

FINAL DRAINAGE REPORT
For
Revel at Wolf Ranch II B
Revel at Wolf Ranch Filing No. 8 and 9

January 2021

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Project# 20-017

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DRAINAGE PLAN STATEMENTS

ENGINEER'S STATEMENT

This Drainage Report and Plan for the drainage design of Revel at Wolf Ranch Filing No. 8 and 9 were prepared under my direct supervision and are correct to the best of my knowledge and belief. Said drainage report and plan has been prepared in accordance with the City of Colorado Springs Drainage Criteria Manual and is in conformity with the master plan of the drainage basin. I understand that the City of Colorado Springs does not and will not assume liability for drainage facilities designed by others. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

Kent D. Rockwell, P.E.

DEVELOPER'S STATEMENT

David D. Jenkins hereby certifies that the drainage facilities for Revel at Wolf Ranch Filing No. 8 and 9 shall be constructed according to the design presented in this report. I understand that the City of Colorado Springs does not and will not assume liability for the drainage facilities designed and/or certified by my engineer and that are submitted to the City of Colorado Springs pursuant to Section 7.7.906 of the City Code.; and cannot on behalf of Revel at Wolf Ranch Filing No. 8 and 9, guarantee that final drainage design review will absolve David D. Jenkins and/or their successors and/or assigns of future liability for improper design. I further understand that approval of the final plat does not imply approval of my engineer's drainage design.

Name of Developer

Authorized Signature

Date

Printed Name

Title

Address

CITY OF COLORADO SPRINGS

Filed in accordance with Section 7-7-906 of the code of the City of Colorado Springs, 2001, as amended.

CITY ENGINEER

DATE

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For
Revel at Wolf Ranch Phase II B
Revel at Wolf Ranch Filing No. 8 and 9
January 2021

PURPOSE

The purpose of this report is to identify the existing and proposed runoff patterns and drainage facilities required for the proposed Revel at Wolf Ranch Filing No. 8 and 9. The Revel at Wolf Ranch Filing No. 8 Development consists of 30 proposed single family residential lots on 16.748 acres and Revel at Wolf Ranch Filing No. 9 consists of 49 proposed single family residential lots on 19.280 acres. The two filings are located directly east of proposed Wolf Valley Drive approximately 3,000 feet north of the Wolf Valley Drive and Research Parkway intersection. (See Figure 1-Vicinity Map).

SUMMARY OF DATA

The sources of information used in the development of this study are listed below:

1. City of Colorado Spring "Drainage Criteria Manual", May 2014.
2. Soil Survey for El Paso County, Colorado, U.S. Department of Agriculture, Soil Conservation Service, June 1980.
3. "Flood Insurance Studies for Colorado Springs and El Paso County, Colorado", prepared by the Federal Emergency Management Agency (FEMA), 2018.
4. "Cottonwood Creek Drainage Basin Planning Study" by Ayers and Associates, 1996.
5. "Cottonwood Creek Prudent Line Study" by Ayres & Associates, 1996.
6. "Master Development Drainage Plan for Wolf Ranch, Colorado Springs, Colorado," prepared by Kiowa Engineering, June, 2018.
7. "Design Report – Detention Basin F14-Wolf Ranch Development, Addendum to Wolf Ranch Master Development Drainage Plan Update, Colorado Springs, Colorado, by Kiowa Engineering, April, 2020, (approval pending).

GENERAL LOCATION AND DESCRIPTION

The Revel at Wolf Ranch Filings No. 8 and 9 developments are located within the northeastern portion of the City of Colorado Springs, El Paso County, Colorado. (see Vicinity Map - Figure 1). The site is within a portion of the North Half of Section 31, Township 12 South, Range 65 West of the 6th P.M. The site is bound on the east by future Revel at Wolf Ranch Filings 6 and 7, on the south by Enclave III at Wolf Ranch Filing No. 1, on the west by Wolf Valley Drive and the Elan at Wolf Ranch development, and on the north by vacant land within the overall Wolf Ranch Development.

Well-established native grasses exist throughout the proposed development. The topography generally slopes from northeast to southwest. An existing natural drainage way is located directly east of Revel at Wolf Ranch Filing No. 8. This development is not located within the streamside overlay area.

SOILS

According to the Soil Survey of El Paso County Area, Colorado, prepared by the U.S. Department of Agriculture Soil Conservation Service, the soils underlying the Revel at Wolf Ranch Filings No. 8 and 9 development fall under the Pring (course sandy loam), Series (Soil Type 71) The soils are classified as a Hydrologic Group "B" soil.

