR. = 1.93 AC.-FT.
TOTAL = 6.43 AC.-FT.

INFLOW: (SWWM MODEL)
Q5 = 101 CFS
Q100 = 193 CFS

OUTFLOW: (MHFD-DETENTION)
Q5 = 2.0 CFS
Q100 = 48.1 CFS

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Developed Surface Routing

Design Point (On-Site)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
DP-1	127	248
DP-2	69	133
DP-3	53	102
DP-4	167	376
DP-5	72	142
DP-6	71	140
DP-7	28	53
DP-8	82	158
DP-9	114	229
DP-10	282	456
DP-11	14	26
DP-12	97	188
DP-13	59	115
DP-14	101	193
DP-15	107	213
DP-16	43	84
Pond FSD-11B	144	236
Pond FSD-14A	290	488
Pond FSD-14B	101	193
Pond FSD-16 (Ultimate)	307	496
Pond FSD-16 (Interim)	197	410

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area
(Full Build Out)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	7,500	55%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	12,500	35%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	220.9		46%

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pond FSD-16 Tributary Area
(Prelim. Plan 1 & Foursquare PUD Only)

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P1-A	12.7	N/A	8%
P1-B	35.5	Un dev.	2%
P1-C	8.9	N/A	70%
P1-D	31.4	6,500	60%
P1-E1	30.4	8,500	50%
P1-E2	21.8	7,500	55%
P1-F	76.7	Un dev.	2%
TR-V	2.1	17,500	27%
TR-W	1.4	13,500	32%
TOTAL	220.9		26%

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	105	222
EX10A	153.5	5%	46	103
EX-11 *	214.3	4%	54	129
EX-13 *	94.8	6%	36	85
EX-4A	44.2	8%	19	50
EX-5	26.2	8%	12	32
EX-7	152.8	5%	46	105
EX-7A	2.4	2%	1	5
EX-8	32.2	2%	5	23
EX-8A	6.6	2%	2	9
EX-9	139.3	8%	59	122
EX-9A	21.8	5%	7	19
TR-12 *	4.7	5%	2	9
TR-20 *	23.2	7%	10	32
TR-4 *	4.4	5%	2	9
TR-5 *	13.7	5%	5	17
TR-6 *	1.5	5%	1	4
TR-7 *	2.6	5%	1	5

* Basins with no change upon developed condition

STERLING RANCH EAST PRELIMINARY PLAN NO. 1 Pond FSD-14B Tributary Area

Subcatchment	Area (Ac.)	Avg. Lot size (AC)	Effective Imperv. (%)
P4-A	25.8	7,000	57%
P4-B	37.3	6,500	60%
TOTAL	63.1		59%

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(719)785-0799 (Fax)

STERLING RANCH EAST
PRELIMINARY PLAN NO. 1
PRELIMINARY DRAINAGE REPORT
DEVELOPED DRAINAGE MAP

DESIGNED BY	MAW	SCALE	DATE 4-1-22
DRAWN BY	MAW	(H) 1"= 200'	SHEET 5 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.22

INNOVATIVE DESIGN. CLASSIC RESULTS.

FINAL DRAINAGE REPORT
FOR
STERLING RANCH EAST FILING NO. 2
&
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1

FOR REFERENCE ONLY

August 2024

Prepared for:
CLASSIC SRJ LAND, LLC
2138 Flying Horse Club Dr.
COLORADO SPRINGS CO 80921
(719) 592-9333

Prepared by:
CLASSIC CONSULTING ENGINEERS & SURVEYORS
619 N. CASCADE AVENUE, SUITE 200
COLORADO SPRINGS CO 80903
(719) 785-0790

Job no. 2183.23
PCD File # SF2236 & SF2237

CLASSIC CONSULTING

FINAL DRAINAGE REPORT FOR STERLING RANCH EAST FILING NO. 2 & FOURSQUARE AT STERLING RANCH EAST FILING NO. 1

ENGINEER'S STATEMENT:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the El Paso County for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.

DAVID LEE GIBSON
46477

08-23-2024

David L Gibson, Colorado P.E. #46477 Date

DEVELOPER'S STATEMENT:

I, the developer, have read and will comply with all of the requirements specified in this drainage report and plan.

Business Name: Classic SRJ Land, LLC

By:

Title: VICE PRESIDENT

Address: 2138 Flying Horse Club Dr.

Colorado Springs, CO 80921

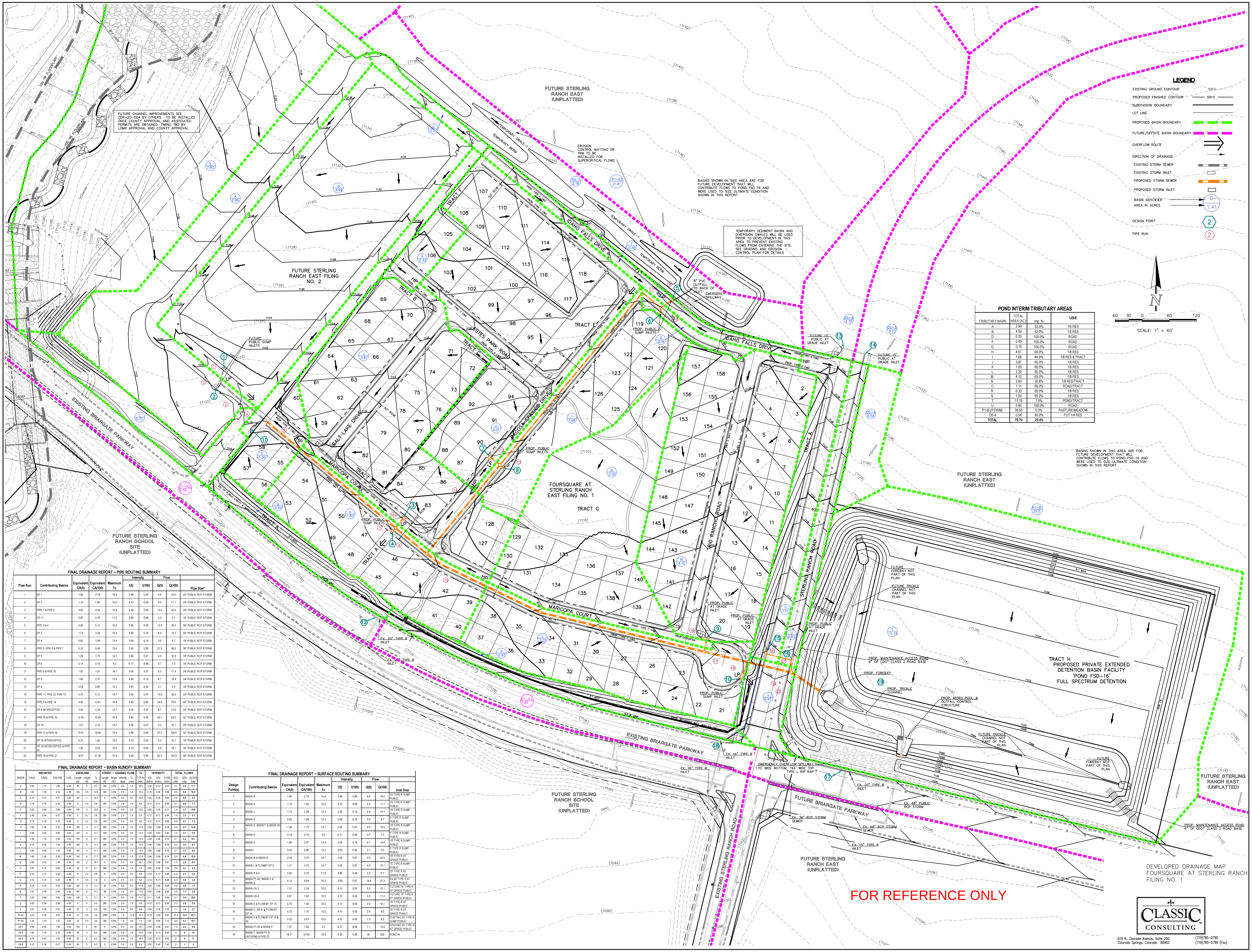
FOR REFERENCE ONLY

EL PASO COUNTY ONLY:

Filed in accordance with the requirements of the Drainage Criteria Manual, Volumes 1 and 2, El Paso County Engineering Criteria Manual and Land Development Code as amended.

For County Engineer / ECM Administrator Date

Conditions:


FUTURE STERLING RANCH EAST (UNPLATTED)
FUTURE STERLING RANCH EAST FILING NO. 2
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1
TRACT G
TRACT H
PROPOSED PRIVATE EXTENDED DETENTION BASIN FACILITY "POND FSD-16" FULL SPECTRUM DETENTION
FUTURE STERLING RANCH SCHOOL SITE (UNPLATTED)
EXISTING BRIARGATE PARKWAY
FUTURE BRIARGATE PARKWAY
EXISTING STERLING RANCH ROAD
STERLING RANCH ROAD
IDAHO FALLS DRIVE
ESTES PARK ROAD
SALT LAKE DRIVE
PAGOSA SPRINGS DRIVE
MARICOPA COURT
RIO RANCHO ROAD
TRACT A
TRACT B
TRACT C
TRACT D
TRACT E
TRACT F
TEMPORARY SWALE-1
TEMPORARY BERM
100 YR FLOODPLAIN
EROSION CONTROL MATTING OR TRM TO BE INSTALLED FOR SUPERCRITICAL FLOWS
8" PVC OUTFALL TO BACK OF INLET
EMERGENCY SPILLWAY
FUTURE PUBLIC SUMP INLETS
PROP. PUBLIC SUMP INLETS
PROP. PUBLIC SUMP INLET
PROP. PUBLIC AT GRADE INLET
FUTURE 15' PUBLIC AT GRADE INLET
EX. 20' TYPE R INLET
EX. 16' TYPE R INLET
EX. 36" RCP STORM SEWER
EX. 48" RCP STORM SEWER
EX. 48" PUBLIC RCP STORM
EX. 15' TYPE R INLET
EX. 20' TYPE R INLET
EMERGENCY OVERFLOW SPILLWAY 170' WIDE BOTTOM, 194' WIDE TOP TYPE L RIP RAP
PROP. MAINTENANCE ACCESS ROAD 6" OF CDOT CLASS 2 ROAD BASE
PROP. FOREBAY
PROP. TRICKLE CHANNEL
PROP. MICRO POOL & OUTFALL CONTROL STRUCTURE
FUTURE FOREBAY NOT PART OF THIS PLAN
FUTURE TRICKLE CHANNEL NOT PART OF THIS PLAN
HP
LP
50' ROW
SCALE: 1" = 60'
60 30 0 60 120
N

FUTURE CHANNEL IMPROVEMENTS SEE CDR-20-004 BY OTHERS. TO BE INSTALLED ONCE COUNTY APPROVAL AND ASSOCIATED PERMITS ARE OBTAINED. TIMING TBD BY LOMR APPROVAL AND COUNTY APPROVAL.

BASINS SHOWN IN THIS AREA ARE FOR FUTURE DEVELOPMENT THAT WILL CONTRIBUTE FLOWS TO POND FSD 16 AND WERE USED TO SIZE ULTIMATE CONDITION SHOWN IN THIS REPORT

TEMPORARY SEDIMENT BASIN AND DIVERSION SWALES WILL BE USED PRIOR TO DEVELOPMENT IN THIS AREA TO PREVENT EXISTING FLOWS FROM ENTERING THE SITE. SEE GRADING AND EROSION CONTROL PLAN FOR DETAILS

BASINS SHOWN IN THIS AREA ARE FOR FUTURE DEVELOPMENT THAT WILL CONTRIBUTE FLOWS TO POND FSD 16 AND WERE USED TO SIZE ULTIMATE CONDITION SHOWN IN THIS REPORT

LEGEND

EXISTING GROUND CONTOUR	5910
PROPOSED FINISHED CONTOUR	5910
SUBDIVISION BOUNDARY	
LOT LINE	
PROPOSED BASIN BOUNDARY	🟩
FUTURE/OFFSITE BASIN BOUNDARY	
OVERFLOW ROUTE	⇛
DIRECTION OF DRAINAGE	→
EXISTING STORM SEWER	
EXISTING STORM INLET	▭
PROPOSED STORM SEWER	
PROPOSED STORM INLET	▭
BASIN IDENTIFIER AREA IN ACRES	D 1.41
DESIGN POINT	⬡ 2
PIPE RUN	②

POND INTERIM TRIBUTARY AREAS

TRIBUTARY BASIN	TOTAL AREA (AC)	Imp. %	USE
A	2.90	52.0%	1/6 RES
B	4.99	52.0%	1/6 RES
D	0.20	100.0%	ROAD
F	0.49	100.0%	ROAD
G	0.16	100.0%	ROAD
H	4.01	65.0%	1/8 RES
I	1.68	44.6%	1/8 RES & TRACT
J	3.87	65.0%	1/8 RES
K	1.83	65.0%	1/8 RES
L	2.20	65.0%	1/8 RES
M	4.10	65.0%	1/8 RES
N	3.00	30.8%	1/8 RES/TRACT
O	1.11	69.0%	ROAD/TRACT
R	0.33	65.0%	1/8 RES
S	1.00	65.0%	1/8 RES
T	11.19	7.0%	POND/TRACT
U	0.60	100.0%	ROAD
P1-B (ITERIM)	35.50	0.0%	PASTURE/MEADOW
OS-4	0.54	40.0%	FUT 1/4 RES
TOTAL	**79.70**	**25.4%**	

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
1	DP 1	1.90	2.74	15.4	3.48	5.85	6.6	16.0	24" PUBLIC RCP STORM
2	DP 2	1.10	1.60	10.0	4.13	6.93	4.5	11.1	24" PUBLIC RCP STORM
3	PIPE 1 & PIPE 2	3.00	4.34	15.4	3.48	5.85	10.4	25.4	24" PUBLIC RCP STORM
4	DP 11	0.60	0.78	11.9	3.86	6.48	2.3	5.1	18" PUBLIC RCP STORM
5	PIPE 3 & 4	3.60	5.12	15.4	3.48	5.85	12.5	30.0	30" PUBLIC RCP STORM
6	DP 3	1.74	2.28	13.4	3.69	6.19	6.4	14.1	24" PUBLIC RCP STORM
7	DP 4	0.82	1.08	13.4	3.69	6.19	3.0	6.7	18" PUBLIC RCP STORM
8	PIPE 5, PIPE 6 & PIPE 7	6.16	8.49	15.4	3.48	5.85	21.5	49.6	36" PUBLIC RCP STORM
9	DP 5	1.28	1.75	14.7	3.56	5.97	4.5	10.5	18" PUBLIC RCP STORM
10	DP 6	0.14	0.15	5.0	5.17	8.68	0.7	1.3	18" PUBLIC RCP STORM
11	PIPE 9 & PIPE 10	1.42	1.91	14.7	3.56	5.97	5.0	11.4	24" PUBLIC RCP STORM
12	DP 7	1.80	2.37	13.4	3.69	6.19	6.7	14.6	24" PUBLIC RCP STORM
13	DP 8	0.54	0.85	12.2	3.83	6.42	2.1	5.5	18" PUBLIC RCP STORM
14	PIPE 11, PIPE 12, PIPE 13	3.76	5.12	14.7	3.56	5.97	13.4	30.6	24" PUBLIC RCP STORM
15	PIPE 8 & PIPE 14	9.92	13.61	15.4	3.48	5.85	34.6	79.6	42" PUBLIC RCP STORM
16	DP 9 INTERCEPTED	2.44	2.33	14.7	3.56	5.97	8.7	13.9	24" PUBLIC RCP STORM
17	PIPE 15 & PIPE 16	12.36	15.94	15.4	3.48	5.85	43.1	93.2	42" PUBLIC RCP STORM
18	DP 10	1.21	2.70	14.7	3.56	5.97	4.3	16.1	24" PUBLIC RCP STORM
19	PIPE 17 & PIPE 18	13.57	18.64	15.4	3.48	5.85	47.3	109.0	42" PUBLIC RCP STORM
20	DP 15 INTERCEPTED	0.70	1.46	10.0	4.13	6.93	2.9	10.1	18" PUBLIC RCP STORM
21	DP 16 INTERCEPTED & PIPE 20	1.40	2.62	10.0	4.13	6.93	5.8	18.1	18" PUBLIC RCP STORM
22	PIPE 19 & PIPE 21	14.97	21.26	15.4	3.48	5.85	52.2	124.3	48" PUBLIC RCP STORM

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
BASIN	CA(2)	CA(5)	CA(100)	C(5)	Length *(ft)*	Height *(ft)*	Tc *(min)*	Length *(ft)*	Slope *(%)*	Velocity *(fps)*	Tc *(min)*	TOTAL *(min)*	I(2) *(in/hr)*	I(5) *(in/hr)*	I(100) *(in/hr)*	Q(2) *(cfs)*	Q(5) *(cfs)*	Q(100) *(cfs)*
A	0.93	1.10	1.60	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	3.1	**4.5**	**11.1**
B	1.60	1.90	2.74	0.08	100	2.5	13.6	300	2.0%	2.8	1.8	15.4	2.78	3.48	5.85	4.4	**6.6**	**16.0**
C	0.18	0.21	0.37	0.08	50	1	10.4	0	0.0%	0.0	0.0	10.4	3.25	4.08	6.84	0.6	**0.9**	**2.5**
D	0.18	0.18	0.19	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	0.7	**0.9**	**1.7**
E	0.52	0.99	2.98	0.08	100	3	12.8	0	0.0%	0.0	0.0	12.8	3.00	3.76	6.31	1.6	**3.7**	**18.8**
F	0.44	0.44	0.47	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	1.8	**2.3**	**4.1**
G	0.14	0.14	0.15	0.08	5	0.2	2.6	100	2.0%	2.8	0.6	5.0	4.12	5.17	8.68	0.6	**0.7**	**1.3**
H	1.64	1.80	2.37	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.8	**6.7**	**14.6**
I	0.46	0.54	0.85	0.08	100	4	11.7	100	2.0%	2.8	0.6	12.2	3.05	3.83	6.42	1.4	**2.1**	**5.5**
J	1.59	1.74	2.28	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.7	**6.4**	**14.1**
K	0.75	0.82	1.08	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.2	**3.0**	**6.7**
L	0.90	0.99	1.30	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.7	**3.7**	**8.0**
M	1.68	1.85	2.42	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.9	**6.8**	**15.0**
N	0.54	0.70	1.35	0.08	100	2	14.7	0	0.0%	0.0	0.0	14.7	2.84	3.56	5.97	1.5	**2.5**	**8.0**
O	0.67	0.70	0.84	0.08	50	5	6.1	300	2.0%	2.8	1.8	7.9	3.58	4.49	7.54	2.4	**3.1**	**6.3**
P	0.10	0.13	0.28	0.08	5	0.2	2.6	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.7**	**2.4**
Q	0.10	0.12	0.24	0.08	5	0.5	1.9	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.6**	**2.0**
R	0.14	0.15	0.19	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	0.4	**0.6**	**1.3**
S	0.41	0.45	0.59	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	1.3	**1.7**	**3.8**
T	0.22	0.90	3.92	0.08	100	4	11.7	0	2.0%	0.0	0.0	11.7	3.11	3.90	6.55	0.7	**3.5**	**25.6**
U	0.53	0.54	0.58	0.08	0	0	0.0	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	2.2	**2.8**	**5.0**
V	0.31	0.32	0.37	0.08	50	2	8.2	100	2.0%	2.8	0.6	8.8	3.44	4.32	7.25	1.1	**1.4**	**2.7**
P1-A2	3.74	3.78	4.03	0.08	10	0.5	3.4	2350	0.9%	1.9	11.8	15.2	2.79	3.50	5.87	10.4	**13.2**	**23.7**
P1-A3	1.22	1.23	1.32	0.08	10	0.5	3.4	780	0.9%	1.9	3.9	7.3	3.67	4.60	7.72	4.5	**5.7**	**10.1**
OS-1	0.50	0.65	1.09	0.08	100	2	14.7	0	0.0%	0.0	0.0	14.7	2.84	3.56	5.97	1.4	**2.3**	**6.5**
OS-2	1.00	1.31	2.18	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	3	**5**	**15**
OS-3	0.74	0.97	1.62	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	2	**4**	**11**
OS-4	0.12	0.16	0.27	0.08	50	2	8.2	0	0.0%	0.0	0.0	8.2	3.53	4.42	7.42	0	**1**	**2**

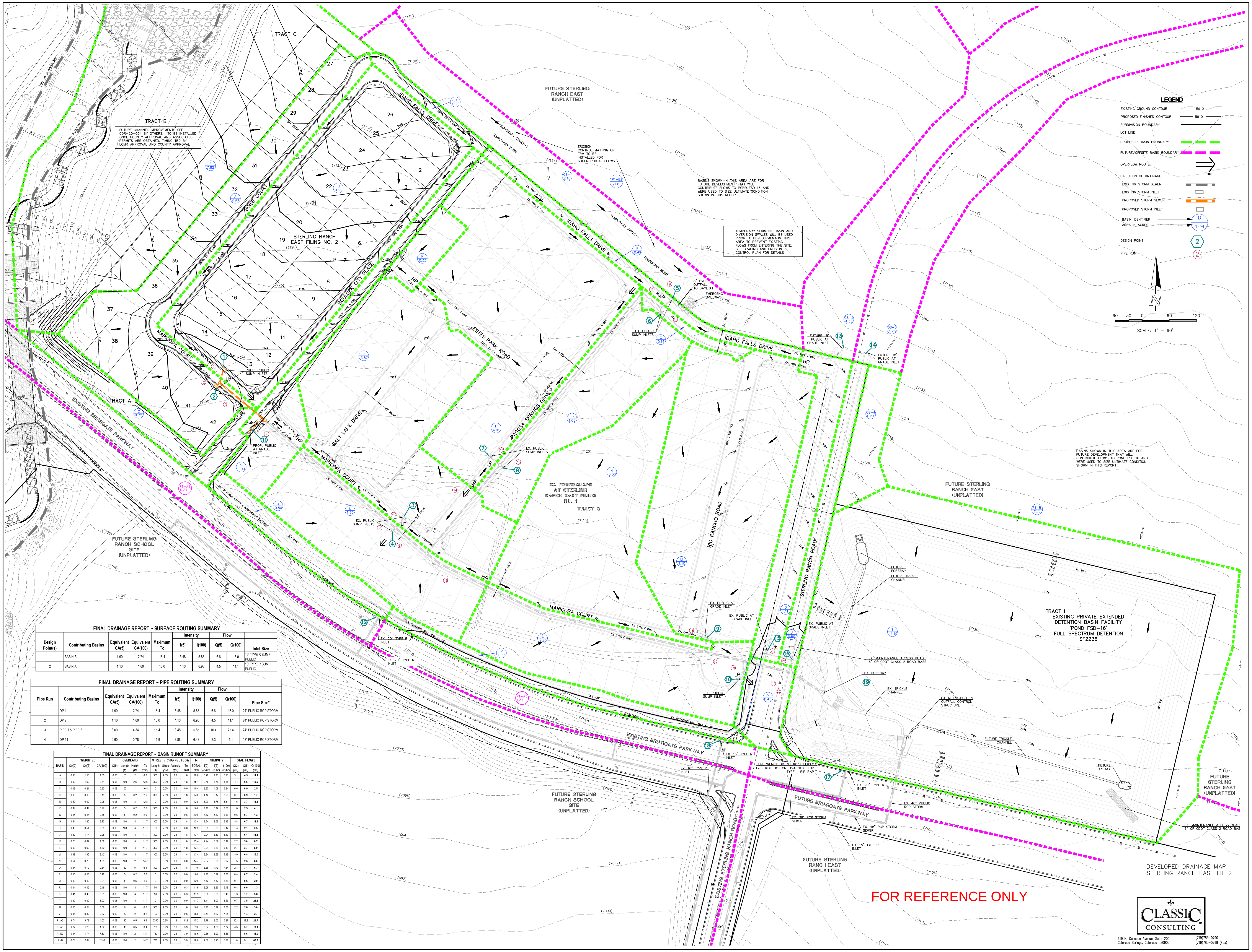
FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Inlet Size
1	BASIN B	1.90	2.74	15.4	3.48	5.85	6.6	16.0	10' TYPE R SUMP PUBLIC
2	BASIN A	1.10	1.60	10.0	4.13	6.93	4.5	11.1	10' TYPE R SUMP PUBLIC
3	BASIN J	1.74	2.28	13.4	3.69	6.19	6.4	14.1	10' TYPE R SUMP PUBLIC
4	BASIN K	0.82	1.08	13.4	3.69	6.19	3.0	6.7	5' TYPE R SUMP PUBLIC
5	BASIN D, BASIN F & BASIN OS-1	1.28	1.75	14.7	3.56	5.97	4.5	10.5	10' TYPE R SUMP PUBLIC
6	BASIN G	0.14	0.15	5.0	5.17	8.68	0.7	1.3	5' TYPE R SUMP PUBLIC
7	BASIN H	1.80	2.37	13.4	3.69	6.19	6.7	14.6	10' TYPE R SUMP PUBLIC
8	BASIN I	0.54	0.85	12.2	3.83	6.42	2.1	5.5	5' TYPE R SUMP PUBLIC
9	BASIN M & BASIN N	2.54	3.76	14.7	3.56	5.97	9.0	22.5	15' TYPE R AT GRADE PUBLIC
10	BASIN L & FLOWBY DP 9	1.21	2.70	14.7	3.56	5.97	4.3	16.1	15' TYPE R SUMP PUBLIC
11	BASIN R & S	0.60	0.78	11.9	3.86	6.48	2.3	5.1	15' TYPE R AT GRADE PUBLIC
12	BASIN P1-A2, BASIN C & BASIN Q	4.12	4.64	15.2	3.50	5.87	14.4	27.2	EX 20' TYPE R AT GRADE PUBLIC
13	BASIN OS-2	1.31	2.18	10.0	4.13	6.93	5.4	15.1	FUTURE 15' TYPE R AT GRADE PUBLIC
14	BASIN OS-3	0.97	1.62	10.0	4.13	6.93	4.0	11.2	FUTURE 15' TYPE R AT GRADE PUBLIC
15	BASIN O & FLOW-BY DP 13	0.70	1.46	10.0	4.13	6.93	2.9	10.1	15' TYPE R AT GRADE PUBLIC
16	BASIN U, OS-4, & FLOW-BY DP 14	0.70	1.16	10.0	4.13	6.93	2.9	8.0	15' TYPE R AT GRADE PUBLIC
17	BASIN V & FLOW-BY DP 15 & 16	0.32	0.61	10.0	4.13	6.93	1.3	4.2	EXISTING 20' TYPE R SUMP PUBLIC
18	BASIN P1-A3 & BASIN P	1.37	1.60	5.0	5.17	8.68	7.1	13.9	EXISTING 20' TYPE R AT GRADE PUBLIC
19	BASIN T, BASIN P1-B (INTERIM) & PIPE 22	18.71	37.60	18.6	3.20	5.38	60	202	POND IN