CLIMATE

This area of El Paso County can be described as the foothills, with total precipitation amounts typical of a semi-arid region. Winters are generally cold and dry, and summers relatively warm and dry. Precipitation ranges from 12 to 14 inches per year, with the majority of this moisture occurring in the spring and summer in the form of rainfall. Thunderstorms are common during the summer months.

FLOODPLAIN STATEMENT

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #08041C0529G dated December 7, 2018, no portion of the Elan at Wolf Ranch Filing No. 1 developments lie within a designated 100-year floodplain.

DRAINAGE CRITERIA

The current City of Colorado Springs/El Paso County Drainage Criteria was utilized in this report. Peak runoff quantities were determined using the Rational Method for both the 5 year and 100 year storms, as required for drainage basins less than 130 acres. Hydraulic Grade Line (HGL) calculations will be provided in conjunction with Section 7.0 of the City of Colorado Springs Drainage Criteria Manual, Volume 1. The HGL calculations will be submitted with the construction documents and the HGL's for the 5 year and 100 year storms will be depicted on the storm sewer construction documents.

FOUR STEP PROCESS TO MINIMIZE ADVERSE IMPACTS OF URBANIZATION

Step 1: Runoff from the Revel at Wolf Ranch Filings 8 and 9 is conveyed to existing Pond F28. Pond F28 is located along the north side of Research Parkway approximately 1,500 feet south of the proposed Revel at Wolf Ranch Filings 8 and 9 development. Throughout this development roof drains will be directed into landscaped areas and yards wherever possible. The Impervious Reduction Factor (IRF) spreadsheet is included in the Appendix of this report. An additional water quality area is being provided just upstream of existing Pond F28 (see Water Quality Section below).

Step 2: The runoff collected from this filing will be captured within inlets and conveyed to an additional water quality area just upstream of existing Pond F28 via proposed storm sewer systems and within streets. An energy dissipater will be installed at the downstream end of the proposed 66" RCP as it discharges into the additional water quality area. The additional water quality area will be graded at a relatively flat slope to minimize velocities and erosion. Kiowa Engineering prepared this design to City Engineering who has approved the design.

Step 3: The Pond F28 existing outfall storm system discharge across Research Parkway to the south and then directly to Tributary 4 of Cottonwood Creek. Existing downstream drop structures have been constructed along Cottonwood Creek south of Research Parkway providing a stable downstream Cottonwood Creek. The release rates from Pond F28 are consistent with the Wolf Ranch Master Development Drainage Plan and the Cottonwood Creek Drainage Basin Planning Study.

Step 4: Site specific BMP's will be utilized during construction and up to stabilization of the site to minimize off-site contaminants and to protect the downstream receiving waters.

WATER QUALITY

Water quality capture volume is being provided in Pond F-28 located just south of the proposed development. Pond F-28 an existing pond, previously approved by the City of Colorado Springs. The proposed land use densities being proposed now are consistent with those anticipated when Pond F-28 was designed and constructed. However, a separate water quality area to be constructed just upstream of Pond F-28 has been designed by Kiowa Engineering and approved by City Engineering.

Approximately 180 acres are tributary to the existing natural swale located just southeast of the Elan at Wolf Ranch development and downstream of Revel at Wolf Ranch Filings 6, 7 8 and 9. Existing Pond F28 was designed to provide Full Spectrum Detention for the 170 acres. However, additional water quality treatment will be provided just upstream of existing Pond F28 for the Elan at Wolf Ranch Development and the 170 acres tributary area.

This will be accomplished by constructing a proposed grass swale just downstream of the proposed 66" RCP conveying flows from the upstream tributary area. The grass swale will extend approximately 160 feet longitudinally along the swale and will be approximately 100 feet wide. A UDFCD modified USBR Type VI impact stilling basin will be constructed at the outfall of the 66" RCP just upstream of the grass lined swale to dissipate the energy.

This grass swale will be constructed at a 1.5% slope, resulting in depths of approximately 1.1 feet, velocities in the range of 3.7 to 4.3 feet per second and a Froude number of 0.89. At the downstream side of the grass lined swale a 66" reinforced concrete pipe flared end section will be installed to recollect the flows. A proposed forebay will be installed at the point the proposed 54" pipe discharges into Pond F28.

HISTORIC DRAINAGE BASIN DESCRIPTIONS

A brief description of historic drainage basin for the site is provided in this section of the report. A summary of peak historic runoff for the basins is depicted on the Historic Drainage Plan (Exhibit 1). The historic drainage patterns and runoff rates are described by 6 historic drainage basins.

Historic Basin A comprises approximately 13.89 acres along proposed Wolf Valley Drive just south of future Briargate Parkway. Runoff rates of 2.6 cubic feet per second (cfs) and 18.9 cfs are generated from this basin during the 5 and 100 year storms, respectively. These flows sheet flows from north to south crossing future Wolf Valley Drive.

The 14.58 acre Historic Basin B, located east of the future Wolf Valley Drive street extension generates additional flows of 2.1 cfs during the 5 year storm and 15.1 cfs during the 100 year storm. These flows currently reach Wolf Valley Drive as sheet flows. The recent grading of the extension of Wolf Valley Drive contains these flows along the east side of Wolf Valley Drive. These flows along with the flows from Basin A cross future Wolf Valley Drive.

Historic Basin C comprising an additional 23.84 acres generating runoff rates of 3.0 cfs and 22.1 cfs during the 5 and 100 year storms, respectively. These flows also travel from north to south toward Wolf Valley Drive.

Historic Basin D comprises 39.08 acres generating runoff rates of 4.3 cfs generated during the 5 year storm and 31.3 cfs during the 100 year storm. These flows historically reach an existing natural swale that drains to the south eventually crossing under proposed Wolf Valley Drive at the south end of Basin D.

Runoff rates of $Q_5 = 1.8$ cfs and $Q_{100} = 13.2$ cfs are generated from the 12.41 acre Historic Basin E. These flows are also directed to the existing natural drainage way and enter Basins D and F.

Basin F comprises 23.63 just east of the natural drainage way. This 23.63 acre basin generates runoff rates of 2.6 cfs during the 5 year storm and 18.9 cfs during the 100 year storm. These flows reach a secondary natural drainage way combining with flows from Basins C, D, and E at a convergence just north of sheet flows around the westerly side of the proposed Elan Development.

Total flow rates of 10.98 cfs during the 5 year storm and 79.1 cfs during the 100 year storm reach Historic Design Point #H-1 from Basins C, D, E and F.

DEVELOPED DRAINAGE BASIN

A brief description of developed drainage basins for the site is provided in this section of the report. A summary of peak developed runoff for the developed basins is depicted on the Developed Drainage Plan (Exhibit 2) provided in the appendix. The proposed drainage facilities sizes presented in this report may possibly vary slightly once more detailed final construction documents are prepared. The proposed facility sizes may vary with final construction documents. An addendum to this report with final Hydraulic Grade Line (HGL) calculations will be provided with the individual storm sewer construction documents.

In the event, the proposed facility sizes are altered, an addendum to this report will be provided. Hydraulic Grade Line (HGL) calculations will be provided with the individual storm sewer construction documents.

Within the single-family residential development, side lot line swales will be created on the downstream lots to convey flows from the upstream lots and into the street. Swales will be constructed by the homebuilders and maintained by the homeowner to limit concentrated flows and to disperse the flows as much as possible. Individual lot drainage is the responsibility of the lot owner/builder.

The area directly north of Revel at Wolf Ranch Filing No. 8 and 9 consists of vacant land that will be development mainly as single family residential lots and townhomes. Future Briargate Parkway is located approximately 1,500 feet north of Filings 8 and 9. Future Pond F14 is located just north of Briargate Parkway with anticipated release rates of 5 cfs during the 5 year storm and 80 cfs during the 100 year storm.

Offsite Basin OS-1, located along the east side of future Wolf Valley Drive, comprises 8.97 acres of future single family residential lots. Runoff rates of 13.9 cfs during the 5 year storm and 30.5 cfs during the 100 year storm are generated from this basin. It is anticipated flows generated from this area will be directed westerly to the future Wolf Valley Drive corridor.

Basin OS-2 is also located just east of future Wolf Valley Drive comprising 7.38 acres. This proposed development of this area is future townhomes. Future runoff rates generated from this area are anticipated to be $Q_5 = 17.2$ cfs and $Q_{100} = 33.1$ cfs. These flows will also be conveyed westerly to the future Wolf Valley Drive corridor.

The 2.42 acre Basin OS-3 will be developed as additional townhomes just east of Wolf Valley Drive. Runoff rates of 6.4 cfs during the 5 year storm and 12.4 cfs during the 100 year storm will be piped to Wolf Valley Drive.

The future runoff generated from future offsite Basins OS-1, OS-2 and OS-3 will reach Design Point #1 as pipe flows. The anticipated flows reaching Design Point #1 are $Q_5 = 35.7$ cfs and $Q_{100} = 72.6$ cfs. These flows will be piped southerly within a proposed 36" RCP to be constructed within the Wolf Valley Drive corridor.