FOR REFERENCE ONLY

DEVELOPED DRAINAGE MAP
FOURSQUARE AT STERLING RANCH
FILING NO. 1

CLASSIC CONSULTING
619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)


TRACT A
TRACT B
TRACT C
FUTURE CHANNEL IMPROVEMENTS SEE CDR-20-004 BY OTHERS. TO BE INSTALLED ONCE COUNTY APPROVAL AND ASSOCIATED PERMITS ARE OBTAINED. TIMING TBD BY LOMR APPROVAL AND COUNTY APPROVAL
STERLING RANCH EAST FILING NO. 2
FUTURE STERLING RANCH EAST (UNPLATTED)
EROSION CONTROL MATTING OR TRM TO BE INSTALLED FOR SUPERCRITICAL FLOWS
TEMPORARY SWALE-1
TEMPORARY BERM
BASINS SHOWN IN THIS AREA ARE FOR FUTURE DEVELOPMENT THAT WILL CONTRIBUTE FLOWS TO POND FSD 16 AND WERE USED TO SIZE ULTIMATE CONDITION SHOWN IN THIS REPORT
TEMPORARY SEDIMENT BASIN AND DIVERISION SWALES WILL BE USED PRIOR TO DEVELOPMENT IN THIS AREA TO PREVENT EXISTING FLOWS FROM ENTERING THE SITE. SEE GRADING AND EROSION CONTROL PLAN FOR DETAILS
8" PVC OUTFALL TO DAYLIGHT
EMERGENCY SPILLWAY
IDAHO FALLS DRIVE
BOISE COURT
BOULDER CITY PLACE
MARICOPA COURT
SALT LAKE DRIVE
ESTES PARK ROAD
PAGOSA SPRINGS DRIVE
RIO RANCHO ROAD
STERLING RANCH ROAD
EXISTING STERLING RANCH ROAD
EXISTING BRIARGATE PARKWAY
FUTURE BRIARGATE PARKWAY
EX. FOURSQUARE AT STERLING RANCH EAST FILING NO. 1
TRACT G
FUTURE STERLING RANCH SCHOOL SITE (UNPLATTED)
PROP. PUBLIC SUMP INLETS
PROP. PUBLIC AT GRADE INLET
EX. PUBLIC SUMP INLETS
EX. PUBLIC AT GRADE INLET
FUTURE 15' PUBLIC AT GRADE INLET
EX. 20' TYPE R INLET
EX. 16' TYPE R INLET
EX. 36" RCP STORM SEWER
EX. 48" RCP STORM SEWER
EX. 48" PUBLIC RCP STORM
EX. 15' TYPE R INLET
EMERGENCY OVERFLOW SPILLWAY 170' WIDE BOTTOM, 194' WIDE TOP TYPE L RIP RAP
EX. MAINTENANCE ACCESS ROAD 6" OF CDOT CLASS 2 ROAD BASE
EX. FOREBAY
EX. TRICKLE CHANNEL
EX. MICRO POOL & OUTFALL CONTROL STRUCTURE
FUTURE FOREBAY
FUTURE TRICKLE CHANNEL
TRACT I
EXISTING PRIVATE EXTENDED DETENTION BASIN FACILITY
'POND FSD-16'
FULL SPECTRUM DETENTION
SF2236
4:1 MAX
3:1 MAX
50' ROW
HP
LP
LEGEND
EXISTING GROUND CONTOUR 5910
PROPOSED FINISHED CONTOUR 5910
SUBDIVISION BOUNDARY
LOT LINE
PROPOSED BASIN BOUNDARY
FUTURE/OFFSITE BASIN BOUNDARY
OVERFLOW ROUTE
DIRECTION OF DRAINAGE
EXISTING STORM SEWER
EXISTING STORM INLET
PROPOSED STORM SEWER
PROPOSED STORM INLET
BASIN IDENTIFIER
AREA IN ACRES
D
1.41
DESIGN POINT
2
PIPE RUN
2
N
60 30 0 60 120
SCALE: 1" = 60'

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Inlet Size
1	BASIN B	1.90	2.74	15.4	3.48	5.85	6.6	16.0	10' TYPE R SUMP PUBLIC
2	BASIN A	1.10	1.60	10.0	4.13	6.93	4.5	11.1	10' TYPE R SUMP PUBLIC

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Pipe Size*
1	DP 1	1.90	2.74	15.4	3.48	5.85	6.6	16.0	24" PUBLIC RCP STORM
2	DP 2	1.10	1.60	10.0	4.13	6.93	4.5	11.1	24" PUBLIC RCP STORM
3	PIPE 1 & PIPE 2	3.00	4.34	15.4	3.48	5.85	10.4	25.4	24" PUBLIC RCP STORM
4	DP 11	0.60	0.78	11.9	3.86	6.48	2.3	5.1	18" PUBLIC RCP STORM

FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
BASIN	CA(2)	CA(5)	CA(100)	C(5)	Length *(ft)*	Height *(ft)*	Tc *(min)*	Length *(ft)*	Slope *(%)*	Velocity *(fps)*	Tc *(min)*	TOTAL *(min)*	I(2) *(in/hr)*	I(5) *(in/hr)*	I(100) *(in/hr)*	Q(2) *(cfs)*	Q(5) *(cfs)*	Q(100) *(cfs)*
A	0.93	1.10	1.60	0.08	50	2	8.2	300	2.0%	2.8	1.8	10.0	3.29	4.13	6.93	3.1	**4.5**	**11.1**
B	1.60	1.90	2.74	0.08	100	2.5	13.6	300	2.0%	2.8	1.8	15.4	2.78	3.48	5.85	4.4	**6.6**	**16.0**
C	0.18	0.21	0.37	0.08	50	1	10.4	0	0.0%	0.0	0.0	10.4	3.25	4.08	6.84	0.6	**0.9**	**2.5**
D	0.18	0.18	0.19	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	0.7	**0.9**	**1.7**
E	0.52	0.99	2.98	0.08	100	3	12.8	0	0.0%	0.0	0.0	12.8	3.00	3.76	6.31	1.6	**3.7**	**18.8**
F	0.44	0.44	0.47	0.08	5	0.2	2.6	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	1.8	**2.3**	**4.1**
G	0.14	0.14	0.15	0.08	5	0.2	2.6	100	2.0%	2.8	0.6	5.0	4.12	5.17	8.68	0.6	**0.7**	**1.3**
H	1.64	1.80	2.37	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.8	**6.7**	**14.6**
I	0.46	0.54	0.85	0.08	100	4	11.7	100	2.0%	2.8	0.6	12.2	3.05	3.83	6.42	1.4	**2.1**	**5.5**
J	1.59	1.74	2.28	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.7	**6.4**	**14.1**
K	0.75	0.82	1.08	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.2	**3.0**	**6.7**
L	0.90	0.99	1.30	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	2.7	**3.7**	**8.0**
M	1.68	1.85	2.42	0.08	100	4	11.7	300	2.0%	2.8	1.8	13.4	2.94	3.69	6.19	4.9	**6.8**	**15.0**
N	0.54	0.70	1.35	0.08	100	2	14.7	0	0.0%	0.0	0.0	14.7	2.84	3.56	5.97	1.5	**2.5**	**8.0**
O	0.67	0.70	0.84	0.08	50	5	6.1	300	2.0%	2.8	1.8	7.9	3.58	4.49	7.54	2.4	**3.1**	**6.3**
P	0.10	0.13	0.28	0.08	5	0.2	2.6	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.7**	**2.4**
Q	0.10	0.12	0.24	0.08	5	0.5	1.9	0	0.0%	0.0	0.0	5.0	4.12	5.17	8.68	0.4	**0.6**	**2.0**
R	0.14	0.15	0.19	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	0.4	**0.6**	**1.3**
S	0.41	0.45	0.59	0.08	100	4	11.7	50	2.0%	2.8	0.3	11.9	3.08	3.86	6.48	1.3	**1.7**	**3.8**
T	0.22	0.90	3.92	0.08	100	4	11.7	0	2.0%	0.0	0.0	11.7	3.11	3.90	6.55	0.7	**3.5**	**25.6**
U	0.53	0.54	0.58	0.08	0	0	0.0	300	2.0%	2.8	1.8	5.0	4.12	5.17	8.68	2.2	**2.8**	**5.0**
V	0.31	0.32	0.37	0.08	50	2	8.2	100	2.0%	2.8	0.6	8.8	3.44	4.32	7.25	1.1	**1.4**	**2.7**
P1-A2	3.74	3.78	4.03	0.08	10	0.5	3.4	2350	0.9%	1.9	11.8	15.2	2.79	3.50	5.87	10.4	**13.2**	**23.7**
P1-A3	1.22	1.23	1.32	0.08	10	0.5	3.4	780	0.9%	1.9	3.9	7.3	3.67	4.60	7.72	4.5	**5.7**	**10.1**
P1-E2	0.44	1.74	7.63	0.08	100	2	14.7	780	2.0%	2.8	3.9	18.6	2.56	3.20	5.38	1.1	**5.6**	**41.0**
P1-B	0.71	2.84	12.43	0.08	100	2	14.7	780	2.0%	2.8	3.9	18.6	2.56	3.20	5.38	1.8	**9.1**	**66.8**

FOR REFERENCE ONLY

DEVELOPED DRAINAGE MAP
STERLING RANCH EAST FIL 2

CLASSIC CONSULTING

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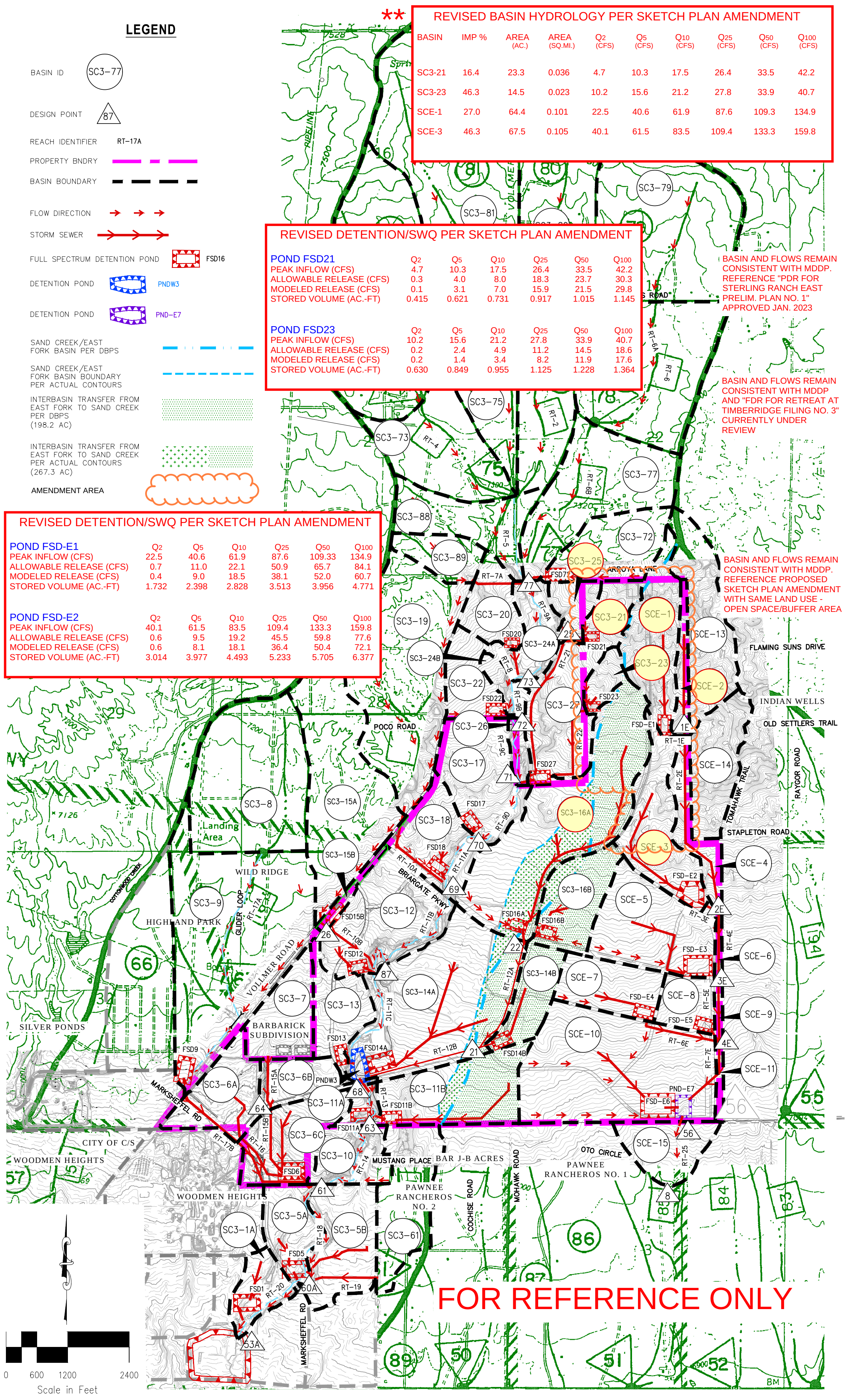

FOR REFERENCE ONLY

LEGEND

BASIN ID	SC3-77
DESIGN POINT	87
REACH IDENTIFIER	RT-17A
PROPERTY BNDRY	▬ ▬ ▬
BASIN BOUNDARY	▬ ▬ ▬
FLOW DIRECTION	→ → →
STORM SEWER	→→→
FULL SPECTRUM DETENTION POND	FSD16
DETENTION POND	PNDW3
DETENTION POND	PND-E7
SAND CREEK/EAST FORK BASIN PER DBPS	▬ · ▬ · ▬
SAND CREEK/EAST FORK BASIN BOUNDARY PER ACTUAL CONTOURS	- - - -
INTERBASIN TRANSFER FROM EAST FORK TO SAND CREEK PER DBPS (198.2 AC)	▨
INTERBASIN TRANSFER FROM EAST FORK TO SAND CREEK PER ACTUAL CONTOURS (267.3 AC)	▨
AMENDMENT AREA	☁

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REVISED BASIN HYDROLOGY PER SKETCH PLAN AMENDMENT

BASIN	IMP %	AREA (AC.)	AREA (SQ.MI.)	Q_2 (CFS)	Q_5 (CFS)	Q_{10} (CFS)	Q_{25} (CFS)	Q_{50} (CFS)	Q_{100} (CFS)
SC3-21	16.4	23.3	0.036	4.7	10.3	17.5	26.4	33.5	42.2
SC3-23	46.3	14.5	0.023	10.2	15.6	21.2	27.8	33.9	40.7
SCE-1	27.0	64.4	0.101	22.5	40.6	61.9	87.6	109.3	134.9
SCE-3	46.3	67.5	0.105	40.1	61.5	83.5	109.4	133.3	159.8

REVISED DETENTION/SWQ PER SKETCH PLAN AMENDMENT

POND FSD21	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	4.7	10.3	17.5	26.4	33.5	42.2
ALLOWABLE RELEASE (CFS)	0.3	4.0	8.0	18.3	23.7	30.3
MODELED RELEASE (CFS)	0.1	3.1	7.0	15.9	21.5	29.8
STORED VOLUME (AC.-FT)	0.415	0.621	0.731	0.917	1.015	1.145

POND FSD23	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	10.2	15.6	21.2	27.8	33.9	40.7
ALLOWABLE RELEASE (CFS)	0.2	2.4	4.9	11.2	14.5	18.6
MODELED RELEASE (CFS)	0.2	1.4	3.4	8.2	11.9	17.6
STORED VOLUME (AC.-FT)	0.630	0.849	0.955	1.125	1.228	1.364

REVISED DETENTION/SWQ PER SKETCH PLAN AMENDMENT

POND FSD-E1	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	22.5	40.6	61.9	87.6	109.33	134.9
ALLOWABLE RELEASE (CFS)	0.7	11.0	22.1	50.9	65.7	84.1
MODELED RELEASE (CFS)	0.4	9.0	18.5	38.1	52.0	60.7
STORED VOLUME (AC.-FT)	1.732	2.398	2.828	3.513	3.956	4.771

POND FSD-E2	Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}
PEAK INFLOW (CFS)	40.1	61.5	83.5	109.4	133.3	159.8
ALLOWABLE RELEASE (CFS)	0.6	9.5	19.2	45.5	59.8	77.6
MODELED RELEASE (CFS)	0.6	8.1	18.1	36.4	50.4	72.1
STORED VOLUME (AC.-FT)	3.014	3.977	4.493	5.233	5.705	6.377

* BASIN AND FLOWS REMAIN CONSISTENT WITH MDDP. REFERENCE "PDR FOR STERLING RANCH EAST PRELIM. PLAN NO. 1" APPROVED JAN. 2023

* BASIN AND FLOWS REMAIN CONSISTENT WITH MDDP AND "PDR FOR RETREAT AT TIMBERRIDGE FILING NO. 3" CURRENTLY UNDER REVIEW

* BASIN AND FLOWS REMAIN CONSISTENT WITH MDDP. REFERENCE PROPOSED SKETCH PLAN AMENDMENT WITH SAME LAND USE - OPEN SPACE/BUFFER AREA

** REVISED BASIN FLOWS PER SKETCH PLAN AMENDMENT SEE TABLE ABOVE

BASIN SUMMARY

BASIN	CN	AREA (ACRES)	AREA (SQ MI)	Q_2 (CFS)	Q_5 (CFS)	Q_{10} (CFS)	Q_{25} (CFS)	Q_{50} (CFS)	Q_{100} (CFS)
SC3-1A	73	27.8	0.044	16.3	23.3	33.0	45.8	57.1	68.9
SC3-5A	84	39.1	0.061	40.6	53.7	71.0	92.4	110.6	129.1
SC3-5B	81	63.0	0.098	53.8	73.0	98.5	130.8	158.6	187.0
SC3-6A	88	49.3	0.077	61.4	79.3	102.2	130.1	153.6	177.1
SC3-6B	85	30.9	0.048	32.9	43.4	57.0	73.9	88.2	102.7
SC3-6C	82	58.0	0.091	53.9	72.5	97.1	128.0	154.5	181.5
SC3-7	88	45.7	0.071	54.0	69.9	90.3	115.2	136.2	157.2
SC3-8	62	143.4	0.224	25.4	42.1	66.7	100.7	132.3	166.2
SC3-9	66	217.4	0.340	45.8	71.5	108.6	158.9	204.9	254.0
SC3-10	63	36.0	0.056	7.6	12.3	19.4	29.1	38.0	47.7
SC3-11A	70	10.7	0.017	5.3	7.8	11.3	15.9	20.0	24.3
SC3-11B	80	76.6	0.120	59.4	81.3	110.8	148.1	180.5	213.7
SC3-12	81	88.2	0.138	77.8	105.6	142.5	189.1	229.1	270.0
SC3-13	85	41.0	0.064	43.9	57.8	76.0	98.5	117.6	136.9
SC3-14A	79	164.9	0.258	127.6	175.4	239.8	321.9	393.2	466.3
SC3-14B	77	34.7	0.054	24.6	34.3	47.4	64.2	79.0	94.1
SC3-15A	62	139.7	0.218	21.3	35.5	56.3	85.3	112.1	141.0
SC3-15B	87	7.9	0.012	10.8	14.0	18.2	23.3	27.6	31.9
SC3-16A *	74	168.1	0.263	84.4	120.4	170.0	234.8	292.2	351.8
SC3-16B	78	50.7	0.079	39.0	53.7	73.6	99.0	121.1	143.8
SC3-17	73	70.6	0.110	41.8	59.6	85.2	119.0	149.1	180.6
SC3-18	81	53.8	0.084	49.3	67.1	91.0	121.2	147.3	174.0
SC3-19	62	184.0	0.287	28.8	47.7	75.7	114.4	150.2	188.8
SC3-20	65	34.2	0.053	9.9	15.5	23.8	35.1	45.5	56.6
SC3-21 **	66	23.3	0.036	7.0	10.8	16.3	23.7	30.4	37.5
SC3-22	65	33.9	0.053	9.4	14.8	22.5	32.9	42.5	52.6
SC3-23 **	67	14.5	0.023	5.5	8.3	12.4	18.0	23.0	28.4
SC3-24A	65	35.7	0.056	13.0	20.4	31.1	45.7	59.0	73.2
SC3-24B	65	12.2	0.019	3.4	5.3	8.1	11.8	15.2	18.9
SC3-25 *	66	19.0	0.030	5.8	8.9	13.4	19.5	25.1	31.0
SC3-26	63	10.0	0.016	2.5	4.0	6.2	9.2	12.1	15.1
SC3-27	71	70.0	0.109	35.1	51.2	73.8	103.7	130.3	158.3
SC3-61	63	65.5	0.102	13.7	22.0	34.4	51.6	67.6	84.8
SC3-72	64	56.2	0.088	12.8	20.2	31.4	46.7	60.9	76.0
SC3-73	63	90.0	0.141	16.4	26.4	41.3	62.1	81.3	102.0
SC3-74	63	119.7	0.187	22.3	36.5	57.3	85.9	112.3	140.7
SC3-75	63	79.3	0.124	13.1	21.5	33.7	50.5	66.1	82.8
SC3-76	63	86.4	0.135	14.2	23.1	36.4	54.6	71.4	89.6
SC3-77	62	106.9	0.167	16.6	27.6	43.8	66.2	87.0	109.4
SC3-78	63	155.6	0.243	28.1	45.3	70.6	106.2	139.1	174.5
SC3-79	63	189.0	0.295	34.9	57.0	89.5	134.3	175.6	220.1
SC3-80	63	147.7	0.231	27.3	44.3	69.6	104.5	136.8	171.4
SC3-81	62	262.9	0.411	42.6	70.2	111.0	167.4	219.6	275.7
SC3-82	62	117.8	0.184	20.0	33.2	52.8	80.0	105.1	132.3
SC3-88	62	60.2	0.094	10.5	17.4	27.6	41.8	54.9	69.0
SC3-89	62	27.5	0.043	6.1	10	15.7	23.6	30.8	38.6
SCE-1 **	65	64.4	0.101	23.3	35.9	53.8	79.1	102.4	127.4
SCE-2 *	64	15.0	0.023	4.4	7.0	10.8	15.9	20.7	25.7
SCE-3 **	70	67.5	0.105	30.6	45.2	65.9	93.3	118.0	143.9
SCE-4	70	29.5	0.046	13.3	19.6	28.6	40.6	257.8	62.6
SCE-5	87	85.5	0.134	100.4	130.6	169.6	217.4	257.8	298.4
SCE-6	64	3.8	0.006	1.6	2.5	3.7	5.4	7.0	8.6
SCE-7	89	44.9	0.070	58.9	75.5	96.6	122.2	143.7	165.2
SCE-8	92	25.5	0.040	38.6	48.4	60.7	75.4	87.7	99.9
SCE-9	64	4.0	0.006	1.5	2.4	3.6	5.3	6.8	8.5
SCE-10	83	174.3	0.272	7.6	189.4	19.4	29.1	398.9	467.5
SCE-11	64	5.8	0.009	2.3	3.6	5.5	8.0	10.3	12.8
SCE-13	63	78.6	0.123	19.6	31.3	48.7	73.1	95.7	120.0
SCE-14	63	52.5	0.082	13.2	21.2	33.3	49.9	65.2	81.7
SCE-15	51	39.7	0.062	2.2	5.1	10.1	17.7	25.1	33.4

DESIGN POINT SUMMARY

DESIGN POINT	AREA (SQ MI)	Q_2 (CFS)	Q_5 (CFS)	Q_{10} (CFS)	Q_{25} (CFS)	Q_{50} (CFS)	Q_{100} (CFS)	LOCATION
DP-74	0.371	39.3	65.3	104.8	158.9	209.1	262.8	
DP-75	1.413	141.2	235.1	376.6	566.6	750.9	950.5	
DP-77	2.343	209.9	351.9	580.6	886.6	1168.4	1467.7	ARROYA LANE X-ING
DP-78	0.538	59.7	98.4	154.0	232.6	306.2	385.3	
DP-73	2.471	207.5	354.3	588.5	897.1	1187.2	1506.7	
DP-72	2.543	206.2	352.5	586.7	897.2	1195.3	1518.6	POCO ROAD X-ING
DP-71	2.757	205.9	349.3	610.5	932.4	1226.9	1612.2	STERLING RANCH NORTHERN BNDRY
DP-70	2.867	205.3	349.8	614.0	940.1	1260.6	1636.7	
DP-69	3.238	212.7	366.6	653.7	1010.6	1364.1	1775.7	BRIARGATE PARKWAY X-ING
DP-87	3.594	216.9	374.6	681.9	1072.1	1471.5	1905.9	
DP-68	4.312	214.6	374.5	714.9	1187.6	1674.9	2204.1	UPSTREAM OF POND W3
DP-64	0.119	85.9	112.1	145.9	187.5	222.6	258.0	
DP-63	4.449	154.4	201.0	375.7	815.9	1112.1	1385.1	STERLING RANCH SOUTHERN BNDRY
DP-61	5.356	156.6	223.9	428.0	928.2	1287.3	1620.1	COLORADO SPRINGS/EL PASO BNDRY
DP-60A	5.617	161.6	224.8	439.1	950.4	1320.5	1661.8	MARKSHEFFEL X-ING
DP-53A	5.661	161.6	225.7	441.8	951.1	1326.0	1668.9	SAND CREEK AND POND 3
DP-1E	0.247	23.9	38.3	70.1	132.8	173.0	220.9	
DP-2E	0.486	48.9	76.8	123.0	228.7	319.7	419.4	
DP-3E	0.626	48.5	75.7	122.2	271.1	387.1	500.1	
DP-4E	0.745	48.1	76.2	122.4	286.9	407.3	534.8	
DP-56	1.017	23.1	35.3	71.5	108.3	152.1	196.4	NEAR SE PROP CORNER
DP-8	1.079	24.1	37.2	73.5	111.3	155.4	200.7	BELOW SE PROP CORNER
DP-21	0.396	0.6	8.8	17.8	57.1	116.8	174.9	
DP-22	0.342	0.6	8.8	17.6	56.8	105.1	156.4	
DP-25	0.066	5.9	9.1	16.3	35.1	46.4	58.2	
DP-26	0.012	0.1	1.1	3.2	7.3	9.5	12.0	

DESIGN POINT SUMMARY (VOLUME)

DESIGN POINT	AREA (SQ MI)	V_2 (AC-FT)	V_5 (AC-FT)	V_{10} (AC-FT)	V_{25} (AC-FT)	V_{50} (AC-FT)	V_{100} (AC-FT)	LOCATION
DP-74	0.371	5.9	9.0	13.6	19.8	25.5	31.6	
DP-75	1.413	22.7	34.5	51.7	75.4	97.1	120.5	
DP-77	2.343	37.7	57.4	85.9	125.1	161.1	199.9	ARROYA LANE X-ING
DP-78	0.538	8.9	13.5	20.1	29.3	37.7	46.7	
DP-73	2.471	40.0	60.8	91.0	132.5	170.7	211.7	
DP-72	2.543	41.3	62.9	94.0	136.8	176.2	218.5	POCO ROAD X-ING
DP-71	2.757	46.3	70.0	104.3	151.3	194.5	240.8	STERLING RANCH NORTHERN BNDRY
DP-70	2.867	49.5	74.5	110.6	160.1	205.4	254.0	
DP-69	3.238	57.5	86.1	127.4	183.8	235.3	290.6	BRIARGATE PARKWAY X-ING
DP-87	3.594	66.5	98.9	145.6	209.1	267.1	329.1	
DP-68	4.312	81.8	123.7	183.9	264.9	338.0	415.8	UPSTREAM OF POND W3
DP-64	0.119	7.0	9.1	11.8	15.2	18.1	21.1	
DP-63	4.449	85.6	129.5	192.3	276.7	352.8	433.5	STERLING RANCH SOUTHERN BNDRY
DP-61	5.356	103.7	157.8	235.1	338.4	431.3	529.8	COLORADO SPRINGS/EL PASO BNDRY
DP-60A	5.617	111.0	168.6	250.4	359.5	457.7	561.5	MARKSHEFFEL X-ING
DP-53A	5.661	112.0	170.0	252.6	362.6	461.7	566.5	SAND CREEK AND POND 3
DP-1E	0.247	3.1	5.2	8.4	12.7	16.6	20.9	
DP-2E	0.480	6.1	10.4	16.9	25.7	33.7	42.2	
DP-3E	0.620	7.0	13.7	23.4	36.1	47.4	59.3	
DP-4E	0.736	7.6	15.6	27.2	43.0	57.2	72.0	
DP-56	1.017	7.7	16.1	28.6	51.3	71.7	92.9	NEAR SE PROP CORNER
DP-8	1.079	8.0	16.7	26.6	53.0	74.0	95.9	BELOW SE PROP CORNER
DP-21	0.396	6.3	11.3	18.3	27.5	35.6	44.0	
DP-22	0.736	6.3	10.7	16.7	24.6	31.5	38.7	
DP-25	1.017	1.3	1.9	2.8	4.1	5.2	6.4	
DP-26	1.079	0.7	0.9	1.2	1.5	1.8	2.1	

WATER QUALITY & DETENTION POND SUMMARY

FSD1						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	16.3	23.3	33.0	45.8	57.1	68.9
ALLOWABLE RELEASE (CFS)	0.1	1.7	3.3	10.9	17.5	25.5
MODELED RELEASE (CFS)	0.1	1.6	3.2	10.9	17.4	25.4
STORED VOLUME (AC-FT)	2.4	2.6	3.0	3.6	1.9	2.2

FSD5						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	40.6	53.7	71.0	92.4	110.6	129.1
ALLOWABLE RELEASE (CFS)	0.1	1.4	2.6	11.3	19.8	30.2
MODELED RELEASE (CFS)	0.1	1.4	2.6	11.2	19.7	30.1
STORED VOLUME (AC-FT)	3.0	3.2	3.8	4.1	4.7	5.2

FSD6						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	196.5	258.5	339.1	438.7	523.3	608.6
ALLOWABLE RELEASE (CFS)	0.5	7.6	14.6	58.4	99.6	149.7
MODELED RELEASE (CFS)	0.5	7.5	14.5	58.2	99.6	149.6
STORED VOLUME (AC-FT)	15.5	16.4	18.7	20.8	23.3	26.0

FSD9						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	64.6	105.6	169.5	252.3	327.1	410.1
ALLOWABLE RELEASE (CFS)	1.7	24.9	49.8	141.1	207.2	290.0
MODELED RELEASE (CFS)	1.7	24.9	49.8	141.1	207.0	289.9
STORED VOLUME (AC-FT)	8.7	8.7	9.6	10.8	12.3	13.8

FSD11A						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	5.3	7.8	11.3	15.9	20.0	24.3
ALLOWABLE RELEASE (CFS)	0.1	1.6	3.2	7.5	9.7	12.4
MODELED RELEASE (CFS)	0.2	0.9	3.0	7.5	9.7	12.3
STORED VOLUME (AC-FT)	0.3	0.3	0.4	0.4	0.5	0.6

FSD11B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	59.4	81.3	110.8	148.1	180.5	213.7
ALLOWABLE RELEASE (CFS)	0.3	4.5	8.7	29.6	47.7	69.6
MODELED RELEASE (CFS)	0.3	4.5	8.6	29.5	47.7	69.5
STORED VOLUME (AC-FT)	4.8	4.9	5.5	6.4	7.3	8.2

FSD12						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	77.8	105.6	142.5	189.1	229.1	270.0
ALLOWABLE RELEASE (CFS)	0.9	13.2	26.7	62.0	80.2	103.2
MODELED RELEASE (CFS)	0.9	9.0	26.7	61.9	80.1	103.1
STORED VOLUME (AC-FT)	5.2	5.5	5.8	6.7	7.8	8.9

FSD13						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	43.9	57.8	76.0	98.5	117.6	136.9
ALLOWABLE RELEASE (CFS)	0.4	6.1	12.3	28.6	37.0	47.6
MODELED RELEASE (CFS)	0.4	4.2	12.3	28.6	36.9	47.2
STORED VOLUME (AC-FT)	3.1	3.1	3.3	3.8	4.4	5.0

FSD14A						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	127.6	175.4	239.8	321.9	393.2	466.3
ALLOWABLE RELEASE (CFS)	0.5	7.5	14.4	56.2	95.2	142.4
MODELED RELEASE (CFS)	0.5	7.5	14.4	56.2	95.1	142.2
STORED VOLUME (AC-FT)	9.9	10.6	11.9	13.5	15.3	17.3

FSD14B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	24.6	34.3	47.4	64.2	79.0	94.1
ALLOWABLE RELEASE (CFS)	0.0	0.3	0.5	5.7	11.8	19.3
MODELED RELEASE (CFS)	0.0	0.3	0.5	4.5	11.8	19.3
STORED VOLUME (AC-FT)	1.9	2.5	3.3	3.5	3.5	3.8

FSD15B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	10.8	14.0	18.2	23.3	27.6	31.9
ALLOWABLE RELEASE (CFS)	0.1	1.6	3.2	7.3	9.5	12.0
MODELED RELEASE (CFS)	0.1	1.1	3.2	7.3	9.5	12.0
STORED VOLUME (AC-FT)	0.6	0.6	0.7	0.8	0.9	1.0

FSD16A						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	84.4	120.4	170.0	234.8	292.2	351.8
ALLOWABLE RELEASE (CFS)	0.6	8.8	17.3	56.2	88.4	128.3
MODELED RELEASE (CFS)	0.6	8.8	17.3	56.2	88.3	128.3
STORED VOLUME (AC-FT)	7.6	7.7	8.9	10.4	12.1	13.8

SAND CREEK FLOW COMPARISON CHART

DESIGN POINT	AREA (SQ MI)	Q_{100} (CFS)	DESCRIPTION
DP-77	2.343	1468	PROPOSED CONDITION
	2.91	2262	SAND CREEK DBPS
		2600	FEMA
DP-71	2.757	1612	PROPOSED CONDITION
		2260	SAND CREEK DBPS
DP-63	4.449	1385	PROPOSED CONDITION
	4.33	2630	SAND CREEK DBPS
		2600	FEMA
DP-60A	5.661	1662	PROPOSED CONDITION
	5.38	3295	SAND CREEK DBPS

EFSC DBPS DESIGN POINT SUMMARY (PEAK FLOW)

DBPS DESIGN POINT	AREA (SQ MI)	Q_{10} (CFS) (EXIST)	Q_{100} (CFS) (EXIST)	AREA (SQ MI)	Q_{10} (CFS) (PROP)	Q_{100} (CFS) (PROP)
DP-50	0.32	47.0	195.7	0.32	146.7	370.3
DP-51 (BASIN 86)	0.33	17.7	74.1	0.33	110.0	233.5
DP-52	1.67	80.5	456.5	1.67	1207.9	2123.0
DP-56	0.79	63.6	265.0	0.79	513.0	908.2

Values reported from SCDBPS, (DP 50, 51, 52 Not analyzed as a part of this study)
DBPS Reach 85(Basin91)=Q10=28.8cfs Q100=115.2cfs / Q10=345.7cfs Q100=588.9cfs
(EXISTING) (PROPOSED)

WATER QUALITY & DETENTION POND SUMMARY

FSD16B						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	39.0	53.7	73.6	99.0	121.1	143.8
ALLOWABLE RELEASE (CFS)	0.0	0.4	0.7	8.3	17.2	28.2
MODELED RELEASE (CFS)	0.0	0.4	0.7	7.9	17.2	28.1
STORED VOLUME (AC-FT)	3.0	3.9	5.1	5.1	5.3	5.8

FSD17						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	41.8	59.6	85.2	119.0	149.1	180.6
ALLOWABLE RELEASE (CFS)	0.7	11.1	22.5	52.0	67.2	86.3
MODELED RELEASE (CFS)	0.7	8.4	22.4	52.0	67.2	86.1
STORED VOLUME (AC-FT)	2.6	2.6	2.8	3.4	4.0	4.7

FSD18						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	49.3	67.1	91.0	121.2	147.3	174.0
ALLOWABLE RELEASE (CFS)	0.6	9.2	18.4	42.2	54.6	69.9
MODELED RELEASE (CFS)	0.6	6.3	18.4	42.2	54.6	69.6
STORED VOLUME (AC-FT)	3.2	3.2	3.4	4.0	4.7	5.3

FSD20						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	9.9	15.5	23.8	35.1	45.5	56.6
ALLOWABLE RELEASE (CFS)	0.4	5.5	11.1	25.7	33.2	42.5
MODELED RELEASE (CFS)	0.4	2.8	10.9	25.7	33.0	42.4
STORED VOLUME (AC-FT)	0.7	0.8	0.8	0.9	1.0	1.2

FSD21	REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT					
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	7.0	10.8	16.3	23.7	30.4	37.5
ALLOWABLE RELEASE (CFS)	0.3	4.0	8.0	18.3	23.7	30.3
MODELED RELEASE (CFS)	0.3	3.3	8.0	18.3	23.7	30.1
STORED VOLUME (AC-FT)	0.5	0.5	0.5	0.6	0.7	0.8

FSD22						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	9.4	14.8	22.5	32.9	42.5	52.6
ALLOWABLE RELEASE (CFS)	0.4	5.8	11.5	26.5	34.3	43.9
MODELED RELEASE (CFS)	0.4	5.8	11.4	26.5	34.3	43.8
STORED VOLUME (AC-FT)	0.6	0.6	0.7	0.8	0.9	1.0

FSD23	REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT					
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	5.5	8.3	12.4	18.0	23.0	28.4
ALLOWABLE RELEASE (CFS)	0.2	2.4	4.9	11.2	14.5	18.6
MODELED RELEASE (CFS)	0.2	2.0	4.9	11.2	14.5	18.6
STORED VOLUME (AC-FT)	0.3	0.3	0.4	0.4	0.5	0.6

FSD27						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	38.8	57.6	84.1	119.7	159.2	206.3
ALLOWABLE RELEASE (CFS)	1.4	21.1	42.4	97.8	126.4	161.9
MODELED RELEASE (CFS)	1.4	18.4	42.3	97.7	126.2	161.9
STORED VOLUME (AC-FT)	2.7	2.8	2.9	3.2	3.7	4.2

FSD72						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	12.8	20.2	31.4	46.7	60.9	76.0
ALLOWABLE RELEASE (CFS)	0.6	9.6	19.3	44.4	57.4	73.4
MODELED RELEASE (CFS)	0.6	9.3	19.2	44.4	57.4	73.4
STORED VOLUME (AC-FT)	1.0	1.0	1.1	1.1	1.2	1.3

PNDW3						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	214.6	374.5	714.9	1187.6	1674.9	2204.1
MODELED RELEASE (CFS)	154.3	200.3	366.8	799.9	1085.6	1350.6
STORED VOLUME (AC-FT)	2.8	9.5	26.3	41.2	57.2	78.2

FSD-E1	REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT					
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	23.3	35.9	53.8	79.1	102.4	127.4
ALLOWABLE RELEASE (CFS)	0.7	11.0	22.1	50.9	65.7	84.1
MODELED RELEASE (CFS)	0.7	5.4	19.9	48.9	62.8	84.0
STORED VOLUME (AC-FT)	1.3	1.3	1.5	1.8	2.1	2.5

FSD-E2	REVISED FSD DESIGN PER SKETCH PLAN AMENDMENT - SEE TABLE LEFT					
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	30.6	45.2	65.9	93.3	118.0	143.9
ALLOWABLE RELEASE (CFS)	0.6	9.5	19.2	45.5	59.8	77.6
MODELED RELEASE (CFS)	0.6	3.2	18.5	41.3	58.5	74.7
STORED VOLUME (AC-FT)	2.1	2.3	2.4	2.8	3.3	3.8

FSD-E3						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	100.4	130.6	169.6	217.4	257.8	298.4
ALLOWABLE RELEASE (CFS)	0.9	13.2	26.5	61.6	79.8	102.6
MODELED RELEASE (CFS)	1.0	6.8	25.7	56.0	79.8	101.3
STORED VOLUME (AC-FT)	7.0	7.2	7.7	8.9	10.1	11.4

FSD-E4						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	58.9	75.5	96.6	122.2	143.7	165.2
ALLOWABLE RELEASE (CFS)	0.3	4.4	8.8	23.0	32.2	43.7
MODELED RELEASE (CFS)	0.9	2.8	8.7	21.9	32.2	43.6
STORED VOLUME (AC-FT)	4.2	4.3	4.7	5.4	6.2	6.9

FSD-E5						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	38.6	48.4	60.7	75.4	87.7	99.9
ALLOWABLE RELEASE (CFS)	0.0	0.2	0.4	4.2	8.7	14.3
MODELED RELEASE (CFS)	0.0	0.2	0.5	2.2	5.1	10.0
STORED VOLUME (AC-FT)	3.0	3.7	4.4	4.8	5.0	5.3

FSD-E6						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	141.6	189.4	252.5	331.4	398.9	467.5
ALLOWABLE RELEASE (CFS)	0.2	1.9	3.2	37.4	77.3	125.6
MODELED RELEASE (CFS)	0.2	0.9	3.2	18.3	64.1	123.3
STORED VOLUME (AC-FT)	13.0	17.0	21.9	22.2	22.6	23.7

PND-E7						
STORM EVENT (YR)	2	5	10	25	50	100
PEAK INFLOW (CFS)	46.5	75.4	121.2	285.2	402.4	548.0
MODELED RELEASE (CFS)	23.1	35.3	71.5	108.3	152.1	196.4
STORED VOLUME (AC-FT)	1.0	1.8	4.6	10.5	17.9	28.0

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REVISIONS BY
CLASSIC CONSULTING
AUGUST 2023

2018 STERLING RANCH MDDP

DEVELOPED HYDROLOGIC CONDITIONS MAP

PROJECT NO. 09-002
FILE: \dwg\Eng Exhibits\2018-MDDP-PROPCOND.dwg
DESIGNED BY: JD
DRAWN BY: JD
CHECKED BY: VAS
SCALE
HORIZ: 1"=2400'
VERT: 1"=2400'
DATE: 10-21-2018
DM2

File: O:\09002A\Sterling Ranch District\dwg\Eng Exhibits\2018 MDDP\2018-MDDP-PROPCOND.dwg Plotstamp: 10/24/2018 3:21 PM

PRELIMINARY DRAINAGE REPORT
FOR
STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN
AND
FINAL DRAINAGE REPORT
FOR EARLY GRADING

FOR REFERENCE ONLY

Prepared for:
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Job No. 1183.60

PCD Project No. SP244

CLASSIC CONSULTING

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Interim)

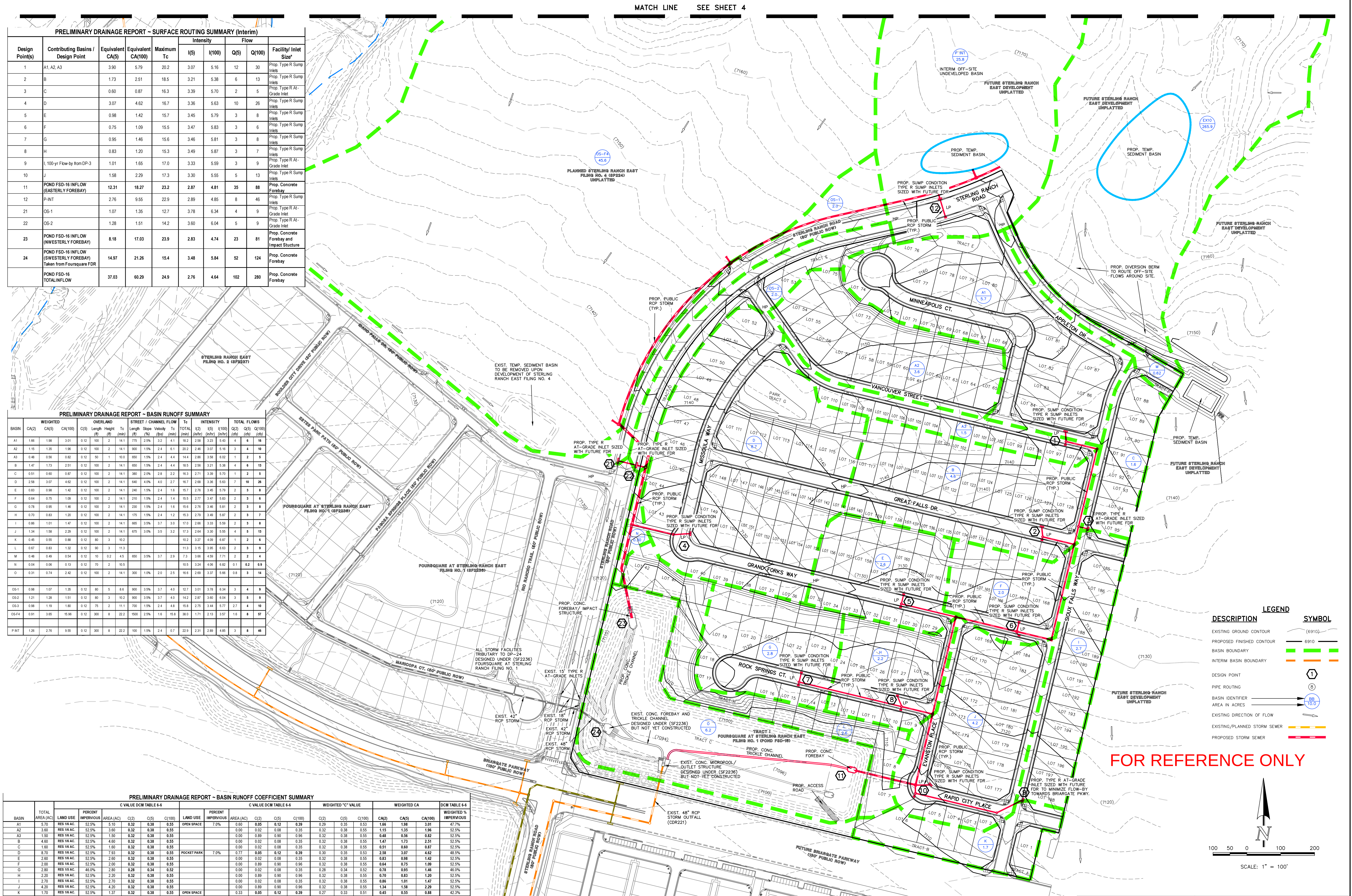
Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Facility/ Inlet Size*
1	A1, A2, A3	3.90	5.79	20.2	3.07	5.16	12	30	Prop. Type R Sump Inlets
2	B	1.73	2.51	18.5	3.21	5.38	6	13	Prop. Type R Sump Inlets
3	C	0.60	0.87	16.3	3.39	5.70	2	5	Prop. Type R At-Grade Inlet
4	D	3.07	4.62	16.7	3.36	5.63	10	26	Prop. Type R Sump Inlets
5	E	0.98	1.42	15.7	3.45	5.79	3	8	Prop. Type R Sump Inlets
6	F	0.75	1.09	15.5	3.47	5.83	3	6	Prop. Type R Sump Inlets
7	G	0.95	1.46	15.6	3.46	5.81	3	8	Prop. Type R Sump Inlets
8	H	0.83	1.20	15.3	3.49	5.87	3	7	Prop. Type R Sump Inlets
9	I, 100-yr Flow-by from DP-3	1.01	1.65	17.0	3.33	5.59	3	9	Prop. Type R At-Grade Inlet
10	J	1.58	2.29	17.3	3.30	5.55	5	13	Prop. Type R Sump Inlets
11	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.31**	**18.27**	**23.2**	**2.87**	**4.81**	**35**	**88**	**Prop. Concrete Forebay**
12	P-INT	2.76	9.55	22.9	2.89	4.85	8	46	Prop. Type R Sump Inlets
21	OS-1	1.07	1.35	12.7	3.78	6.34	4	9	Prop. Type R At-Grade Inlet
22	OS-2	1.28	1.51	14.2	3.60	6.04	5	9	Prop. Type R At-Grade Inlet
23	**POND FSD-16 INFLOW (NWESTERLY FOREBAY)**	**8.18**	**17.03**	**23.9**	**2.83**	**4.74**	**23**	**81**	**Prop. Concrete Forebay and Impact Stucture**
24	**POND FSD-16 INFLOW (SWESTERLY FOREBAY) Taken from Foursquare FDR**	**14.97**	**21.26**	**15.4**	**3.48**	**5.84**	**52**	**124**	**Prop. Concrete Forebay**
	POND FSD-16 TOTALINFLOW	**37.03**	**60.29**	**24.9**	**2.76**	**4.64**	**102**	**280**	**Prop. Concrete Forebay**

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A1	1.66	1.98	3.01	0.12	100	2	14.1	775	2.5%	3.2	4.1	18.2	2.58	3.23	5.43	4	6	16
A2	1.15	1.35	1.96	0.12	100	2	14.1	900	1.5%	2.4	6.1	20.2	2.46	3.07	5.16	3	4	10
A3	0.48	0.56	0.82	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	1	2	5
B	1.47	1.73	2.51	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	4	6	13
C	0.51	0.60	0.87	0.12	100	2	14.1	380	2.0%	2.8	2.2	16.3	2.71	3.39	5.70	1	2	5
D	2.58	3.07	4.62	0.12	100	2	14.1	640	4.0%	4.0	2.7	16.7	2.68	3.36	5.63	7	10	26
E	0.83	0.98	1.42	0.12	100	2	14.1	240	1.5%	2.4	1.6	15.7	2.76	3.45	5.79	2	3	8
F	0.64	0.75	1.09	0.12	100	2	14.1	210	1.5%	2.4	1.4	15.5	2.77	3.47	5.83	2	3	6
G	0.78	0.95	1.46	0.12	100	2	14.1	230	1.5%	2.4	1.6	15.6	2.76	3.46	5.81	2	3	8
H	0.70	0.83	1.20	0.12	100	2	14.1	175	1.5%	2.4	1.2	15.3	2.79	3.49	5.87	2	3	7
I	0.86	1.01	1.47	0.12	100	2	14.1	665	3.5%	3.7	3.0	17.0	2.66	3.33	5.59	2	3	8
J	1.34	1.58	2.29	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	4	5	13
K	0.45	0.55	0.88	0.12	80	3	10.2					10.2	3.27	4.09	6.87	1	2	6
L	0.67	0.83	1.32	0.12	90	3	11.3					11.3	3.15	3.95	6.63	2	3	9
M	0.48	0.49	0.54	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	2	4
N	0.04	0.06	0.13	0.12	70	2	10.5					10.5	3.24	4.06	6.82	0.1	0.2	0.9
O	0.31	0.74	2.42	0.12	100	2	14.1	300	1.0%	2.0	2.5	16.6	2.69	3.37	5.66	0.8	3	14
OS-1	0.98	1.07	1.35	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	4	9
OS-2	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	5	9
OS-3	0.98	1.19	1.80	0.12	75	2	11.1	700	1.5%	2.4	4.8	15.8	2.75	3.44	5.77	2.7	4	10
OS-F4	0.91	3.65	15.96	0.12	300	8	22.2	1500	2.5%	1.6	15.8	38.0	1.71	2.13	3.57	1.6	8	57
P INT	1.26	2.76	9.55	0.12	300	8	22.2	100	1.5%	2.4	0.7	22.9	2.31	2.89	4.85	3	8	46

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

		C VALUE DCM TABLE 6-6						C VALUE DCM TABLE 6-6						WEIGHTED "C" VALUE			WEIGHTED CA			DCM TABLE 6-6
BASIN	TOTAL AREA (AC)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	CA(2)	CA(5)	CA(100)	WEIGHTED % IMPERVIOUS
A1	5.70	RES 1/6 AC.	52.5%	5.10	0.32	0.38	0.55	OPEN SPACE	7.0%	0.60	0.05	0.12	0.39	0.29	0.35	0.53	1.66	1.98	3.01	47.7%
A2	3.60	RES 1/6 AC.	52.5%	3.60	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.15	1.35	1.96	52.5%
A3	1.50	RES 1/6 AC.	52.5%	1.50	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.48	0.56	0.82	52.5%
B	4.60	RES 1/6 AC.	52.5%	4.60	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.47	1.73	2.51	52.5%
C	1.60	RES 1/6 AC.	52.5%	1.60	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.51	0.60	0.87	52.5%
D	8.70	RES 1/6 AC.	52.5%	7.93	0.32	0.38	0.55	POCKET PARK	7.0%	0.77	0.05	0.12	0.39	0.30	0.35	0.53	2.58	3.07	4.62	48.5%
E	2.60	RES 1/6 AC.	52.5%	2.60	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.83	0.98	1.42	52.5%
F	2.00	RES 1/6 AC.	52.5%	2.00	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.64	0.75	1.09	52.5%
G	2.80	RES 1/5 AC.	46.0%	2.80	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.78	0.95	1.46	46.0%
H	2.20	RES 1/6 AC.	52.5%	2.20	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.70	0.83	1.20	52.5%
I	2.70	RES 1/6 AC.	52.5%	2.70	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.86	1.01	1.47	52.5%
J	4.20	RES 1/6 AC.	52.5%	4.20	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	1.34	1.58	2.29	52.5%
K	1.70	RES 1/6 AC.	52.5%	1.37	0.32	0.38	0.55	OPEN SPACE		0.33	0.05	0.12	0.39	0.27	0.33	0.51	0.45	0.55	0.88	42.3%
L	2.60	RES 1/5 AC.	46.0%	2.35	0.28	0.34	0.52	OPEN SPACE	7.0%	0.25	0.05	0.12	0.39	0.26	0.32	0.51	0.67	0.83	1.32	42.3%
M	0.62	RES 1/5 AC.	46.0%	0.12	0.28	0.34	0.52	STREET	100.0%	0.50	0.89	0.90	0.96	0.77	0.79	0.87	0.48	0.49	0.54	89.5%
N	0.30	RES 1/5 AC.	46.0%	0.10	0.28	0.34	0.52	OPEN SPACE	7.0%	0.20	0.05	0.12	0.39	0.13	0.19	0.43	0.04	0.06	0.13	20.0%
O	6.20	RES 1/5 AC.	46.0%	0.00	0.28	0.34	0.52	POND TRACT	7.0%	6.20	0.05	0.12	0.39	0.05	0.12	0.39	0.31	0.74	2.42	7.0%
OS-1	2.00	RES 1/6 AC.	52.5%	1.40	0.32	0.38	0.55	STREET	100.0%	0.60	0.89	0.90	0.96	0.49	0.54	0.67	0.98	1.07	1.35	66.8%
OS-2	2.00	RES 1/6 AC.	52.5%	1.00	0.32	0.38	0.55	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.76	1.21	1.28	1.51	76.3%
OS-3	3.50	RES 1/5 AC.	46.0%	3.50	0.28	0.34	0.52			0.00	0.57	0.59	0.70	0.28	0.34	0.52	0.98	1.19	1.80	46.0%
OS-F4	45.60	UNDEVELOPED	0.0%	45.60	0.02	0.08	0.35			0.00	0.57	0.59	0.70	0.02	0.08	0.35	0.91	3.65	15.96	0.0%
P INT	25.80	UNDEVELOPED	0.0%	24.95	0.02	0.08	0.35	STREET	100.0%	0.85	0.89	0.90	0.96	0.05	0.11	0.37	1.26	2.76	9.55	3.3%


MATCH LINE SEE SHEET 4
P-INT 25.8
INTERIM OFF-SITE UNDEVELOPED BASIN
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
PROP. TEMP. SEDIMENT BASIN
EX10 265.9
OS-F4 45.6
PLANNED STERLING RANCH EAST FILING NO. 4 (SF224) UNPLATTED
PROP. SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
STERLING RANCH ROAD
STERLING RANCH ROAD (60' PUBLIC ROW)
PROP. PUBLIC RCP STORM (TYP.)
PROP. DIVERSION BERM TO ROUTE OFF-SITE FLOWS AROUND SITE.
OS-1 2.0
OS-2 2.0
MINNEAPOLIS CT.
APPLETON DR.
VANCOUVER STREET
MISSOULA WAY
GREAT FALLS DR.
GRAND FORKS WAY
SIOUX FALLS WAY
ROCK SPRINGS CT.
EVANSTON PLACE
RAPID CITY PLACE
PARK TRACT G
TRACT E
TRACT F
TRACT H
TRACT C
TRACT B
TRACT A
A1 5.7
A2 3.6
A3 1.5
B 4.6
C 1.6
D 8.7
E 2.6
F 2.0
G 2.8
H 2.2
J 4.2
K 1.7
L 2.6
M 0.62
N 0.30
O 6.2
I 2.7
STERLING RANCH EAST FILING NO. 2 (SF2237)
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (SF2236)
BOULDER CITY DRIVE (60' PUBLIC ROW)
IDAHO FALLS DR. (60' PUBLIC ROW)
ESTES PARK PATH (60' PUBLIC ROW)
PAGOSA SPRINGS PLACE (60' PUBLIC ROW)
RIO RANCHO TRAIL (60' PUBLIC ROW)
STERLING RANCH ROAD (60' PUBLIC ROW)
MARICOPA CT. (60' PUBLIC ROW)
BRIARGATE PARKWAY (130' PUBLIC ROW)
FUTURE BRIARGATE PARKWAY (130' PUBLIC ROW)
ALL STORM FACILITIES TRIBUTARY TO DP-24 DESIGNED UNDER (SF2236) FOURSQUARE AT STERLING RANCH FILING NO. 1
PROP. CONC. FOREBAY/ IMPACT STRUCTURE
PROP. CONC. TRICKLE CHANNEL
EXIST. 15' TYPE R AT-GRADE INLETS
EXIST. 18" RCP STORM
EXIST. 42" RCP STORM
EXIST. 48" RCP STORM
EXIST. CONC. FOREBAY AND TRICKLE CHANNEL DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
EXIST. CONC. MICROPOOL/ OUTLET STRUCTURE DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
TRACT I FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (POND FSD-16)
PROP. CONC. FOREBAY
PROP. ACCESS ROAD
EXIST. 48" RCP STORM OUTFALL (CDR221)
VILLAGES AT STERLING RANCH EAST PUD PRELIM. PLAN (PUDSP226)
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR TO MINIMIZE FLOW-BY TOWARDS BRIARGATE PKWY.
PROP. TEMP. SEDIMENT BASIN
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
1 2 3 4 5 6 7 8 9 10 11 12 21 22 23 24
LP
HP
(7100)
(7110)
(7120)
(7130)
(7140)
(7150)
(7160)
(7170)
N
100 50 0 100 200
SCALE: 1" = 100'

FOR REFERENCE ONLY

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	⬡ 1
PIPE ROUTING	⑧
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥

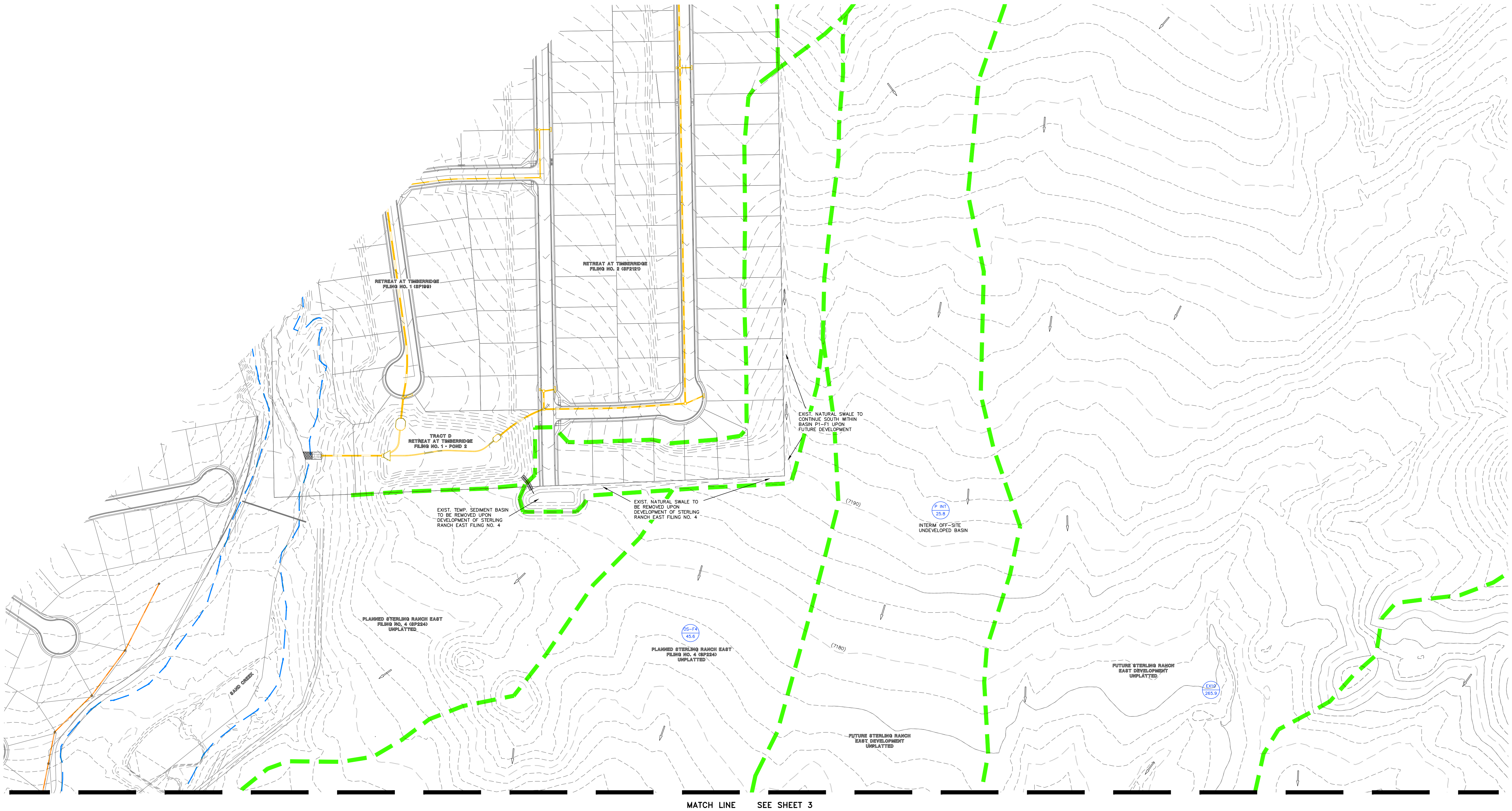
CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)

STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN

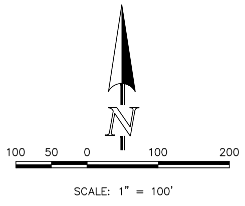
PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (INTERIM)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 3 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60


RETREAT AT TIMBERRIDGE FILING NO. 2 (SF2121)
RETREAT AT TIMBERRIDGE FILING NO. 1 (SF199)
TRACT D RETREAT AT TIMBERRIDGE FILING NO. 1 - POND 2
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1-F1 UPON FUTURE DEVELOPMENT
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
(7190)
P INT
25.8
INTERIM OFF-SITE UNDEVELOPED BASIN
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
OS-F4
45.6
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
SAND CREEK
(7180)
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
EX10
265.9
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
MATCH LINE SEE SHEET 3

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	— 6910 —
BASIN BOUNDARY	🟩 🟩 🟩
INTERIM BASIN BOUNDARY	🟧 🟧 🟧
DESIGN POINT	⬡1
PIPE ROUTING	⑧
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	→
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥


N
100
50
0
100
200

SCALE: 1" = 100'

FOR REFERENCE ONLY

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
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(719)785-0799 (Fax)

STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN

PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (INTERIM)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 4 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60

N:\118360\REPORTS\PDR\118360 DM - INTERIM.dwg, 3/26/2025 3:57:01 PM, 1:1

MATCH LINE SEE SHEET 6

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Ultimate)

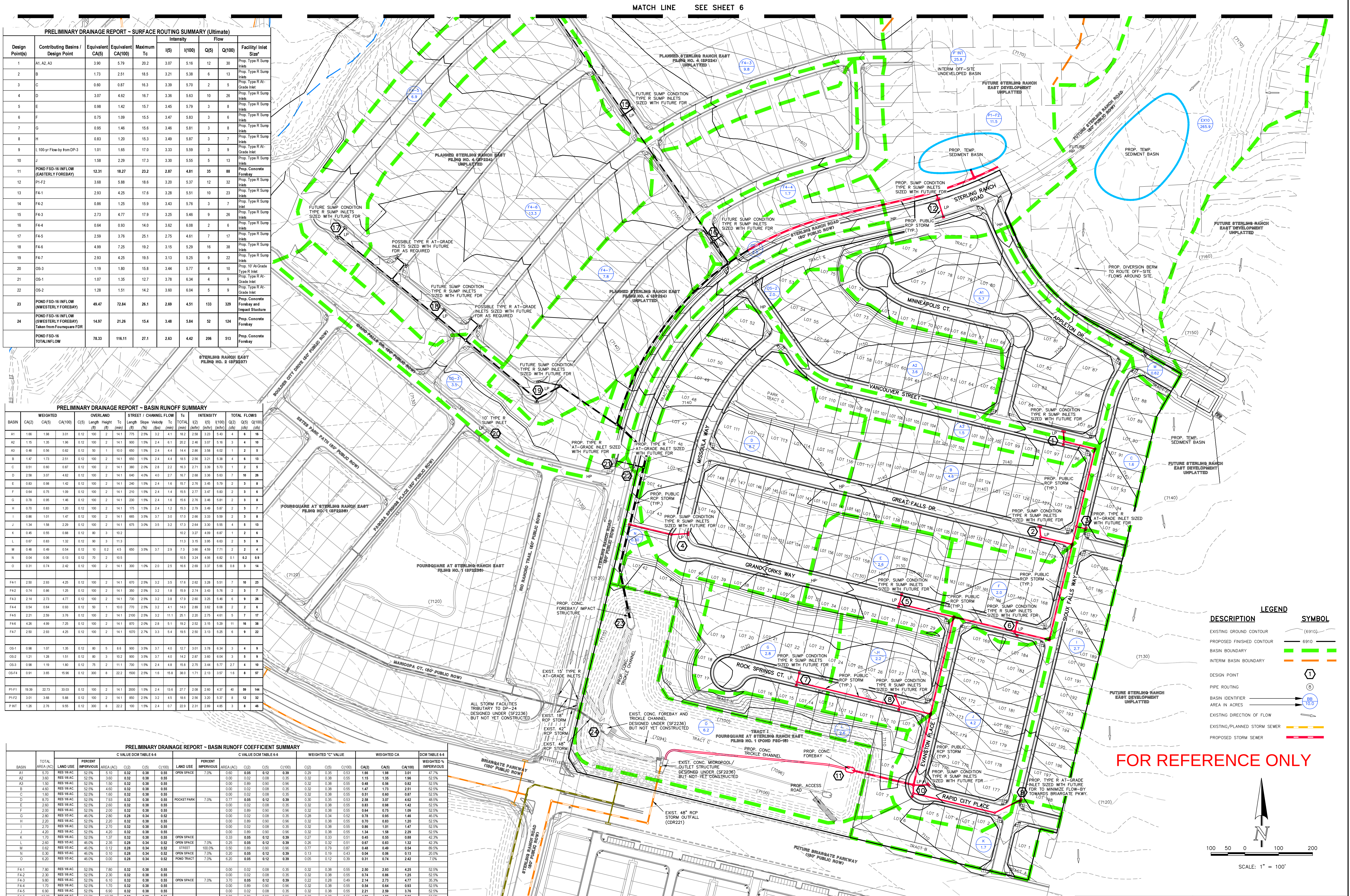
Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Facility/ Inlet Size*
1	A1, A2, A3	3.90	5.79	20.2	3.07	5.16	12	30	Prop. Type R Sump Inlets
2	B	1.73	2.51	18.5	3.21	5.38	6	13	Prop. Type R Sump Inlets
3	C	0.60	0.87	16.3	3.39	5.70	2	5	Prop. Type R At-Grade Inlet
4	D	3.07	4.62	16.7	3.36	5.63	10	26	Prop. Type R Sump Inlets
5	E	0.98	1.42	15.7	3.45	5.79	3	8	Prop. Type R Sump Inlets
6	F	0.75	1.09	15.5	3.47	5.83	3	6	Prop. Type R Sump Inlets
7	G	0.95	1.46	15.6	3.46	5.81	3	8	Prop. Type R Sump Inlets
8	H	0.83	1.20	15.3	3.49	5.87	3	7	Prop. Type R Sump Inlets
9	I, 100-yr Flow-by from DP-3	1.01	1.65	17.0	3.33	5.59	3	9	Prop. Type R At-Grade Inlet
10	J	1.58	2.29	17.3	3.30	5.55	5	13	Prop. Type R Sump Inlets
11	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.31**	**18.27**	**23.2**	**2.87**	**4.81**	**35**	**88**	**Prop. Concrete Forebay**
12	P1-F2	3.68	5.88	18.6	3.20	5.37	12	32	Prop. Type R Sump Inlets
13	F4-1	2.93	4.25	17.6	3.28	5.51	10	23	Prop. Type R Sump Inlets
14	F4-2	0.86	1.25	15.9	3.43	5.76	3	7	Prop. Type R Sump Inlet
15	F4-3	2.73	4.77	17.9	3.25	5.46	9	26	Prop. Type R Sump Inlets
16	F4-4	0.64	0.93	14.0	3.62	6.08	2	6	Prop. Type R Sump Inlets
17	F4-5	2.59	3.76	25.1	2.75	4.61	7	17	Prop. Type R Sump Inlets
18	F4-6	4.99	7.25	19.2	3.15	5.29	16	38	Prop. Type R Sump Inlets
19	F4-7	2.93	4.25	19.5	3.13	5.25	9	22	Prop. Type R Sump Inlets
20	OS-3	1.19	1.80	15.8	3.44	5.77	4	10	Prop. 10' At-Grade Type R Inlet
21	OS-1	1.07	1.35	12.7	3.78	6.34	4	9	Prop. Type R At-Grade Inlet
22	OS-2	1.28	1.51	14.2	3.60	6.04	5	9	Prop. Type R At-Grade Inlet
23	**POND FSD-16 INFLOW (NWESTERLY FOREBAY)**	**49.47**	**72.84**	**26.1**	**2.69**	**4.51**	**133**	**329**	**Prop. Concrete Forebay and Impact Stucture**
24	**POND FSD-16 INFLOW (SWESTERLY FOREBAY) Taken from Foursquare FDR**	**14.97**	**21.26**	**15.4**	**3.48**	**5.84**	**52**	**124**	**Prop. Concrete Forebay**
	POND FSD-16 TOTALINFLOW	**78.33**	**116.11**	**27.1**	**2.63**	**4.42**	**206**	**513**	**Prop. Concrete Forebay**

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A1	1.66	1.98	3.01	0.12	100	2	14.1	775	2.5%	3.2	4.1	18.2	2.58	3.23	5.43	4	**6**	**16**
A2	1.15	1.35	1.96	0.12	100	2	14.1	900	1.5%	2.4	6.1	20.2	2.46	3.07	5.16	3	**4**	**10**
A3	0.48	0.56	0.82	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	1	**2**	**5**
B	1.47	1.73	2.51	0.12	100	2	14.1	650	1.5%	2.4	4.4	18.5	2.56	3.21	5.38	4	**6**	**13**
C	0.51	0.60	0.87	0.12	100	2	14.1	380	2.0%	2.8	2.2	16.3	2.71	3.39	5.70	1	**2**	**5**
D	2.58	3.07	4.62	0.12	100	2	14.1	640	4.0%	4.0	2.7	16.7	2.68	3.36	5.63	7	**10**	**26**
E	0.83	0.98	1.42	0.12	100	2	14.1	240	1.5%	2.4	1.6	15.7	2.76	3.45	5.79	2	**3**	**8**
F	0.64	0.75	1.09	0.12	100	2	14.1	210	1.5%	2.4	1.4	15.5	2.77	3.47	5.83	2	**3**	**6**
G	0.78	0.95	1.46	0.12	100	2	14.1	230	1.5%	2.4	1.6	15.6	2.76	3.46	5.81	2	**3**	**8**
H	0.70	0.83	1.20	0.12	100	2	14.1	175	1.5%	2.4	1.2	15.3	2.79	3.49	5.87	2	**3**	**7**
I	0.86	1.01	1.47	0.12	100	2	14.1	665	3.5%	3.7	3.0	17.0	2.66	3.33	5.59	2	**3**	**8**
J	1.34	1.58	2.29	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	4	**5**	**13**
K	0.45	0.55	0.88	0.12	80	3	10.2					10.2	3.27	4.09	6.87	1	**2**	**6**
L	0.67	0.83	1.32	0.12	90	3	11.3					11.3	3.15	3.95	6.63	2	**3**	**9**
M	0.48	0.49	0.54	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	**2**	**4**
N	0.04	0.06	0.13	0.12	70	2	10.5					10.5	3.24	4.06	6.82	0.1	**0.2**	**0.9**
O	0.31	0.74	2.42	0.12	100	2	14.1	300	1.0%	2.0	2.5	16.6	2.69	3.37	5.66	0.8	**3**	**14**
F4-1	2.50	2.93	4.25	0.12	100	2	14.1	670	2.5%	3.2	3.5	17.6	2.62	3.28	5.51	7	**10**	**23**
F4-2	0.74	0.86	1.25	0.12	100	2	14.1	350	2.5%	3.2	1.8	15.9	2.74	3.43	5.76	2	**3**	**7**
F4-3	2.14	2.73	4.77	0.12	100	2	14.1	730	2.5%	3.2	3.8	17.9	2.60	3.25	5.46	6	**9**	**26**
F4-4	0.54	0.64	0.93	0.12	50	1	10.0	770	2.5%	3.2	4.1	14.0	2.89	3.62	6.08	2	**2**	**6**
F4-5	2.21	2.59	3.76	0.12	100	2	14.1	2100	2.5%	3.2	11.1	25.1	2.20	2.75	4.61	5	**7**	**17**
F4-6	4.26	4.99	7.25	0.12	100	2	14.1	870	2.0%	2.8	5.1	19.2	2.52	3.15	5.29	11	**16**	**38**
F4-7	2.50	2.93	4.25	0.12	100	2	14.1	1070	2.7%	3.3	5.4	19.5	2.50	3.13	5.25	6	**9**	**22**
OS-1	0.98	1.07	1.35	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	**4**	**9**
OS-2	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	**5**	**9**
OS-3	0.98	1.19	1.80	0.12	75	2	11.1	700	1.5%	2.4	4.8	15.8	2.75	3.44	5.77	2.7	**4**	**10**
OS-F4	0.91	3.65	15.96	0.12	300	8	22.2	1500	2.5%	1.6	15.8	38.0	1.71	2.13	3.57	1.6	**8**	**57**
P1-F1	19.39	22.73	33.03	0.12	100	2	14.1	2000	1.5%	2.4	13.6	27.7	2.08	2.60	4.37	40	**59**	**144**
P1-F2	3.01	3.68	5.88	0.12	100	2	14.1	850	2.5%	3.2	4.5	18.6	2.56	3.20	5.37	8	**12**	**32**
P INT	1.26	2.76	9.55	0.12	300	8	22.2	100	1.5%	2.4	0.7	22.9	2.31	2.89	4.85	3	**8**	**46**

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	C VALUE DCM TABLE 6-6 LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	C VALUE DCM TABLE 6-6 LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	WEIGHTED "C" VALUE C(2)	C(5)	C(100)	WEIGHTED CA CA(2)	CA(5)	CA(100)	DCM TABLE 6-6 WEIGHTED % IMPERVIOUS
A1	5.70	RES 1/6 AC.	52.5%	5.10	**0.32**	**0.38**	**0.55**	OPEN SPACE	7.0%	0.60	**0.05**	**0.12**	**0.39**	0.29	0.35	0.53	**1.66**	**1.98**	**3.01**	47.7%
A2	3.60	RES 1/6 AC.	52.5%	3.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.15**	**1.35**	**1.96**	52.5%
A3	1.50	RES 1/6 AC.	52.5%	1.50	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.48**	**0.56**	**0.82**	52.5%
B	4.60	RES 1/6 AC.	52.5%	4.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**1.47**	**1.73**	**2.51**	52.5%
C	1.60	RES 1/6 AC.	52.5%	1.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.51**	**0.60**	**0.87**	52.5%
D	8.70	RES 1/6 AC.	52.5%	7.93	**0.32**	**0.38**	**0.55**	POCKET PARK	7.0%	0.77	**0.05**	**0.12**	**0.39**	0.30	0.35	0.53	**2.58**	**3.07**	**4.62**	48.5%
E	2.60	RES 1/6 AC.	52.5%	2.60	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.83**	**0.98**	**1.42**	52.5%
F	2.00	RES 1/6 AC.	52.5%	2.00	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.64**	**0.75**	**1.09**	52.5%
G	2.80	RES 1/5 AC.	46.0%	2.80	**0.28**	**0.34**	**0.52**			0.00	0.02	0.08	0.35	0.28	0.34	0.52	**0.78**	**0.95**	**1.46**	46.0%
H	2.20	RES 1/6 AC.	52.5%	2.20	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.70**	**0.83**	**1.20**	52.5%
I	2.70	RES 1/6 AC.	52.5%	2.70	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.86**	**1.01**	**1.47**	52.5%
J	4.20	RES 1/6 AC.	52.5%	4.20	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**1.34**	**1.58**	**2.29**	52.5%
K	1.70	RES 1/6 AC.	52.5%	1.37	**0.32**	**0.38**	**0.55**	OPEN SPACE		0.33	**0.05**	**0.12**	**0.39**	0.27	0.33	0.51	**0.45**	**0.55**	**0.88**	42.3%
L	2.60	RES 1/5 AC.	46.0%	2.35	**0.28**	**0.34**	**0.52**	OPEN SPACE	7.0%	0.25	**0.05**	**0.12**	**0.39**	0.26	0.32	0.51	**0.67**	**0.83**	**1.32**	42.3%
M	0.62	RES 1/5 AC.	46.0%	0.12	**0.28**	**0.34**	**0.52**	STREET	100.0%	0.50	0.89	0.90	0.96	0.77	0.79	0.87	**0.48**	**0.49**	**0.54**	89.5%
N	0.30	RES 1/5 AC.	46.0%	0.10	**0.28**	**0.34**	**0.52**	OPEN SPACE	7.0%	0.20	**0.05**	**0.12**	**0.39**	0.13	0.19	0.43	**0.04**	**0.06**	**0.13**	20.0%
O	6.20	RES 1/5 AC.	46.0%	0.00	**0.28**	**0.34**	**0.52**	POND TRACT	7.0%	6.20	**0.05**	**0.12**	**0.39**	0.05	0.12	0.39	**0.31**	**0.74**	**2.42**	7.0%
F4-1	7.80	RES 1/6 AC.	52.5%	7.80	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**2.50**	**2.93**	**4.25**	52.5%
F4-2	2.30	RES 1/6 AC.	52.5%	2.30	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**0.74**	**0.86**	**1.25**	52.5%
F4-3	9.80	RES 1/6 AC.	52.5%	6.10	**0.32**	**0.38**	**0.55**	OPEN SPACE	7.0%	3.70	**0.05**	**0.12**	**0.39**	0.22	0.28	0.49	**2.14**	**2.73**	**4.77**	35.3%
F4-4	1.70	RES 1/6 AC.	52.5%	1.70	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**0.54**	**0.64**	**0.93**	52.5%
F4-5	6.90	RES 1/6 AC.	52.5%	6.90	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**2.21**	**2.59**	**3.76**	52.5%
F4-6	13.30	RES 1/6 AC.	52.5%	13.30	**0.32**	**0.38**	**0.55**			0.00	0.89	0.90	0.96	0.32	0.38	0.55	**4.26**	**4.99**	**7.25**	52.5%
F4-7	7.80	RES 1/6 AC.	52.5%	7.80	**0.32**	**0.38**	**0.55**			0.00	0.02	0.08	0.35	0.32	0.38	0.55	**2.50**	**2.93**	**4.25**	52.5%
OS-1	2.00	RES 1/6 AC.	52.5%	1.40	**0.32**	**0.38**	**0.55**	STREET	100.0%	0.60	0.89	0.90	0.96	0.49	0.54	0.67	**0.98**	**1.07**	**1.35**	66.8%
OS-2	2.00	RES 1/6 AC.	52.5%	1.00	**0.32**	**0.38**	**0.55**	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.76	**1.21**	**1.28**	**1.51**	76.3%
OS-3	3.50	RES 1/5 AC.	46.0%	3.50	**0.28**	**0.34**	**0.52**			0.00	0.57	0.59	0.70	0.28	0.34	0.52	**0.98**	**1.19**	**1.80**	46.0%
OS-F4	45.60	UNDEVELOPED	0.0%	45.60	**0.02**	**0.08**	**0.35**			0.00	0.57	0.59	0.70	0.02	0.08	0.35	**0.91**	**3.65**	**15.96**	0.0%
P1-F1	60.60	RES 1/6 AC.	52.5%	60.60	**0.32**	**0.38**	**0.55**			0.00	0.57	0.59	0.70	0.32	0.38	0.55	**19.39**	**22.73**	**33.03**	52.5%
P1-F2	11.50	RES 1/6 AC.	52.5%	9.00	**0.32**	**0.38**	**0.55**	OPEN SPACE	7.0%	2.50	**0.05**	**0.12**	**0.39**	0.26	0.32	0.51	**3.01**	**3.68**	**5.88**	42.6%
P INT	25.80	UNDEVELOPED	0.0%	24.95	**0.02**	**0.08**	**0.35**	STREET	100.0%	0.85	0.89	0.90	0.96	0.05	0.11	0.37	**1.26**	**2.76**	**9.55**	3.3%


PLANNED STERLING RANCH EAST FILING NO. 4 (SF224) UNPLATTED
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
INTERIM OFF-SITE UNDEVELOPED BASIN
PROP. TEMP. SEDIMENT BASIN
FUTURE STERLING RANCH ROAD (60' PUBLIC ROW)
STERLING RANCH ROAD
STERLING RANCH ROAD (60' PUBLIC ROW)
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
PROP. SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
POSSIBLE TYPE R AT-GRADE INLETS SIZED WITH FUTURE FDR AS REQUIRED
PROP. DIVERSION BERM TO ROUTE OFF-SITE FLOWS AROUND SITE
STERLING RANCH EAST FILING NO. 2 (SF2237)
FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (SF2236)
BOULDER CITY DRIVE (60' PUBLIC ROW)
IDAHO FALLS DR. (60' PUBLIC ROW)
ESTES PARK PATH (60' PUBLIC ROW)
PAGOSA SPRINGS PLACE (60' PUBLIC ROW)
RIO RANCHO TRAIL (60' PUBLIC ROW)
STERLING RANCH ROAD (60' PUBLIC ROW)
MARICOPA CT. (60' PUBLIC ROW)
BRIARGATE PARKWAY (150' PUBLIC ROW)
FUTURE BRIARGATE PARKWAY (150' PUBLIC ROW)
VILLAGES AT STERLING RANCH EAST PUD PRELIM. PLAN (PUDSP226)
MINNEAPOLIS CT.
APPLETON DR.
VANCOUVER STREET
MISSOULA WAY
GREAT FALLS DR.
GRAND FORKS WAY
SIOUX FALLS WAY
ROCK SPRINGS CT.
EVANSTON PLACE
RAPID CITY PLACE
PARK TRACT G
TRACT E
TRACT C
TRACT H
TRACT B
TRACT A
TRACT I FOURSQUARE AT STERLING RANCH EAST FILING NO. 1 (POND FSD-16)
10' TYPE R SUMP INLET
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR
PROP. PUBLIC RCP STORM (TYP.)
PROP. CONC. FOREBAY/ IMPACT STRUCTURE
PROP. CONC. TRICKLE CHANNEL
PROP. CONC. FOREBAY
PROP. ACCESS ROAD
EXIST. 15" TYPE R AT-GRADE INLETS
EXIST. 18" RCP STORM
EXIST. 42" RCP STORM
EXIST. 48" RCP STORM
EXIST. 48" RCP STORM OUTFALL (CDR221)
ALL STORM FACILITIES TRIBUTARY TO DP-24 DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
EXIST. CONC. FOREBAY AND TRICKLE CHANNEL DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
EXIST. CONC. MICROPOOL/ OUTLET STRUCTURE DESIGNED UNDER (SF2236) BUT NOT YET CONSTRUCTED
PROP. TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR TO MINIMIZE FLOW-BY TOWARDS BRIARGATE PKWY.
FUTURE HP
HP
LP
P INT 25.8
EX10 265.9
P1-F2 11.5
F4-3 9.8
F4-5 6.9
F4-4 1.7
F4-6 13.3
F4-7 7.8
OS-2 2.0
OS-3 3.5
A1 5.7
A2 3.6
A3 1.5
B 4.6
C 1.6
D 8.7
E 2.6
F 2.0
G 2.8
H 2.2
J 4.2
K 1.7
M 0.62
O 6.2
N 0.30
(7170)
(7160)
(7150)
(7140)
(7130)
(7120)
(7110)
(7100)
(7094)
(7096)
N
100 50 0 100 200
SCALE: 1" = 100'

FOR REFERENCE ONLY

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	⬡ 1
PIPE ROUTING	⑧
BASIN IDENTIFIER	BB
AREA IN ACRES	10.0
EXISTING DIRECTION OF FLOW	⇨
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥

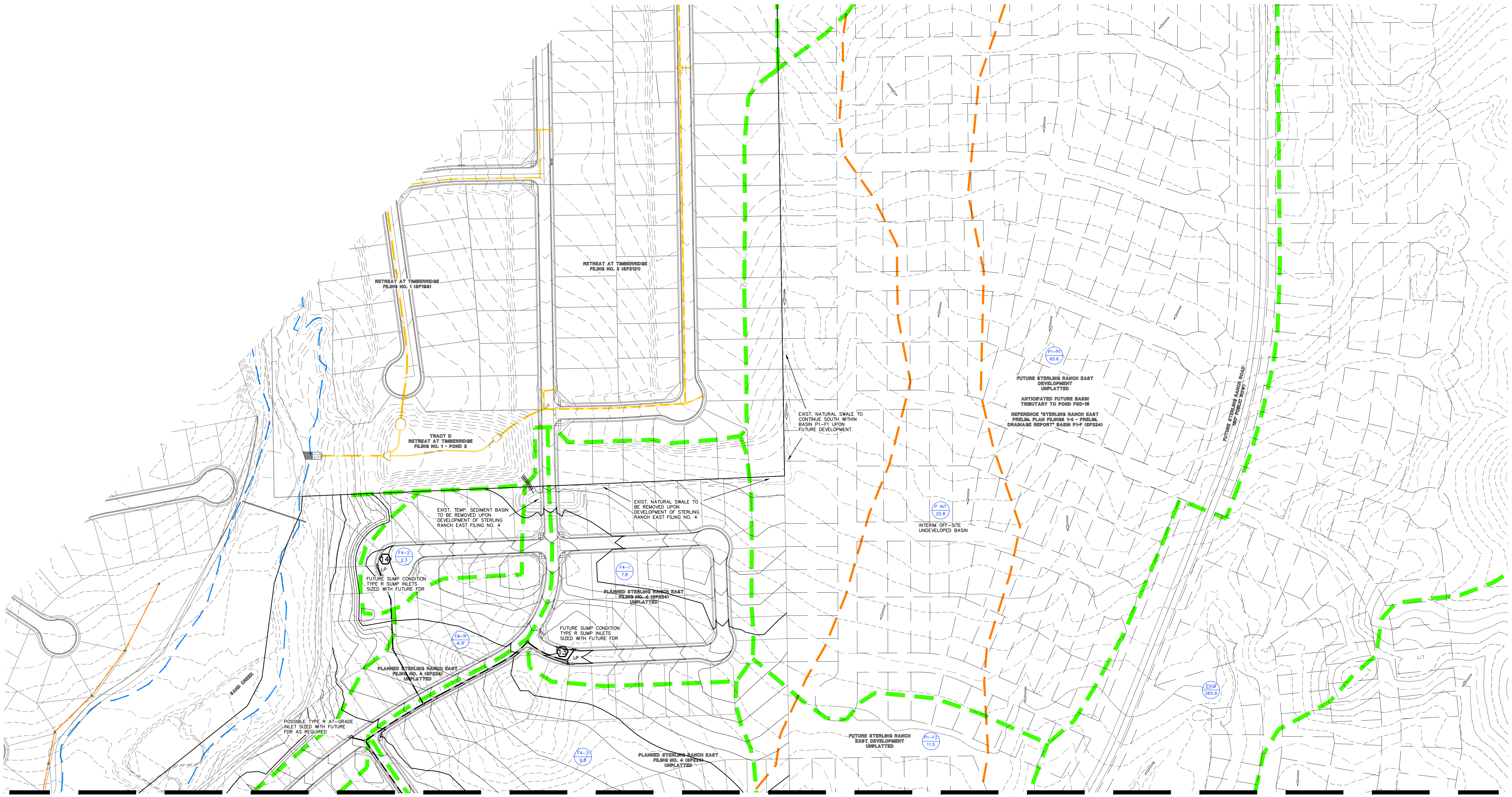
SCALE: 1" = 100'

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)

STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN
PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 5 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60

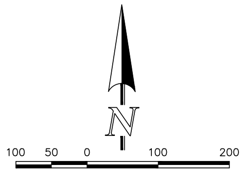

RETREAT AT TIMBERRIDGE FILING NO. 2 (SF2121)
RETREAT AT TIMBERRIDGE FILING NO. 1 (SF199)
TRACT D RETREAT AT TIMBERRIDGE FILING NO. 1 - POND 2
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1-F1 UPON FUTURE DEVELOPMENT
P1-F1
60.6
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
ANTICIPATED FUTURE BASIN TRIBUTARY TO POND FSD-16
REFERENCE "STERLING RANCH EAST PRELIM. PLAN FILINGS 1-4 - PRELIM. DRAINAGE REPORT" BASIN P1-F (SP224)
FUTURE STERLING RANCH ROAD (80' PUBLIC ROW)
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
P INT
25.8
INTERIM OFF-SITE UNDEVELOPED BASIN
14
LP
F4-2
2.3
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
F4-1
7.8
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
F4-5
6.9
13
LP
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
SAND CREEK
EX10
265.9
POSSIBLE TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR AS REQUIRED
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
P1-F2
11.5
F4-3
9.8
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED

MATCH LINE SEE SHEET 5

FOR REFERENCE ONLY

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	🟩
INTERIM BASIN BOUNDARY	🟧
DESIGN POINT	⬡1
PIPE ROUTING	⑧
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	→
EXISTING/PLANNED STORM SEWER	🟨
PROPOSED STORM SEWER	🟥


N
100
50
0
100
200

SCALE: 1" = 100'

CLASSIC CONSULTING

619 N. Cascade Avenue, Suite 200
Colorado Springs, Colorado 80903
(719)785-0790
(719)785-0799 (Fax)

STERLING RANCH EAST FILING NO. 6
PRELIMINARY PLAN
PRELIMINARY DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

DESIGNED BY	MAW	SCALE	DATE 8/20/24
DRAWN BY	MAW	(H) 1"= 100'	SHEET 6 OF 6
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60

CLASSIC CONSULTING

DRAINAGE MAPS

PRELIMINARY DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	C VALUE DCM TABLE 6-6 LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	WEIGHTED CA CA(2)	CA(5)	CA(100)	DCM TABLE 6-6 WEIGHTED % IMPERVIOUS
EX-9	65.30	UNDEV.	2.0%	65.30	0.03	0.09	0.36	1.96	5.88	23.51	2.0%
EX-10	265.90	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)									
EX-10A	17.80	UNDEV.	2.0%	17.80	0.03	0.09	0.36	0.53	1.60	6.41	2.0%
EX-11	3.90	UNDEV.	2.0%	3.90	0.03	0.09	0.36	0.12	0.35	1.40	2.0%

PRELIMINARY DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
EX-9	1.96	5.88	23.51	0.12	300	8	22.2	3500	3.0%	1.7	33.7	55.9	1.25	1.55	2.60	2	9	61
EX-10	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)																105	222
EX-10A	0.53	1.60	6.41	0.12	300	8	22.2	1100	3.0%	1.7	10.6	32.8	1.88	2.35	3.94	1	4	25
EX-11	0.12	0.35	1.40	0.12	300	8	22.2					22.2	2.35	2.93	4.93	0.3	1	7

PRELIMINARY DRAINAGE REPORT ~ PRE-DEVELOPMENT SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	I(100)	Flow Q(5)	Q(100)	Outfall
EX1	EX-9	5.88	23.51	55.9	1.55	2.60	9	61	Exist. Pond FSD-16 (Interim - TSB)
EX2	EX-10A	1.60	6.41	32.8	2.35	3.94	4	25	
EX3	EX-10 & EX-11	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)					105	222	

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

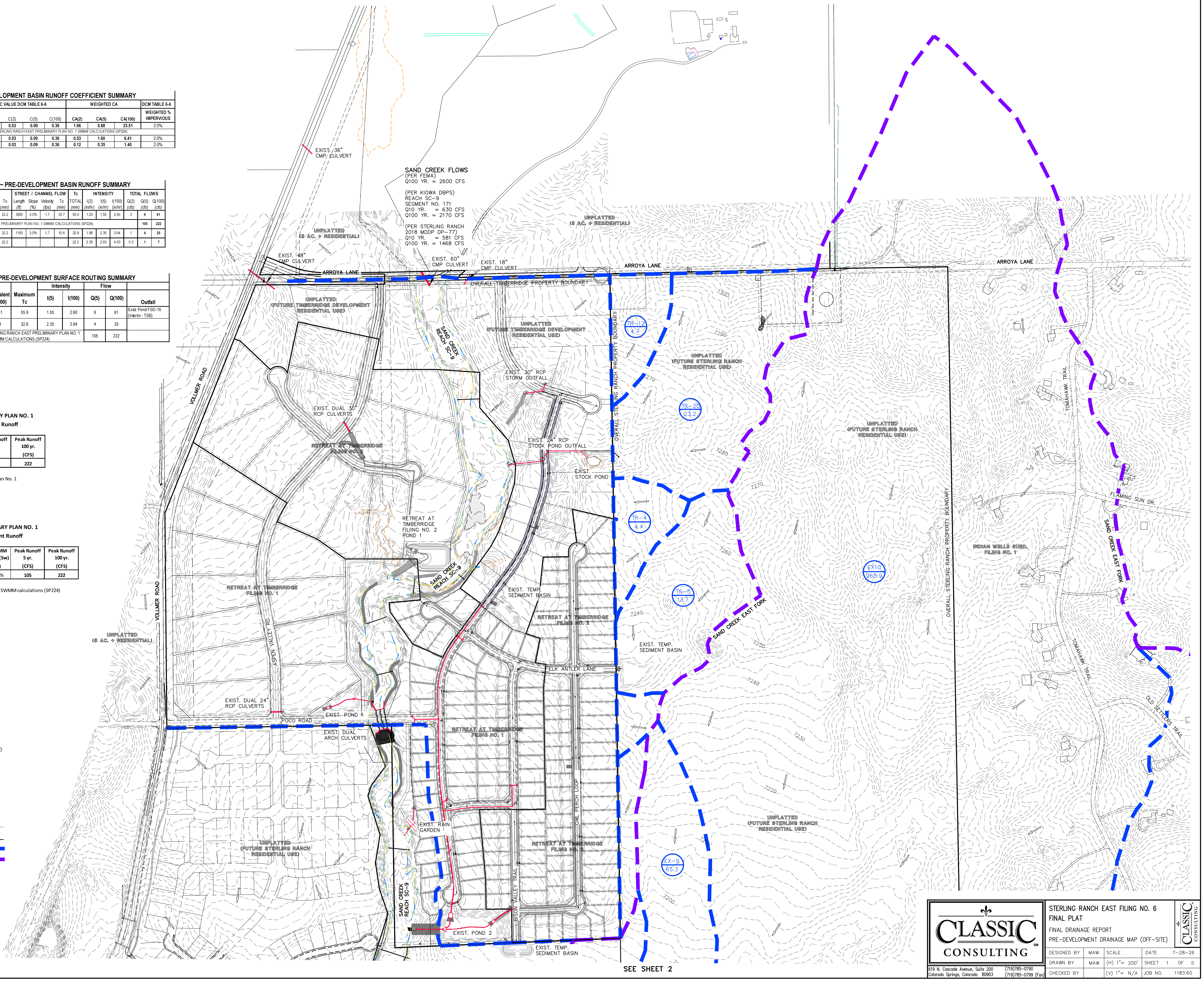
Subcatchment	Area (Ac.)	SWMM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10 *	265.9	7%	105	222

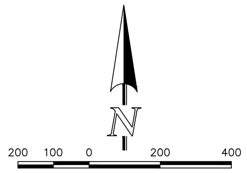
* Reference Sterling Ranch East Preliminary Plan No. 1 for SWMM calculations (SP224)

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	*SWMM Width (Lw) (ft.)	*SWMM Slope (Sw) (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	3365	3.41%	105	222

* Reference Sterling Ranch East Preliminary Plan No. 1 for SWMM calculations (SP224)


EXIST. 36" CMP CULVERT
SAND CREEK FLOWS
(PER FEMA)
Q100 YR. = 2600 CFS
(PER KIOWA DBPS)
REACH SC-9
SEGMENT NO. 171
Q10 YR. = 630 CFS
Q100 YR. = 2170 CFS
(PER STERLING RANCH
2018 MDDP DP-77)
Q10 YR. = 581 CFS
Q100 YR. = 1468 CFS
UNPLATTED (5 AC. + RESIDENTIAL)
UNPLATTED (5 AC. + RESIDENTIAL)
EXIST. 48" CMP CULVERT
EXIST. 60" CMP CULVERT
EXIST. 18" CMP CULVERT
ARROYA LANE
ARROYA LANE
ARROYA LANE
OVERALL TIMBERRIDGE PROPERTY BOUNDARY
UNPLATTED (FUTURE TIMBERRIDGE DEVELOPMENT RESIDENTIAL USE)
UNPLATTED (FUTURE TIMBERRIDGE DEVELOPMENT RESIDENTIAL USE)
SAND CREEK REACH SC-9
TR-12
4.7
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
VOLLMER ROAD
EXIST. 30" RCP STORM OUTFALL
OVERALL STERLING RANCH PROPERTY BOUNDARY
TR-20
23.2
EXIST. DUAL 30" RCP CULVERTS
RETREAT AT TIMBERRIDGE FILING NO. 2
EXIST. 24" RCP STOCK POND OUTFALL
EXIST. STOCK POND
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
7300
7290
7280
7270
7260
7250
7240
7230
7220
7200
FLAMING SUN DR
TR-4
4.4
RETREAT AT TIMBERRIDGE FILING NO. 2 POND 1
SAND CREEK REACH SC-9
INDIAN WELLS SUBD. FILING NO. 1
EX10
265.9
OVERALL STERLING RANCH PROPERTY BOUNDARY
TOMAHAWK TRAIL
SAND CREEK EAST FORK
RETREAT AT TIMBERRIDGE FILING NO. 1
EXIST. TEMP. SEDIMENT BASIN
TR-5
13.7
SAND CREEK EAST FORK
RETREAT AT TIMBERRIDGE FILING NO. 2
EXIST. TEMP. SEDIMENT BASIN
VOLLMER ROAD
UNPLATTED (5 AC. + RESIDENTIAL)
ASPEN VALLEY RD.
ELK ANTLER LANE
TOMAHAWK TRAIL
OLD SETTLERS TRAIL
EXIST. DUAL 24" RCP CULVERTS
EXIST. POND 1
POCO ROAD
EXIST. DUAL ARCH CULVERTS
RETREAT AT TIMBERRIDGE FILING NO. 1
OWL PERCH LOOP
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
EXIST. RAIN GARDEN
RETREAT AT TIMBERRIDGE FILING NO. 2
EX-9
65.3
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
SAND CREEK REACH SC-9
BISON VALLEY TRAIL
EXIST. POND 2
EXIST. TEMP. SEDIMENT BASIN
SEE SHEET 2


N
200
100
0
200
400

SCALE: 1" = 200'

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	—— 6910 ——
SUB–BASIN BOUNDARY	▬ ▬ ▬ ▬
SAND CREEK EAST FORK BASIN LINE	▬ ▬
DESIGN POINT	△ 4
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
SITE TRIBUTARY BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
EXISTING STORM SEWER	▬

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STERLING RANCH EAST FILING NO. 6
FINAL PLAT
FINAL DRAINAGE REPORT
PRE–DEVELOPMENT DRAINAGE MAP (OFF–SITE)

DESIGNED BY	MAW	SCALE	DATE 7–28–26
DRAWN BY	MAW	(H) 1"= 200'	SHEET 1 OF 5
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	6910
SUB–BASIN BOUNDARY	▬ ▬ ▬
SAND CREEK EAST FORK BASIN LINE	▬ ▬
DESIGN POINT	△ 4
BASIN IDENTIFIER AREA IN ACRES	BB 10.0
SITE TRIBUTARY BASIN IDENTIFIER AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	⇨
EXISTING STORM SEWER	▬

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

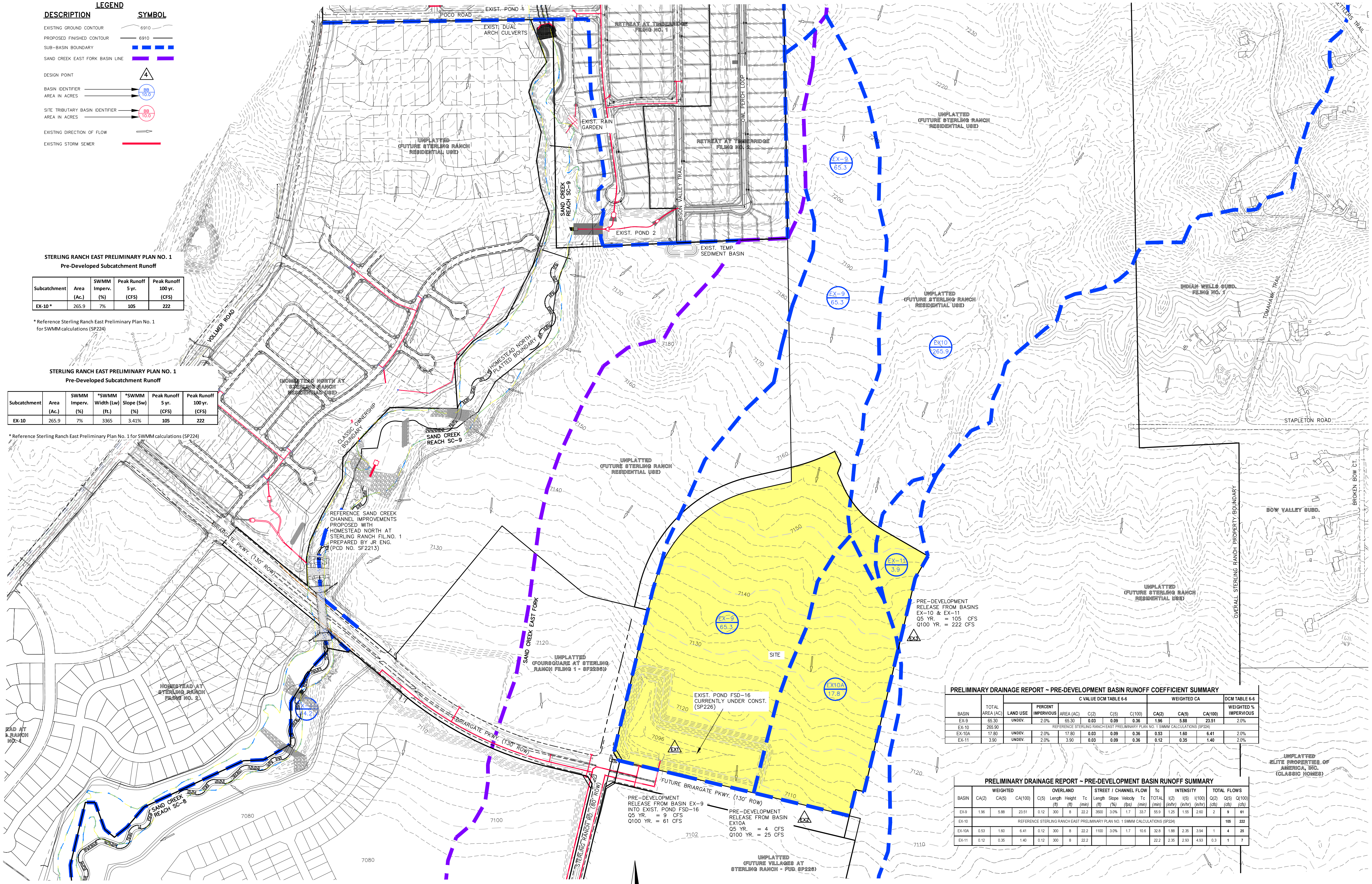
Subcatchment	Area (Ac.)	SWMM Imperv. (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10 *	265.9	7%	**105**	**222**

* Reference Sterling Ranch East Preliminary Plan No. 1
for SWMM calculations (SP224)

STERLING RANCH EAST PRELIMINARY PLAN NO. 1
Pre-Developed Subcatchment Runoff

Subcatchment	Area (Ac.)	SWMM Imperv. (%)	*SWMM Width (Lw) (ft.)	*SWMM Slope (Sw) (%)	Peak Runoff 5 yr. (CFS)	Peak Runoff 100 yr. (CFS)
EX-10	265.9	7%	3365	3.41%	**105**	**222**

* Reference Sterling Ranch East Preliminary Plan No. 1 for SWMM calculations (SP224)


EXIST. POND 1
POCO ROAD
EXIST. DUAL ARCH CULVERTS
RETREAT AT TIMBERRIDGE FILING NO. 1
RETREAT AT TIMBERRIDGE FILING NO. 2
OWL PERCH LOOP
BISON VALLEY TRAIL
EXIST. RAIN GARDEN
SAND CREEK REACH SC–9
EXIST. POND 2
EXIST. TEMP. SEDIMENT BASIN
UNPLATTED (FUTURE STERLING RANCH RESIDENTIAL USE)
EX–9 65.3
EX10 265.9
EX–11 3.9
EX10A 17.8
VOLLMER ROAD
HOMESTEAD NORTH PLATTED BOUNDARY
(HOMESTEAD NORTH AT STERLING RANCH RESIDENTIAL USE)
CLASSIC OWNERSHIP BOUNDARY
SAND CREEK REACH SC–9
REFERENCE SAND CREEK CHANNEL IMPROVEMENTS PROPOSED WITH HOMESTEAD NORTH AT STERLING RANCH FIL.NO. 1 PREPARED BY JR ENG. (PCD NO. SF2213)
BRIARGATE PKWY. (130' ROW)
SAND CREEK EAST FORK
UNPLATTED (FOURSQUARE AT STERLING RANCH FILING 1 - SF2236))
HOMESTEAD AT STERLING RANCH FILING NO. 2
SAND CREEK REACH SC–8
14.2
SITE
EXIST. POND FSD–16 CURRENTLY UNDER CONST. (SP226)
EX1
EX2
EX3
FUTURE BRIARGATE PKWY. (130' ROW)
STERLING RANCH RD. (80' ROW)
PRE–DEVELOPMENT RELEASE FROM BASIN EX–9 INTO EXIST. POND FSD–16 Q5 YR. = 9 CFS Q100 YR. = 61 CFS
PRE–DEVELOPMENT RELEASE FROM BASIN EX10A Q5 YR. = 4 CFS Q100 YR. = 25 CFS
PRE–DEVELOPMENT RELEASE FROM BASINS EX–10 & EX–11 Q5 YR. = 105 CFS Q100 YR. = 222 CFS
UNPLATTED (FUTURE VILLAGES AT STERLING RANCH - PUD SP226)
INDIAN WELLS SUBD. FILING NO. 1
TOMAHAWK TRAIL
STAPLETON ROAD
BOW VALLEY SUBD.
BROKEN BOW CT.
OVERALL STERLING RANCH PROPERTY BOUNDARY
UNPLATTED (ELITE PROPERTIES OF AMERICA, INC. (CLASSIC HOMES)
7230
7220
7200
7190
7180
7170
7160
7150
7140
7130
7120
7110
7102
7100
7096
7080

PRELIMINARY DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	C VALUE DCM TABLE 6-6 LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	WEIGHTED CA CA(2)	CA(5)	CA(100)	DCM TABLE 6-6 WEIGHTED % IMPERVIOUS
EX-9	65.30	UNDEV.	2.0%	65.30	**0.03**	**0.09**	**0.36**	**1.96**	**5.88**	**23.51**	2.0%
EX-10	265.90	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)									
EX-10A	17.80	UNDEV.	2.0%	17.80	**0.03**	**0.09**	**0.36**	**0.53**	**1.60**	**6.41**	2.0%
EX-11	3.90	UNDEV.	2.0%	3.90	**0.03**	**0.09**	**0.36**	**0.12**	**0.35**	**1.40**	2.0%

PRELIMINARY DRAINAGE REPORT ~ PRE-DEVELOPMENT BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(2)	CA(5)	CA(100)	OVERLAND C(5)	Length (ft)	Height (ft)	Tc (min)	STREET / CHANNEL FLOW Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	Tc TOTAL (min)	INTENSITY I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
EX-9	1.96	5.88	23.51	0.12	300	8	22.2	3500	3.0%	1.7	33.7	55.9	1.25	1.55	2.60	2	**9**	**61**
EX-10	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)																**105**	**222**
EX-10A	0.53	1.60	6.41	0.12	300	8	22.2	1100	3.0%	1.7	10.6	32.8	1.88	2.35	3.94	1	**4**	**25**
EX-11	0.12	0.35	1.40	0.12	300	8	22.2					22.2	2.35	2.93	4.93	0.3	**1**	**7**

200 100 0 200 400

SCALE: 1" = 200'

PRELIMINARY DRAINAGE REPORT ~ PRE-DEVELOPMENT SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	I(100)	Flow Q(5)	Q(100)	Outfall
EX1	EX-9	5.88	23.51	55.9	1.55	2.60	9	61	Exist. Pond FSD-16 (Interim - TSB)
EX2	EX-10A	1.60	6.41	32.8	2.35	3.94	4	25	
EX3	EX-10 & EX-11	REFERENCE STERLING RANCH EAST PRELIMINARY PLAN NO. 1 SWMM CALCULATIONS (SP224)					105	222	

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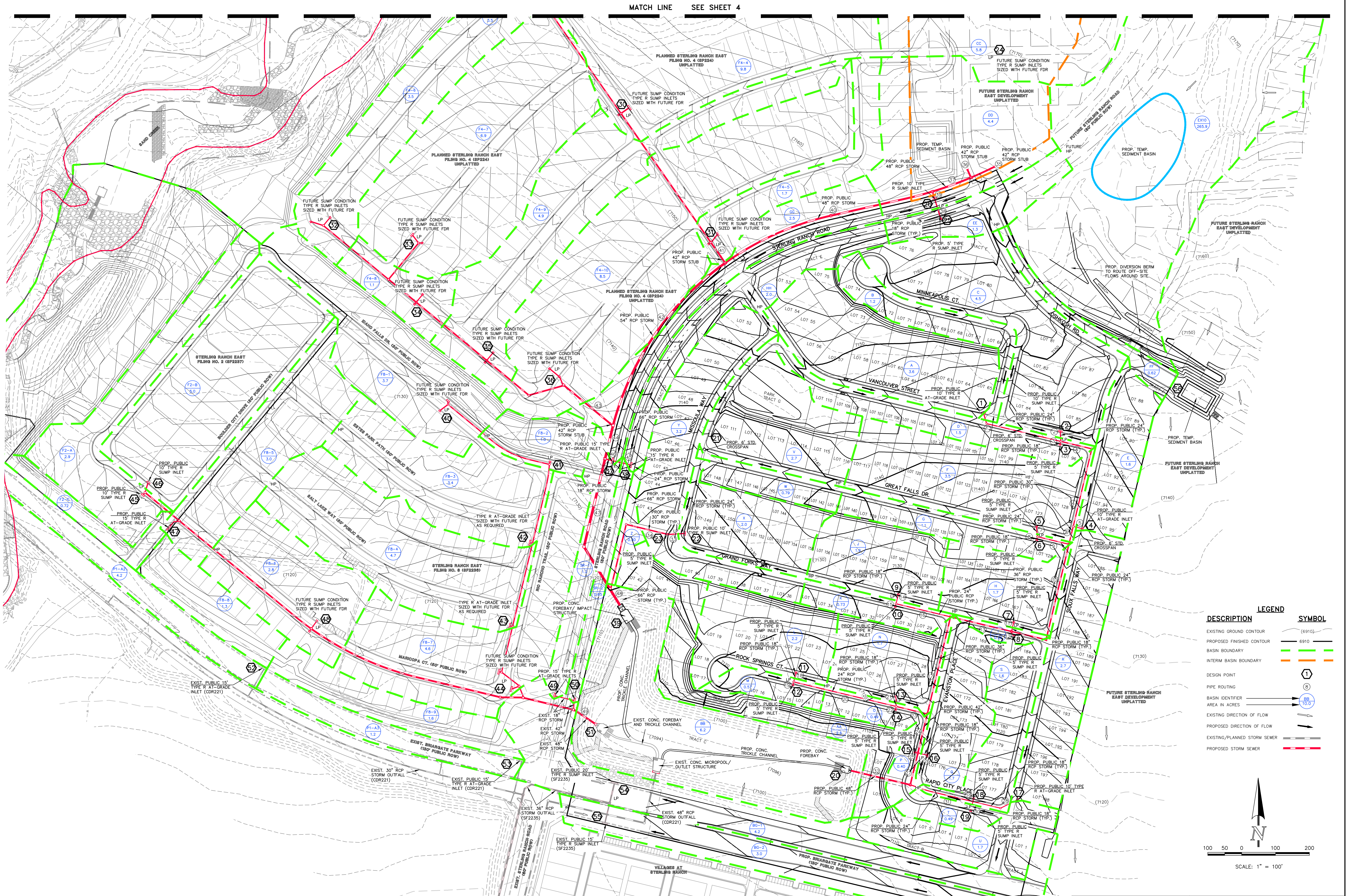
STERLING RANCH EAST FILING NO. 6
FINAL PLAT

FINAL DRAINAGE REPORT
PRE–DEVELOPMENT DRAINAGE MAP

DESIGNED BY	MAW	SCALE	DATE 7–28–26
DRAWN BY	MAW	(H) 1"= 200'	SHEET 2 OF 5
CHECKED BY		(V) 1"= N/A	JOB NO. 1183.60

CLASSIC CONSULTING


MATCH LINE SEE SHEET 4
SAND CREEK
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
FUTURE STERLING RANCH ROAD (80' PUBLIC ROW)
PROP. TEMP. SEDIMENT BASIN
PROP. PUBLIC 42" RCP STORM STUB
PROP. PUBLIC 48" RCP STORM
PROP. 10' TYPE R SUMP INLET
PROP. PUBLIC 18" RCP STORM (TYP.)
PROP. 5' TYPE R SUMP INLET
PROP. PUBLIC 54" RCP STORM
PROP. DIVERSION BERM TO ROUTE OFF-SITE FLOWS AROUND SITE.
FUTURE HP
STERLING RANCH ROAD
MINNEAPOLIS CT.
OSHKOSH RD.
VANCOUVER STREET
MISSOULA WAY
GREAT FALLS DR.
GRAND FORKS WAY
ROCK SPRINGS CT.
EVANSTON PLACE
RAPID CITY PLACE
SIOUX FALLS WAY
IDAHO FALLS DR. (50' PUBLIC ROW)
ESTES PARK PATH (50' PUBLIC ROW)
SALT LAKE WAY (50' PUBLIC ROW)
MARICOPA CT. (50' PUBLIC ROW)
BOULDER CITY DRIVE (50' PUBLIC ROW)
RIO RANCHO TRAIL (50' PUBLIC ROW)
STERLING RANCH ROAD (80' PUBLIC ROW)
STERLING RANCH EAST FILING NO. 2 (SF2237)
STERLING RANCH EAST FILING NO. 8 (SF2236)
PROP. PUBLIC 10' TYPE R SUMP INLET
PROP. PUBLIC 15' TYPE R AT-GRADE INLET
TYPE R AT-GRADE INLET SIZED WITH FUTURE FDR AS REQUIRED
PROP. CONC. FOREBAY/ IMPACT STRUCTURE
PROP. 15' TYPE R AT-GRADE INLETS
PROP. CONC. TRICKLE CHANNEL
EXIST. 18" RCP STORM
EXIST. 42" RCP STORM
EXIST. 48" RCP STORM
EXIST. CONC. FOREBAY AND TRICKLE CHANNEL
EXIST. CONC. MICROPOOL/ OUTLET STRUCTURE
PROP. CONC. FOREBAY
PROP. PUBLIC 48" RCP STORM (TYP.)
EXIST. PUBLIC 15' TYPE R AT-GRADE INLET (CDR221)
EXIST. BRIARGATE PARKWAY (130' PUBLIC ROW)
EXIST. 30" RCP STORM OUTFALL (CDR221)
EXIST. 36" RCP STORM OUTFALL (SF2235)
EXIST. PUBLIC 20' TYPE R SUMP INLET (SF2235)
EXIST. 48" RCP STORM OUTFALL (CDR221)
EXIST. PUBLIC 15' TYPE R SUMP INLET (SF2235)
EXIST. STERLING RANCH ROAD (80' PUBLIC ROW)
PROP. BRIARGATE PARKWAY (130' PUBLIC ROW)
VILLAGES AT STERLING RANCH
PROP. PUBLIC 24" RCP STORM (TYP.)
PROP. PUBLIC 30" RCP STORM (TYP.)
PROP. PUBLIC 36" RCP STORM (TYP.)
PROP. PUBLIC 42" RCP STORM (TYP.)
PROP. PUBLIC 66" RCP STORM (TYP.)
PROP. 6' STD. CROSSPAN
PROP. PUBLIC 10' TYPE R AT-GRADE INLET
PROP. PUBLIC 10' TYPE R AT-GRADE INLET
TRACT B
TRACT C
TRACT E
TRACT G
TRACT H
HP
LP
CC 5.8
DD 4.4
EE 1.3
FF 0.62
GG 2.5
HH 2.0
EX10 265.9
A 3.6
B 1.2
C 4.5
D 1.5
E 1.6
F 3.5
G 1.1
H 1.7
J 1.3
K 0.73
L 2.2
M 0.57
N 1.7
O 0.49
P 0.40
Q 0.49
R 2.7
S 1.6
T 0.49
U 1.7
V 2.7
W 0.79
X 2.0
Y 3.2
AA 2.6
BB 6.2
BG-1 4.2
BG-2 3.0
F4-4 9.8
F4-5 1.7
F4-6 3.5
F4-7 6.9
F4-8 1.1
F4-9 4.9
F4-10 8.5
F8-1 3.7
F8-2 1.0
F8-3 3.4
F8-4 4.7
F8-5 3.0
F8-6 2.8
F8-7 4.6
F8-8 1.3
F8-9 1.6
F2-A 2.9
F2-B 5.0
F2-C 0.72
P1-A2 4.2
P1-A3 1.2
SR-1 1.2
(7170)
(7160)
(7150)
(7140)
(7130)
(7120)
(7110)
(7100)
(7096)
(7094)
LEGEND
DESCRIPTION
SYMBOL
EXISTING GROUND CONTOUR (6910)
PROPOSED FINISHED CONTOUR 6910
BASIN BOUNDARY
INTERIM BASIN BOUNDARY
DESIGN POINT 1
PIPE ROUTING 8
BASIN IDENTIFIER
AREA IN ACRES
BB 10.0
EXISTING DIRECTION OF FLOW
PROPOSED DIRECTION OF FLOW
EXISTING/PLANNED STORM SEWER
PROPOSED STORM SEWER
N
100 50 0 100 200
SCALE: 1" = 100'

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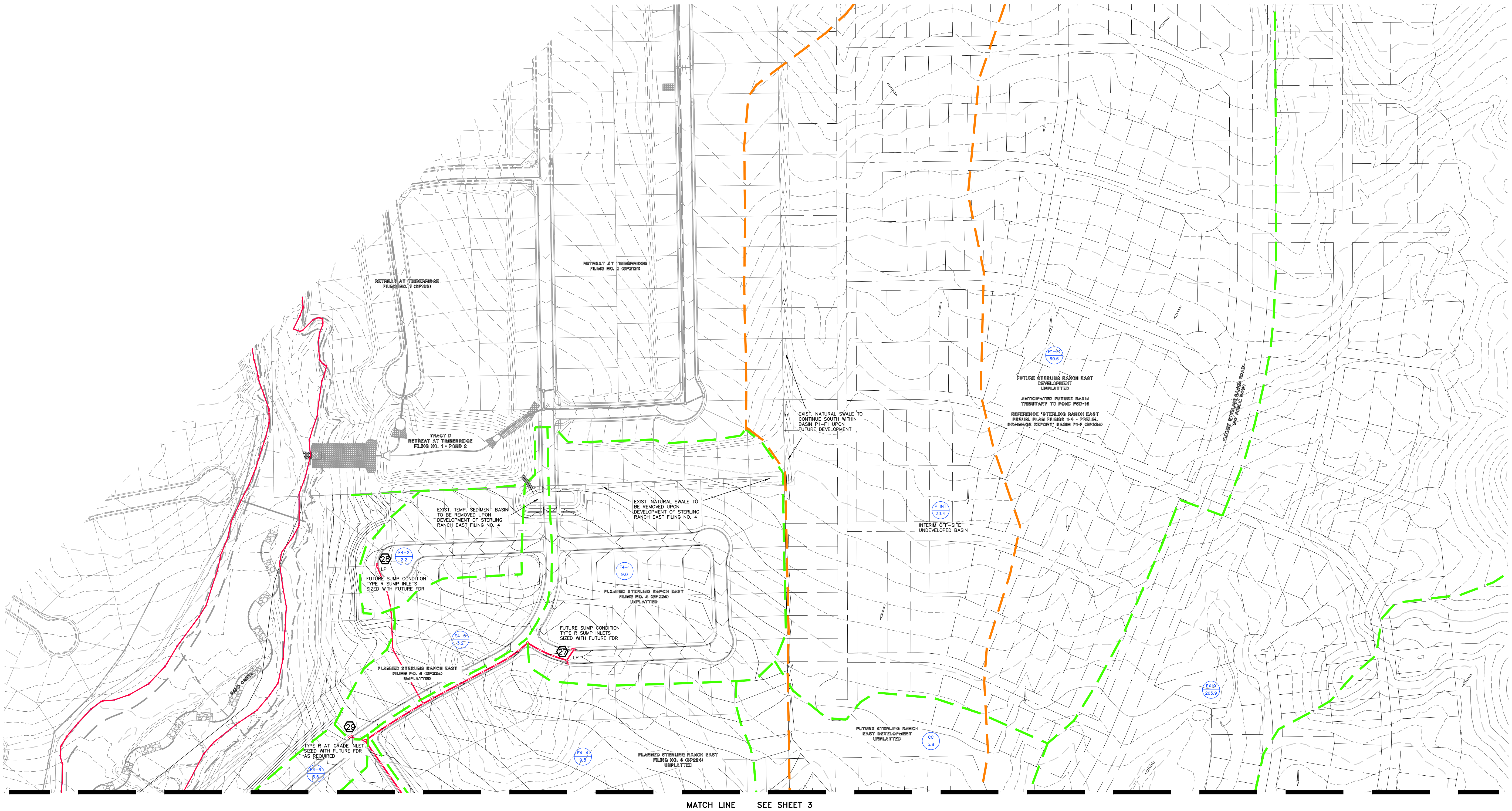
STERLING RANCH EAST FILING NO. 6
FINAL PLAT

FINAL DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

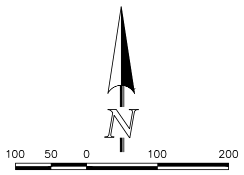
DESIGNED BY MAW	SCALE	DATE 4/8/26
DRAWN BY MAW	(H) 1"= 100'	SHEET 3 OF 5
CHECKED BY	(V) 1"= N/A	JOB NO. 1183.60

CLASSIC CONSULTING SM


RETREAT AT TIMBERRIDGE FILING NO. 1 (SF199)
RETREAT AT TIMBERRIDGE FILING NO. 2 (SF2121)
TRACT D RETREAT AT TIMBERRIDGE FILING NO. 1 - POND 2
EXIST. NATURAL SWALE TO CONTINUE SOUTH WITHIN BASIN P1–F1 UPON FUTURE DEVELOPMENT
EXIST. TEMP. SEDIMENT BASIN TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
EXIST. NATURAL SWALE TO BE REMOVED UPON DEVELOPMENT OF STERLING RANCH EAST FILING NO. 4
28
LP
F4–2 2.2
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
F4–1 9.0
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
F4–3 3.2
FUTURE SUMP CONDITION TYPE R SUMP INLETS SIZED WITH FUTURE FDR
27
LP
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
SAND CREEK
29
TYPE R AT–GRADE INLET SIZED WITH FUTURE FDR AS REQUIRED
F4–6 3.5
F4–4 9.8
PLANNED STERLING RANCH EAST FILING NO. 4 (SP224) UNPLATTED
P1–F1 60.6
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
ANTICIPATED FUTURE BASIN TRIBUTARY TO POND FSD-16
REFERENCE "STERLING RANCH EAST PRELIM. PLAN FILINGS 1-4 - PRELIM. DRAINAGE REPORT" BASIN P1-F (SP224)
FUTURE STERLING RANCH ROAD (80' PUBLIC ROW)
P INT 33.4
INTERIM OFF–SITE UNDEVELOPED BASIN
FUTURE STERLING RANCH EAST DEVELOPMENT UNPLATTED
CC 5.8
EX10 265.9
MATCH LINE SEE SHEET 3

LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	(6910)
PROPOSED FINISHED CONTOUR	— 6910 —
BASIN BOUNDARY	🟩 🟩 🟩
INTERIM BASIN BOUNDARY	🟧 🟧 🟧
DESIGN POINT	⬡1
PIPE ROUTING	⑧
BASIN IDENTIFIER	BB
AREA IN ACRES	10.0
EXISTING DIRECTION OF FLOW	⇨
PROPOSED DIRECTION OF FLOW	➞
EXISTING/PLANNED STORM SEWER	▬ ▬ ▬
PROPOSED STORM SEWER	🟥 🟥 🟥


N
100
50
0
100
200

SCALE: 1" = 100'

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STERLING RANCH EAST FILING NO. 6
FINAL PLAT
FINAL DRAINAGE REPORT
DEVELOPED CONDITIONS MAP (ULTIMATE)

DESIGNED BY MAW	SCALE	DATE	4/8/26
DRAWN BY MAW	(H) 1"= 100'	SHEET 4 OF 5	
CHECKED BY	(V) 1"= N/A	JOB NO.	1183.60

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FINAL DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY (DEVELOPED)

	WEIGHTED			OVERLAND				STREET / CHANNEL FLOW				Tc	INTENSITY			TOTAL FLOWS		
BASIN	CA(2)	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(2) (in/hr)	I(5) (in/hr)	I(100) (in/hr)	Q(2) (cfs)	Q(5) (cfs)	Q(100) (cfs)
A	1.15	1.35	1.96	0.12	100	2	14.1	600	1.5%	2.4	4.1	18.2	2.59	3.23	5.43	3	4	11
B	0.38	0.45	0.65	0.12	100	2	14.1	650	2.5%	3.2	3.4	17.5	2.63	3.29	5.52	1	1	4
C	1.28	1.53	2.36	0.12	100	2	14.1	650	2.5%	3.2	3.4	17.5	2.63	3.29	5.52	3	5	13
D	0.48	0.56	0.82	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	1	2	5
E	0.51	0.60	0.87	0.12	100	2	14.1	360	2.0%	2.8	2.1	16.2	2.72	3.41	5.72	1	2	5
F	1.12	1.31	1.91	0.12	100	2	14.1	510	1.5%	2.4	3.5	17.5	2.63	3.29	5.52	3	4	11
G	0.35	0.41	0.60	0.12	50	1	10.0	510	1.5%	2.4	3.5	13.4	2.94	3.69	6.19	1	2	4
H	0.54	0.64	0.93	0.12	100	2	14.1	180	1.5%	2.4	1.2	15.3	2.79	3.49	5.86	2	2	5
I	0.07	0.08	0.12	0.12	50	1	10.0	10	1.5%	2.4	0.1	10.0	3.29	4.13	6.93	0.2	0.3	0.8
J	0.61	0.71	1.04	0.12	100	2	14.1	240	1.5%	2.4	1.6	15.7	2.76	3.45	5.79	2	2	6
K	0.23	0.27	0.40	0.12	50	1	10.0	240	1.5%	2.4	1.6	11.6	3.12	3.91	6.56	0.7	1.1	2.6
L	0.62	0.75	1.14	0.12	100	2	14.1	220	1.5%	2.4	1.5	15.6	2.77	3.46	5.82	2	3	7
M	0.16	0.19	0.30	0.12	50	1	10.0	200	1.5%	2.4	1.4	11.3	3.15	3.94	6.62	0.5	0.8	2.0
N	0.54	0.64	0.93	0.12	100	2	14.1	180	1.5%	2.4	1.2	15.3	2.79	3.49	5.86	2	2	5
O	0.16	0.18	0.27	0.12	50	1	10.0	180	1.5%	2.4	1.2	11.2	3.16	3.96	6.65	0.5	0.7	1.8
P	0.13	0.15	0.22	0.12	50	1	10.0	120	3.0%	3.5	0.6	10.5	3.23	4.05	6.80	0.4	0.6	1.5
Q	0.54	0.64	0.93	0.12	100	2	14.1	340	3.0%	3.5	1.6	15.7	2.76	3.45	5.79	1	2	5
R	0.86	1.01	1.47	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	2	3	8
S	0.51	0.60	0.87	0.12	100	2	14.1	675	3.0%	3.5	3.2	17.3	2.64	3.30	5.55	1	2	5
T	0.16	0.18	0.27	0.12	50	1	10.0	150	1.5%	2.4	1.0	11.0	3.18	3.99	6.70	0.5	0.7	1.8
U	0.45	0.55	0.88	0.12	80	3	10.2					10.2	3.27	4.09	6.87	1	2	6
V	0.58	0.75	1.30	0.12	100	2	14.1	390	2.0%	2.8	2.3	16.4	2.71	3.39	5.69	2	3	7
W	0.25	0.30	0.43	0.12	50	1	10.0	370	2.0%	2.8	2.2	12.1	3.06	3.84	6.45	0.8	1.1	2.8
X	0.64	0.75	1.09	0.12	100	2	14.1	350	1.5%	2.4	2.4	16.5	2.70	3.38	5.68	2	3	6
Y	0.90	1.09	1.66	0.12	100	2	14.1	600	4.0%	4.0	2.5	16.6	2.69	3.37	5.66	2	4	9
Z	0.05	0.07	0.14	0.12	90	3	11.3					11.3	3.15	3.95	6.63	0.2	0.3	0.9
AA	0.67	0.83	1.32	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	4	10
BB	0.31	0.74	2.42	0.12	70	2	10.5					10.5	3.24	4.06	6.82	1	3	16
CC	1.12	1.49	2.73	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	3	5	16
DD	1.30	1.55	2.34	0.12	100	2	14.1	350	2.0%	2.8	2.1	16.1	2.73	3.41	5.73	4	5	13
EE	0.57	0.64	0.89	0.12	90	2	12.9	300	1.5%	2.4	2.0	14.9	2.82	3.53	5.92	2	2	5
FF	0.53	0.54	0.58	0.12	10	0.2	4.5	650	3.5%	3.7	2.9	7.3	3.66	4.59	7.71	2	2	4
GG	1.14	1.25	1.61	0.12	80	5	8.6	900	3.5%	3.7	4.0	12.7	3.01	3.78	6.34	3	5	10
HH	1.21	1.28	1.51	0.12	80	3	10.2	900	3.5%	3.7	4.0	14.2	2.87	3.60	6.04	3	5	9
F4-1	2.52	3.06	4.68	0.12	100	2	14.1	670	2.5%	3.2	3.5	17.6	2.62	3.28	5.51	7	10	26
F4-2	0.62	0.75	1.14	0.12	100	2	14.1	350	2.5%	3.2	1.8	15.9	2.74	3.43	5.76	2	3	7
F4-3	0.90	1.09	1.66	0.12	100	2	14.1	450	2.5%	3.2	2.4	16.4	2.70	3.38	5.68	2	4	9
F4-4	1.89	2.52	4.62	0.12	100	2	14.1	730	2.5%	3.2	3.8	17.9	2.60	3.25	5.46	5	8	25
F4-5	0.54	0.64	0.93	0.12	50	1	10.0	770	2.5%	3.2	4.1	14.0	2.89	3.62	6.08	2	2	6
F4-6	0.98	1.19	1.82	0.12	50	1	10.0	850	1.5%	2.4	5.8	15.7	2.76	3.45	5.79	3	4	11
F4-7	2.21	2.59	3.76	0.12	100	2	14.1	870	2.0%	2.8	5.1	19.2	2.52	3.15	5.29	6	8	20
F4-8	0.35	0.41	0.60	0.12	50	1	10.0	200	1.5%	2.4	1.4	11.3	3.15	3.94	6.62	1	2	4
F4-9	1.57	1.84	2.67	0.12	50	1	10.0	1500	2.0%	2.8	8.8	18.8	2.54	3.18	5.34	4	6	14
F4-10	2.72	3.19	4.63	0.12	100	2	14.1	1070	2.5%	3.2	5.6	19.7	2.49	3.11	5.22	7	10	24
F2-A	0.93	1.09	1.58	0.12	50	1	10.0	300	2.0%	2.8	1.8	11.7	3.11	3.89	6.53	3	4	10
F2-B	1.60	1.88	2.73	0.12	100	2	14.1	300	2.0%	2.8	1.8	15.8	2.75	3.44	5.77	4	6	16
F2-C	0.20	0.23	0.39	0.12	50	1	10.0					10.0	3.30	4.14	6.94	0.6	1.0	3
F8-1	1.10	1.31	1.97	0.12	90	2	12.9	560	1.5%	2.4	3.8	16.7	2.68	3.36	5.64	3	4	11
F8-2	0.26	0.32	0.51	0.12	100	3	12.3	60	1.5%	2.4	0.4	12.7	3.01	3.77	6.33	0.8	1.2	3
F8-3	1.18	1.33	1.89	0.12	50	1	10.0	650	1.5%	2.4	4.4	14.4	2.86	3.58	6.02	3	5	11
F8-4	1.82	2.02	2.71	0.12	100	2	14.1	800	1.5%	2.4	5.4	19.5	2.50	3.13	5.25	5	6	14
F8-5	1.05	1.19	1.67	0.12	50	1	10.0	650	2.3%	3.0	3.6	13.5	2.94	3.68	6.17	3	4	10
F8-6	0.91	1.05	1.52	0.12	100	2	14.1	325	1.5%	2.4	2.2	16.3	2.71	3.40	5.70	2	4	9
F8-7	1.83	2.02	2.68	0.12	100	2	14.1	500	1.5%	2.4	3.4	17.5	2.63	3.29	5.53	5	7	15
F8-8	0.25	0.32	0.61	0.12	120	7	10.8					10.8	3.20	4.01	6.73	0.8	1.3	4
F8-9	0.37	0.46	0.78	0.12	80	8	7.4					7.4	3.65	4.58	7.69	1	2	6
P1-A2	3.15	3.23	3.63	0.12	20	0.5	5.8	1500	1.0%	2.0	12.5	18.3	2.57	3.22	5.40	8.1	10.4	19.6
P1-A3	0.93	0.95	1.06	0.12	20	0.5	5.8	780	1.0%	2.0	6.5	12.3	3.04	3.81	6.40	2.8	3.6	6.8
SR-1	0.69	0.73	0.90	0.12	50	5	5.9	550	3.5%	3.7	2.4	8.3	3.52	4.41	7.40	2	3	7
SR-2	0.44	0.45	0.53	0.12	15	0.4	5.0	550	3.5%	1.9	4.9	9.9	3.31	4.15	6.97	1	2	4
BG-1	2.73	2.84	3.35	0.12	80	2	11.7	700	1.0%	2.0	5.8	17.5	2.63	3.29	5.52	7	9	18
BG-2	2.04	2.12	2.45	0.12	60	2	9.2	1150	1.0%	2.0	9.6	18.8	2.54	3.18	5.34	5	7	13
P1-INT	1.00	3.01	12.02	0.12	300	7.5	22.6	2300	3.5%	1.9	20.5	43.1	1.56	1.94	3.25	2	6	39
P1-F1	19.39	22.73	33.03	0.12	100	2	14.1	2000	1.5%	2.4	13.6	27.7	2.08	2.60	4.37	40	59	144

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - ULTIMATE)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Pipe Size*
1	DP-1 Capture	1.32	1.31	18.7	3.19	5.36	4	7	PROP. 18" RCP
2	DP-2	2.01	3.66	18.4	3.22	5.40	6	20	PROP. 24" RCP
3	DP-3	0.56	0.82	14.4	3.58	6.02	2	5	PROP. 18" RCP
4	PR-1, PR-2, PR-3	3.90	5.79	19.0	3.17	5.32	12	31	PROP. 30" RCP
5	DP-4 Capture	0.60	0.81	16.2	3.41	5.72	2	5	PROP. 18" RCP
6	PR-4, PR-5	4.50	6.60	19.1	3.16	5.31	14	35	PROP. 30" RCP
7	DP-5	1.31	1.91	17.5	3.29	5.52	4	11	PROP. 24" RCP
8	DP-6	0.41	0.60	13.4	3.69	6.19	2	4	PROP. 18" RCP
9	PR-7, PR-8	1.73	2.51	17.7	3.27	5.49	6	14	PROP. 24" RCP
10	PR-6, PR-9	6.22	9.11	19.5	3.13	5.25	19	48	PROP. 36" RCP
11	DP-7	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
12	DP-8	0.08	0.12	10.0	4.13	6.93	0.3	0.8	PROP. 18" RCP
13	PR-10, PR-11, PR-12	6.94	10.16	19.7	3.12	5.23	22	53	PROP. 36" RCP
14	DP-9	0.71	1.04	15.7	3.45	5.79	2	6	PROP. 18" RCP
15	DP-10	0.27	0.40	11.6	3.91	6.56	1.1	2.6	PROP. 18" RCP
16	PR-14, PR-15	0.99	1.43	15.7	3.45	5.79	3	8	PROP. 24" RCP
17	PR-13, PR-16	7.93	11.59	20.2	3.08	5.17	24	60	PROP. 36" RCP
18	DP-11	0.75	1.14	15.6	3.46	5.82	3	7	PROP. 18" RCP
19	DP-12	0.19	0.30	11.3	3.94	6.62	0.8	2.0	PROP. 18" RCP
20	PR-18, PR-19	0.94	1.44	16.1	3.42	5.74	3	8	PROP. 24" RCP
21	DP-13	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
22	DP-14	0.18	0.27	11.2	3.96	6.65	0.7	1.8	PROP. 18" RCP
23	PR-20, PR-21, PR-22	1.76	2.63	16.2	3.41	5.72	6	15	PROP. 30" RCP
24	PR-17, PR-23	9.69	14.22	20.4	3.06	5.14	30	73	PROP. 42" RCP
25	DP-15	0.15	0.22	10.5	4.05	6.80	0.6	1.5	PROP. 18" RCP
26	DP-16	0.64	0.93	15.7	3.45	5.79	2	5	PROP. 18" RCP
27	PR-24, PR-25, PR-6	10.48	15.37	20.6	3.05	5.12	32	79	PROP. 42" RCP
28	DP-17 Capture	1.01	1.18	17.3	3.30	5.55	3	7	PROP. 18" RCP
29	DP-18	0.60	0.87	17.3	3.30	5.55	2	5	PROP. 18" RCP
30	DP-19	0.18	0.27	11.0	3.99	6.70	0.7	1.8	PROP. 18" RCP
31	PR-28, PR-29, PR-30	1.80	2.32	17.4	3.30	5.53	6	13	PROP. 24" RCP
32	**TOTAL INFLOW POND FSD - 16 (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**PROP. 48" RCP**
33	DP-22	1.79	2.82	16.5	3.38	5.68	6	16	PROP. 24" RCP
34	DP-23, PR-33	2.88	4.49	16.7	3.36	5.65	10	25	PROP. 30" RCP
35	P1-F1 (50%)	11.36	16.51	27.7	2.60	4.37	30	72	PROP. 42" RCP STUB
36	DP-24, P1-F1 (50%)	12.85	19.24	27.7	2.60	4.37	33	84	PROP. 42" RCP STUB
37	PR-35, PR-36	24.21	35.76	27.9	2.59	4.35	63	155	PROP. 48" RCP
38	DP-25	0.64	0.89	14.9	3.53	5.92	2	5	PROP. 18" RCP
39	DP-26, PR-38	2.18	3.22	16.1	3.41	5.73	7	18	PROP. 24" RCP
40	PR-37, PR-39	26.40	38.98	28.6	2.55	4.29	67	167	PROP. 48" RCP
41	DP-27, DP-28, DP-29 Capture, DP-30, DP-31	8.04	12.60	20.4	3.06	5.13	25	65	PROP. 42" RCP
42	PR-40, PR-41	34.44	51.58	29.2	2.52	4.23	87	218	PROP. 54" RCP
43	DP-32, DP-33, DP-34, DP-35, DP-36	9.23	13.92	20.2	3.07	5.16	28	72	PROP. 42" RCP
44	PR-42, PR-43	43.66	65.49	29.2	2.52	4.23	110	277	PROP. 60" RCP
45	DP-38 Capture	1.28	1.51	14.2	3.60	6.04	5	9	PROP. 18" RCP
46	DP-37 Capture, PR-45	2.53	3.04	14.2	3.60	6.04	9	18	PROP. 24" RCP
47	PR-44, PR-46	46.19	68.53	29.3	2.52	4.22	116	290	PROP. 60" RCP
48	**PR-34, PR-47 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**49.07**	**73.02**	**29.5**	**2.51**	**4.21**	**123**	**307**	**PROP. 66" RCP**
49	**DP-40 THRU DP-50 TOTAL INFLOW POND FSD-16 (SW OUTFALL)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**PROP. 48" RCP**

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY (DEVELOPED - INTERIM)

Pipe Run	Contributing Basin / Design Point / Pipe Run	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Pipe Size*
1	DP-1 Capture	1.32	1.31	18.7	3.19	5.36	4	7	PROP. 18" RCP
2	DP-2	2.01	3.66	18.4	3.22	5.40	6	20	PROP. 24" RCP
3	DP-3	0.56	0.82	14.4	3.58	6.02	2	5	PROP. 18" RCP
4	PR-1, PR-2, PR-3	3.90	5.79	19.0	3.17	5.32	12	31	PROP. 30" RCP
5	DP-4 Capture	0.60	0.81	16.2	3.41	5.72	2	5	PROP. 18" RCP
6	PR-4, PR-5	4.50	6.60	19.1	3.16	5.31	14	35	PROP. 30" RCP
7	DP-5	1.31	1.91	17.5	3.29	5.52	4	11	PROP. 24" RCP
8	DP-6	0.41	0.60	13.4	3.69	6.19	2	4	PROP. 18" RCP
9	PR-7, PR-8	1.73	2.51	17.7	3.27	5.49	6	14	PROP. 24" RCP
10	PR-6, PR-9	6.22	9.11	19.5	3.13	5.25	19	48	PROP. 36" RCP
11	DP-7	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
12	DP-8	0.08	0.12	10.0	4.13	6.93	0.3	0.8	PROP. 18" RCP
13	PR-10, PR-11, PR-12	6.94	10.16	19.7	3.12	5.23	22	53	PROP. 36" RCP
14	DP-9	0.71	1.04	15.7	3.45	5.79	2	6	PROP. 18" RCP
15	DP-10	0.27	0.40	11.6	3.91	6.56	1.1	2.6	PROP. 18" RCP
16	PR-14, PR-15	0.99	1.43	15.7	3.45	5.79	3	8	PROP. 24" RCP
17	PR-13, PR-16	7.93	11.59	20.2	3.08	5.17	24	60	PROP. 36" RCP
18	DP-11	0.75	1.14	15.6	3.46	5.82	3	7	PROP. 18" RCP
19	DP-12	0.19	0.30	11.3	3.94	6.62	0.8	2.0	PROP. 18" RCP
20	PR-18, PR-19	0.94	1.44	16.1	3.42	5.74	3	8	PROP. 24" RCP
21	DP-13	0.64	0.93	15.3	3.49	5.86	2	5	PROP. 18" RCP
22	DP-14	0.18	0.27	11.2	3.96	6.65	0.7	1.8	PROP. 18" RCP
23	PR-20, PR-21, PR-22	1.76	2.63	16.2	3.41	5.72	6	15	PROP. 30" RCP
24	PR-17, PR-23	9.69	14.22	20.4	3.06	5.14	30	73	PROP. 42" RCP
25	DP-15	0.15	0.22	10.5	4.05	6.80	0.6	1.5	PROP. 18" RCP
26	DP-16	0.64	0.93	15.7	3.45	5.79	2	5	PROP. 18" RCP
27	PR-24, PR-25, PR-6	10.48	15.37	20.6	3.05	5.12	32	79	PROP. 42" RCP
28	DP-17 Capture	1.01	1.18	17.3	3.30	5.55	3	7	PROP. 18" RCP
29	DP-18	0.60	0.87	17.3	3.30	5.55	2	5	PROP. 18" RCP
30	DP-19	0.18	0.27	11.0	3.99	6.70	0.7	1.8	PROP. 18" RCP
31	PR-28, PR-29, PR-30	1.80	2.32	17.4	3.30	5.53	6	13	PROP. 24" RCP
32	**TOTAL INFLOW POND FSD - 16 (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**PROP. 48" RCP**
33	DP-22	1.79	2.82	16.5	3.38	5.68	6	16	PROP. 24" RCP
34	DP-23, PR-33	2.88	4.49	16.7	3.36	5.65	10	25	PROP. 30" RCP
35	NO FLOWS IN INTERIM CONDITION								
36	DEV. PORTIONS OF BASINS CC & DD AND BASIN P-INT FROM OUTFALL OF TSB	3.55	12.93	43.1	1.94	3.25	7	42	PROP. 42" RCP STUB
37	PR-35, PR-36	3.55	12.93	43.1	1.94	3.25	7	42	PROP. 48" RCP
38	DP-25	0.64	0.89	14.9	3.53	5.92	2	5	PROP. 18" RCP
39	DP-26, PR-38	0.78	1.16	16.1	3.41	5.73	3	7	PROP. 24" RCP
40	PR-37, PR-39	4.34	14.09	43.8	1.91	3.21	8	45	PROP. 48" RCP
41	DP-27, DP-28, DP-29 Capture, DP-30, DP-31	8.04	12.60	20.4	3.06	5.13	25	65	PROP. 42" RCP
42	PR-40, PR-41	12.38	26.69	44.4	1.89	3.17	23	85	PROP. 54" RCP
43	DP-32, DP-33, DP-34, DP-35, DP-36	9.23	13.92	20.2	3.07	5.16	28	72	PROP. 42" RCP
44	PR-42, PR-43	21.60	40.60	44.4	1.89	3.17	41	129	PROP. 60" RCP
45	DP-38 Capture	1.28	1.43	12.7	3.78	6.34	5	9	PROP. 18" RCP
46	DP-37 Capture, PR-45	2.53	2.91	14.2	3.60	6.04	9	18	PROP. 24" RCP
47	PR-44, PR-46	24.13	43.51	44.5	1.89	3.17	46	138	PROP. 60" RCP
48	**PR-34, PR-47 TOTAL INFLOW POND FSD-16 (NW OUTFALL)**	**27.02**	**48.00**	**44.7**	**1.88**	**3.16**	**51**	**152**	**PROP. 66" RCP**
49	**DP-40 THRU DP-50 TOTAL INFLOW POND FSD-16 (SW OUTFALL)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**PROP. 48" RCP**

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Ultimate)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Facility/ Inlet Size*
1	A	1.35	1.96	18.2	3.23	5.43	4	11	Prop. 10' Type R At-grade Inlet
2	B, C, Flow-by from DP-1	2.01	3.66	18.4	3.22	5.40	6	20	Prop. 10' Type R Sump Inlet
3	D	0.56	0.82	14.4	3.58	6.02	2	5	Prop. 5' Type R Sump Inlet
4	E	0.60	0.87	16.2	3.41	5.72	2	5	Prop. 10' Type R At-grade Inlet
5	F	1.31	1.91	17.5	3.29	5.52	4	11	Prop. 5' Type R Sump Inlet
6	G	0.41	0.60	13.4	3.69	6.19	2	4	Prop. 5' Type R Sump Inlet
7	H	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
8	I	0.08	0.12	10.0	4.13	6.93	0.3	0.8	Prop. 5' Type R Sump Inlet
9	J	0.71	1.04	15.7	3.45	5.79	2	6	Prop. 5' Type R Sump Inlet
10	K	0.27	0.40	11.6	3.91	6.56	1.1	2.6	Prop. 5' Type R Sump Inlet
11	L	0.75	1.14	15.6	3.46	5.82	3	7	Prop. 5' Type R Sump Inlet
12	M	0.19	0.30	11.3	3.94	6.62	0.8	2.0	Prop. 5' Type R Sump Inlet
13	N	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
14	O	0.18	0.27	11.2	3.96	6.65	0.7	1.8	Prop. 5' Type R Sump Inlet
15	P	0.15	0.22	10.5	4.05	6.80	0.6	1.5	Prop. 5' Type R Sump Inlet
16	Q	0.64	0.93	15.7	3.45	5.79	2	5	Prop. 5' Type R Sump Inlet
17	R, Flow-by from DP-4	1.01	1.53	17.3	3.30	5.55	3	9	Prop. 10' Type R At-grade Inlet
18	S	0.60	0.87	17.3	3.30	5.55	2	5	Prop. 5' Type R Sump Inlet
19	T	0.18	0.27	11.0	3.99	6.70	0.7	1.8	Prop. 5' Type R Sump Inlet
20	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**Prop. Concrete Forebay**
21	V	0.75	1.30	16.4	3.39	5.69	3	7	Prop. 6' County Std. Crosspan
22	W, X, DP-21	1.79	2.82	16.5	3.38	5.68	6	16	Prop. 10' Type R Sump Inlet
23	Y	1.09	1.66	16.6	3.37	5.66	4	9	Prop. 5' Type R Sump Inlet
24	CC	1.49	2.73	15.8	3.44	5.77	5	16	Future Type R inlets at Sump Condition
25	EE	0.64	0.89	14.9	3.53	5.92	2	5	Prop. 5' Type R Sump Inlet
26	DD	1.55	2.34	16.1	3.41	5.73	5	13	Prop. 10' Type R Sump Inlet
27	F4-1	3.06	4.68	17.6	3.28	5.51	10	26	Future Type R inlets at Sump Condition
28	F4-2	0.75	1.14	15.9	3.43	5.76	3	7	Future Type R inlet at Sump Condition
29	F4-3	1.09	1.66	16.4	3.38	5.68	4	9	Future At-grade Type R inlet
30	F4-4	2.52	4.62	17.9	3.25	5.46	8	25	Future Type R inlets at Sump Condition
31	F4-5	0.64	0.93	14.0	3.62	6.08	2	6	Future Type R inlets at Sump Condition
32	F4-6, Flow-by from DP-29	1.20	2.25	15.7	3.45	5.79	4	13	Future Type R inlets at Sump Condition
33	F4-7	2.59	3.76	19.2	3.15	5.29	8	20	Future Type R inlets at Sump Condition
34	F4-8	0.41	0.60	11.3	3.94	6.62	2	4	Future Type R inlets at Sump Condition
35	F4-9	1.84	2.67	18.8	3.18	5.34	6	14	Future Type R inlets at Sump Condition
36	F4-10	3.19	4.63	19.7	3.11	5.22	10	24	Future Type R inlets at Sump Condition
37	GG	1.25	1.61	12.7	3.78	6.34	5	10	Prop. 15' Type R At-Grade Inlet
38	HH	1.28	1.51	14.2	3.60	6.04	5	9	Prop. 15' Type R At-Grade Inlet
39	**POND FSD-16 INFLOW (NORTHWEST FOREBAY)**	**49.07**	**73.02**	**29.5**	**2.51**	**4.21**	**123**	**307**	**Prop. Impact Structure**
40	F8-1	1.31	1.97	16.7	3.36	5.64	4	11	Future Type R inlets at Sump Condition
41	F8-2	0.32	0.51	12.7	3.77	6.33	1.2	3	Future Type R inlet at Sump Condition
42	F8-3	1.33	1.89	14.4	3.58	6.02	5	11	Future At-grade Type R inlet
43	F8-4	2.02	2.71	19.5	3.13	5.25	6	14	Future At-grade Type R inlet
44	F8-7	2.02	2.68	17.5	3.29	5.53	7	15	Future Type R inlet at Sump Condition
45	F2-A	1.09	1.58	11.7	3.89	6.53	4	10	Prop. 10' Type R Sump Inlet
46	F2-B	1.88	2.73	15.8	3.44	5.77	6	16	Prop. 10' Type R Sump Inlet
47	F8-5	1.19	1.67	13.5	3.68	6.17	4	10	Prop. 15' Type R At-Grade Inlet
48	F8-6	1.05	1.52	16.3	3.40	5.70	4	9	Future Type R inlet at Sump Condition
49	SR-1, Flow-by from DP-37	0.73	1.02	8.3	4.41	7.40	3	8	Prop. 15' Type R At-Grade Inlet
50	SR-2, Z, Flow-by from DP-38	0.52	0.74	9.9	4.15	6.97	2.2	5.1	Prop. 15' Type R At-Grade Inlet
51	**POND FSD-16 INFLOW (SOUTHWEST FOREBAY)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**Prop. Concrete Forebay**
52	P1-A2, F2-C, F8-8, Flow-by from DP-47	3.79	4.76	18.3	3.22	5.40	12.2	25.7	Exist. 15' Type R At-grade Inlet
53	P1-A3, F8-9, Flow-by from DP-52	1.97	3.74	12.3	3.81	6.40	7.5	24.0	Exist. 15' Type R At-grade Inlet
54	BG-1, U, Flow-by from DP-17, 49 and 53	3.42	5.91	17.5	3.29	5.52	11.2	32.6	Exist. 20' Type R Sump Inlet
55	BG-2	2.12	2.45	18.8	3.18	5.34	7	13	Exist. 15' Type R Sump Inlet
	POND FSD-16 TOTALINFLOW (Incl. Basins AA and BB)	**76.30**	**112.97**	**29.9**	**2.49**	**4.17**	**190**	**472**	

FINAL DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY (Developed - Interim)

Design Point(s)	Contributing Basins / Design Point	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity I(5)	Intensity I(100)	Flow Q(5)	Flow Q(100)	Facility/ Inlet Size*
1	A	1.35	1.96	18.2	3.23	5.43	4	11	Prop. 10' Type R At-grade Inlet
2	B, C, Flow-by from DP-1	2.01	3.66	18.4	3.22	5.40	6	20	Prop. 10' Type R Sump Inlet
3	D	0.56	0.82	14.4	3.58	6.02	2	5	Prop. 5' Type R Sump Inlet
4	E	0.60	0.87	16.2	3.41	5.72	2	5	Prop. 10' Type R At-grade Inlet
5	F	1.31	1.91	17.5	3.29	5.52	4	11	Prop. 5' Type R Sump Inlet
6	G	0.41	0.60	13.4	3.69	6.19	2	4	Prop. 5' Type R Sump Inlet
7	H	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
8	I	0.08	0.12	10.0	4.13	6.93	0.3	0.8	Prop. 5' Type R Sump Inlet
9	J	0.71	1.04	15.7	3.45	5.79	2	6	Prop. 5' Type R Sump Inlet
10	K	0.27	0.40	11.6	3.91	6.56	1.1	2.6	Prop. 5' Type R Sump Inlet
11	L	0.75	1.14	15.6	3.46	5.82	3	7	Prop. 5' Type R Sump Inlet
12	M	0.19	0.30	11.3	3.94	6.62	0.8	2.0	Prop. 5' Type R Sump Inlet
13	N	0.64	0.93	15.3	3.49	5.86	2	5	Prop. 5' Type R Sump Inlet
14	O	0.18	0.27	11.2	3.96	6.65	0.7	1.8	Prop. 5' Type R Sump Inlet
15	P	0.15	0.22	10.5	4.05	6.80	0.6	1.5	Prop. 5' Type R Sump Inlet
16	Q	0.64	0.93	15.7	3.45	5.79	2	5	Prop. 5' Type R Sump Inlet
17	R, Flow-by from DP-4	1.01	1.53	17.3	3.30	5.55	3	9	Prop. 10' Type R At-grade Inlet
18	S	0.60	0.87	17.3	3.30	5.55	2	5	Prop. 5' Type R Sump Inlet
19	T	0.18	0.27	11.0	3.99	6.70	0.7	1.8	Prop. 5' Type R Sump Inlet
20	**POND FSD-16 INFLOW (EASTERLY FOREBAY)**	**12.28**	**17.69**	**20.8**	**3.03**	**5.09**	**37**	**90**	**Prop. Concrete Forebay**
21	V	0.75	1.30	16.4	3.39	5.69	3	7	Prop. 6' County Std. Crosspan
22	W, X, DP-21	1.79	2.82	16.5	3.38	5.68	6	16	Prop. 10' Type R Sump Inlet
23	Y	1.09	1.66	16.6	3.37	5.66	4	9	Prop. 5' Type R Sump Inlet
24	NO DESIGN POINT IN INTERIM CONDITION								
25	EE	0.64	0.89	14.9	3.53	5.92	2	5	Prop. 5' Type R Sump Inlet
26	DEVELOPED PORTION OF BASIN DD	0.15	0.27	16.1	3.41	5.73	1	2	Prop. 10' Type R Sump Inlet
TSB	DEV. PORTIONS OF BASINS CC & DD AND BASIN P-INT	3.55	12.93	43.1	1.94	3.25	7	42	Prop. 42" RCP Storm Stub at PR-36
27	F4-1	3.06	4.68	17.6	3.28	5.51	10	26	Future Type R inlets at Sump Condition
28	F4-2	0.75	1.14	15.9	3.43	5.76	3	7	Future Type R inlet at Sump Condition
29	F4-3	1.09	1.66	16.4	3.38	5.68	4	9	Future At-grade Type R inlet
30	F4-4	2.52	4.62	17.9	3.25	5.46	8	25	Future Type R inlets at Sump Condition
31	F4-5	0.64	0.93	14.0	3.62	6.08	2	6	Future Type R inlets at Sump Condition
32	F4-6, Flow-by from DP-29	1.20	2.25	15.7	3.45	5.79	4	13	Future Type R inlets at Sump Condition
33	F4-7	2.59	3.76	19.2	3.15	5.29	8	20	Future Type R inlets at Sump Condition
34	F4-8	0.41	0.60	11.3	3.94	6.62	2	4	Future Type R inlets at Sump Condition
35	F4-9	1.84	2.67	18.8	3.18	5.34	6	14	Future Type R inlets at Sump Condition
36	F4-10	3.19	4.63	19.7	3.11	5.22	10	24	Future Type R inlets at Sump Condition
37	GG	1.25	1.61	12.7	3.78	6.34	5	10	Prop. 15' Type R At-Grade Inlet
38	HH	1.28	1.51	14.2	3.60	6.04	5	9	Prop. 15' Type R At-Grade Inlet
39	**POND FSD-16 INFLOW (NORTHWEST FOREBAY)**	**27.02**	**48.00**	**44.7**	**1.88**	**3.16**	**51**	**152**	**Prop. Impact Structure**
40	F8-1	1.31	1.97	16.7	3.36	5.64	4	11	Future Type R inlets at Sump Condition
41	F8-2	0.32	0.51	12.7	3.77	6.33	1.2	3	Future Type R inlet at Sump Condition
42	F8-3	1.33	1.89	14.4	3.58	6.02	5	11	Future At-grade Type R inlet
43	F8-4	2.02	2.71	19.5	3.13	5.25	6	14	Future At-grade Type R inlet
44	F8-7	2.02	2.68	17.5	3.29	5.53	7	15	Future Type R inlet at Sump Condition
45	F2-A	1.09	1.58	11.7	3.89	6.53	4	10	Prop. 10' Type R Sump Inlet
46	F2-B	1.88	2.73	15.8	3.44	5.77	6	16	Prop. 10' Type R Sump Inlet
47	F8-5	1.19	1.67	13.5	3.68	6.17	4	10	Prop. 15' Type R At-Grade Inlet
48	F8-6	1.05	1.52	16.3	3.40	5.70	4	9	Future Type R inlet at Sump Condition
49	SR-1, Flow-by from DP-37	0.73	1.02	8.3	4.41	7.40	3	8	Prop. 15' Type R At-Grade Inlet
50	SR-2, Z, Flow-by from DP-38	0.52	0.74	9.9	4.15	6.97	2.2	5.1	Prop. 15' Type R At-Grade Inlet
51	**POND FSD-16 INFLOW (SOUTHWEST FOREBAY)**	**13.38**	**18.53**	**23.2**	**2.87**	**4.81**	**38**	**89**	**Prop. Concrete Forebay**
52	P1-A2, F2-C, F8-8, Flow-by from DP-47	3.79	4.76	18.3	3.22	5.40	12.2	25.7	Exist. 15' Type R At-grade Inlet
53	P1-A3, F8-9, Flow-by from DP-52	1.97	3.74	12.3	3.81	6.40	7.5	24.0	Exist. 15' Type R At-grade Inlet
54	BG-1, U, Flow-by from DP-17, 49 and 53	3.42	5.91	17.5	3.29	5.52	11.2	32.6	Exist. 20' Type R Sump Inlet
55	BG-2	2.12	2.45	18.8	3.18	5.34	7	13	Exist. 15' Type R Sump Inlet
	POND FSD-16 TOTALINFLOW (Incl. Basins AA and BB)	**54.24**	**87.96**	**45.1**	**1.87**	**3.13**	**101**	**276**	

FINAL DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY (DEVELOPED)

		C VALUE DCM TABLE 6-6						C VALUE DCM TABLE 6-6						WEIGHTED "C" VALUE			WEIGHTED CA		
BASIN	TOTAL AREA (AC)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	LAND USE	PERCENT IMPERVIOUS	AREA (AC)	C(2)	C(5)	C(100)	C(2)	C(5)	C(100)	CA(2)	CA(5)	CA(100)
A	3.60	RES 1/6 AC.	52.5%	3.60	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.15	1.35	1.96
B	1.20	RES 1/6 AC.	52.5%	1.20	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	[illegible]	[illegible]	[illegible]	[illegible]	0.65
C	4.50	RES 1/6 AC.	52.5%	3.90	0.32	0.38	0.55	OPEN SPACE	7.0%	0.60	0.05	0.12	0.39	0.28	[illegible]	[illegible]	[illegible]	[illegible]	2.36
D	1.50	RES 1/6 AC.	52.5%	1.50	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	[illegible]	[illegible]	[illegible]	[illegible]	0.82
E	1.60	RES 1/6 AC.	52.5%	1.60	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.51	0.60	0.87
F	3.50	RES 1/6 AC.	52.5%	3.50	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.12	1.31	1.91
G	1.10	RES 1/6 AC.	52.5%	1.10	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.35	0.41	0.60
H	1.70	RES 1/6 AC.	52.5%	1.70	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.54	0.64	0.93
I	0.22	RES 1/6 AC.	52.5%	0.22	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.07	0.08	0.12
J	1.90	RES 1/6 AC.	52.5%	1.90	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.61	0.71	1.04
K	0.73	RES 1/6 AC.	52.5%	0.73	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.23	0.27	0.40
L	2.20	RES 1/5 AC.	46.0%	2.20	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.62	0.75	1.14
M	0.57	RES 1/5 AC.	46.0%	0.57	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.16	0.19	0.30
N	1.70	RES 1/6 AC.	52.5%	1.70	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.54	0.64	0.93
O	0.49	RES 1/6 AC.	52.5%	0.49	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.16	0.18	0.27
P	0.40	RES 1/6 AC.	52.5%	0.40	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.13	0.15	0.22
Q	1.70	RES 1/6 AC.	52.5%	1.70	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.54	0.64	0.93
R	2.70	RES 1/6 AC.	52.5%	2.70	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.86	1.01	1.47
S	1.60	RES 1/6 AC.	52.5%	1.60	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.51	0.60	0.87
T	0.49	RES 1/6 AC.	52.5%	0.49	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.16	0.18	0.27
U	1.70	RES 1/6 AC.	52.5%	1.37	0.32	0.38	0.55	OPEN SPACE	7.0%	0.33	0.05	0.12	0.39	0.27	0.33	0.51	0.45	0.55	0.88
V	2.70	RES 1/5 AC.	46.0%	1.93	0.28	0.34	0.52	POCKET PARK	7.0%	0.77	0.05	0.12	0.39	0.21	0.28	0.48	0.58	0.75	1.30
W	0.79	RES 1/6 AC.	52.5%	0.79	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.25	0.30	0.43
X	2.00	RES 1/6 AC.	52.5%	2.00	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.64	0.75	1.09
Y	3.20	RES 1/5 AC.	46.0%	3.20	0.28	0.34	0.52			0.00	0.89	0.90	0.96	0.28	0.34	0.52	0.90	1.09	1.66
Z	0.30	RES 1/5 AC.	46.0%	0.15	0.28	0.34	0.52	OPEN SPACE	7.0%	0.15	0.05	0.12	0.39	0.17	0.23	0.46	0.05	0.07	0.14
AA	2.60	RES 1/5 AC.	46.0%	2.35	0.28	0.34	0.52	OPEN SPACE	7.0%	0.25	0.05	0.12	0.39	0.26	0.32	0.51	0.67	0.83	1.32
BB	6.20	RES 1/5 AC.	46.0%	0.00	0.28	0.34	0.52	OPEN SPACE	7.0%	6.20	0.05	0.12	0.39	0.05	0.12	0.39	0.31	0.74	2.42
CC	5.80	RES 1/5 AC.	46.0%	3.60	0.28	0.34	0.52	OPEN SPACE	7.0%	2.20	0.05	0.12	0.39	0.19	0.26	0.47	1.12	1.49	2.73
DD	4.40	RES 1/6 AC.	52.5%	4.00	0.32	0.38	0.55	OPEN SPACE	7.0%	0.40	0.05	0.12	0.39	0.30	0.35	0.53	1.30	1.55	2.34
EE	1.30	STREET	100.0%	0.60	0.89	0.90	0.96	OPEN SPACE	7.0%	0.80	0.05	0.12	0.39	0.44	0.49	0.68	0.57	0.64	0.89
FF	0.62	STREET	100.0%	0.60	0.89	0.90	0.96			0.00	0.05	0.12	0.39	0.86	0.87	0.93	0.53	0.54	0.58
GG	2.50	RES 1/6 AC.	52.5%	1.90	0.32	0.38	0.55	STREET	100.0%	0.60	0.89	0.90	0.96	0.46	0.50	0.64	1.14	1.25	1.61
HH	2.00	RES 1/6 AC.	52.5%	1.00	0.32	0.38	0.55	STREET	100.0%	1.00	0.89	0.90	0.96	0.61	0.64	0.75	1.21	1.28	1.51
F4-1	9.00	RES 1/5 AC.	46.0%	9.00	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	2.52	3.06	4.68
F4-2	2.20	RES 1/5 AC.	46.0%	2.20	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.62	0.75	1.14
F4-3	3.20	RES 1/5 AC.	46.0%	3.20	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.90	1.09	1.66
F4-4	9.80	RES 1/5 AC.	46.0%	6.10	0.28	0.34	0.52	OPEN SPACE	7.0%	3.70	0.05	0.12	0.39	0.19	0.26	0.47	1.89	2.52	4.62
F4-5	1.70	RES 1/6 AC.	52.5%	1.70	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	0.54	0.64	0.93
F4-6	3.50	RES 1/5 AC.	46.0%	3.50	0.28	0.34	0.52			0.00	0.02	0.08	0.35	0.28	0.34	0.52	0.98	1.19	1.82
F4-7	6.90	RES 1/6 AC.	52.5%	6.90	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	2.21	2.59	3.76
F4-8	1.10	RES 1/6 AC.	52.5%	1.10	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.35	0.41	0.60
F4-9	4.90	RES 1/6 AC.	52.5%	4.90	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.57	1.84	2.67
F4-10	8.50	RES 1/6 AC.	52.5%	8.50	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	2.72	3.19	4.63
F2-A	2.90	RES 1/6 AC.	52.5%	2.90	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	0.93	1.09	1.58
F2-B	5.00	RES 1/6 AC.	52.5%	5.00	0.32	0.38	0.55			0.00	0.02	0.08	0.35	0.32	0.38	0.55	1.60	1.88	2.73
F2-C	0.72	STREET	100.0%	0.19	0.89	0.90	0.96	OPEN SPACE	7.0%	0.53	0.05	0.12	0.39	0.27	0.33	0.54	0.20	0.23	0.39
F8-1	3.70	RES 1/6 AC.	52.5%	3.40	0.32	0.38	0.55	OPEN SPACE	7.0%	0.30	0.05	0.12	0.39	0.30	0.35	0.53	1.10	1.31	1.97
F8-2	1.00	RES 1/5 AC.	46.0%	0.90	0.28	0.34	0.52	OPEN SPACE	7.0%	0.10	0.05	0.12	0.39	0.26	0.32	0.51	0.26	0.32	0.51
F8-3	3.40	RES 1/8 AC.	65.0%	2.80	0.41	0.45	0.59	OPEN SPACE	7.0%	0.60	0.05	0.12	0.39	0.35	0.39	0.55	1.18	1.33	1.89
F8-4	4.70	RES 1/8 AC.	65.0%	4.40	0.41	0.45	0.59	OPEN SPACE	7.0%	0.30	0.05	0.12	0.39	0.39	0.43	0.58	1.82	2.02	2.71
F8-5	3.00	RES 1/8 AC.	65.0%	2.51	0.41	0.45	0.59	OPEN SPACE	7.0%	0.49	0.05	0.12	0.39	0.35	0.40	0.56	1.05	1.19	1.67
F8-6	2.80	RES 1/8 AC.	65.0%	2.15	0.41	0.45	0.59	OPEN SPACE	7.0%	0.65	0.05	0.12	0.39	0.33	0.37	0.54	0.91	1.05	1.52
F8-7	4.60	RES 1/8 AC.	65.0%	4.45	0.41	0.45	0.59	OPEN SPACE	7.0%	0.15	0.05	0.12	0.39	0.40	0.44	0.58	1.83	2.02	2.68
F8-8	1.30	RES 1/8 AC.	65.0%	0.50	0.41	0.45	0.59	OPEN SPACE	7.0%	0.80	0.05	0.12	0.39	0.19	0.25	0.47	0.25	0.32	0.61
F8-9	1.60	RES 1/8 AC.	65.0%	0.80	0.41	0.45	0.59	OPEN SPACE	7.0%	0.80	0.05	0.12	0.39	0.23	0.29	0.49	0.37	0.46	0.78
P1-A2	4.20	STREET	100.0%	3.50	0.89	0.90	0.96	OPEN SPACE	7.0%	0.70	0.05	0.12	0.39	0.75	0.77	0.87	3.15	3.23	3.63
P1-A3	1.20	STREET	100.0%	1.03	0.89	0.90	0.96	OPEN SPACE	7.0%	0.17	0.05	0.12	0.39	0.77	0.79	0.88	0.93	0.95	1.06
SR-1	1.20	STREET	100.0%	0.75	0.89	0.90	0.96	OPEN SPACE	7.0%	0.45	0.05	0.12	0.39	0.58	0.61	0.75	0.69	0.73	0.90
SR-2	0.65	STREET	100.0%	0.48	0.89	0.90	0.96	OPEN SPACE	7.0%	0.17	0.05	0.12	0.39	0.67	0.70	0.81	0.44	0.45	0.53
BG-1	4.20	STREET	100.0%	3.00	0.89	0.90	0.96	OPEN SPACE	7.0%	1.20	0.05	0.12	0.39	0.65	0.68	0.80	2.73	2.84	3.35
BG-2	3.00	STREET	100.0%	2.25	0.89	0.90	0.96	OPEN SPACE	7.0%	0.75	0.05	0.12	0.39	0.68	0.71	0.82	2.04	2.12	2.45
P1-INT	33.40	UNDEV.	2.0%	33.40	0.03	0.09	0.36			0.00	0.89	0.90	0.96	0.03	0.09	0.36	1.00	3.01	12.02
P1-F1	60.60	RES 1/6 AC.	52.5%	60.60	0.32	0.38	0.55			0.00	0.89	0.90	0.96	0.32	0.38	0.55	19.39	22.73	33.03
TOTAL AREA TRIBUTARY TO POND FSD-16	211.5	49.1%																	
Tributary Area to NWesterly Outfall	136.1	49.1%																	
Tributary Area to Easterly Outfall	33.4	51.1%																	
Tributary Area to SWesterly Outfall	33.0	52.0%																	
Basins tributary to Pond FSD-14A	17.9	66.4%																	
Basin tributary to future SWQ pond	0.62	96.8%																	

Remove this table and make other tables bigger.

CLASSIC CONSULTING

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STERLING RANCH EAST FILING NO. 6
FINAL PLAT
FINAL DRAINAGE REPORT
DEVELOPED CONDITIONS CALCULATIONS

DESIGNED BY MAW	SCALE	DATE	4/8/26
DRAWN BY MAW	(H) 1"= 100'	SHEET 5 OF 5	
CHECKED BY MAW	(V) 1"= N/A	JOB NO.	1183.60