Future Basin OS-4, located just south of future Briargate Parkway, consists of 16.21 acres of future single family residential lots. The runoff rates of 25.0 cf and 55.1 cfs generated from this area during the 5 and 100 year storm, respectively, will be collected and pipe southerly into Basin OS-5.

The 18.23 acre Basin OS-5 will be developed as single family residential lots and townhomes. It is anticipated runoff rates of 36.6 cfs during the 5 year storm and 74.0 cfs during the 100 year storm will be generated from this area. These flows along with the flows from Basin OS-4 will be piped southerly to the Bartlett Street corridor. Total flows of 49.5 cfs and 103.8 cfs will reach Design Point #6A from Basins OS-4 and OS-5 during the 5 and 100 year storms, respectively. These flows will be piped southerly within a proposed 36" RCP within the Bartlett Street corridor.

Future Pond F-14 is located just upstream of Briargate Parkway and is tributary to Basin OS-5. The proposed release rates from Pond F-14 are $Q_5 = 5.0$ cfs and $Q_{100} = 80.0$ cfs per Kiowa Engineering's Design Report (Ref#7). A proposed 36" RCP will convey the flows from Pond F-14.

Basin OS-6 comprises the natural drainage way and some adjacent single family residential development. It is anticipated runoff rates of 5.3 cfs and 18.0 cfs will be generated from this area in the future. These flows will combine with flows generated from Basin OS-4 and the flows being released from Pond F-14.

Basin OS-7 consisting of approximately 17.43 acres of future open space and single family residential development tributary to the existing natural drainage way located north and west of Revel at Wolf Ranch Filings 6 and 7. This area is anticipated to generate flow rates of 20.2 cfs during the 5 year storm and 51.4 cfs during the 100 year storm.. It is anticipated these flows will enter Basin OS-6 in the future at the south end of Basin OS-6. Total flow of $Q_5 = 27.3$ cfs and $Q_{100} = 140.1$ cfs are anticipated to reach Design Point #18 from these 3 sources of runoff.

Basin 1 consists of the west half of Wolf Valley Drive from in the northwesterly portion of proposed Filing No. 9. This 0.81 acre basin generates runoff rates of $Q_5 = 1.6$ cfs and $Q_{100} = 3.7$ cfs. For the purpose of this report, it is assumed bypass flows of $Q_5 = 3.0$ cfs and $Q_{100} = 6.0$ cfs will enter this basin as street flows from the north, resulting in total street flows of $Q_5 = 4.6$ cfs and $Q_{100} = 9.7$ cfs reaching the south end of Basin 1. A proposed public 15' on-grade Type R inlet along the west side of Wolf Valley Drive will collect flows of 4.6 cfs during the 5 year storm and 8.1 cfs during the 100 year storm. Bypass flows of 1.6 cfs bypass this inlet during the 100 year storm and enter Basin 2 as street flows. The flows collected at this inlet will be conveyed to the public 48" RCP in Wolf Valley Drive within a proposed public 18" RCP.

Basin 2 comprises 0.83 acres also along the west side of Wolf Valley Drive extending 700 feet north of Forestgate Drive. Runoff rates of $Q_5 = 1.5$ cfs and $Q_{100} = 3.6$ cfs are generated from this basin. Including bypass flows of $Q_{100} = 1.6$ cfs from Basin 1, total runoff rates of 1.5 cfs and 5.2 cfs will reach a proposed on-grade public 10' Type R inlet at the south end of Basin 2. This inlet will collect runoff rates of 1.5 cfs during the 5 year storm and 4.3 cfs during the 100 year storm. During the 100 year storm, flows of 0.9 cfs will bypass this inlet and enter Basin 18 as street flows. A proposed public 18" will convey the collected flows from this inlet to the proposed public 48" RCP within Wolf Valley Drive.

The 1.79 acre Basin 3, located along the east side of Wolf Valley Drive,, generates additional flows of 2.7 cfs during the 5 year storm and 6.5 cfs during the 100 year storm. Like Basin 1, it is assumed 3.0 cfs during the 5 year storm and 6.0 cfs during the 100 year storm will enter this basin from the north as street flows resulting in total street flows of $Q_5 = 5.7$ cfs and $Q_{100} = 12.5$ cfs reaching the south end of Basin 3.

These flows approach a proposed 15' on-grade public Type R inlet along the east side of Wolf Valley Drive. This inlet collects runoff rates of 5.6 cfs during the 5 year storm and 9.4 cfs during the 100 year storm. Bypass flows of 0.1 cfs and 3.1 cfs will enter Basin 4 during the 5 and 100 year storms, respectively.

Flows from Design Point #1, Basin 1 and Basin 3 reach Design Point #2. The total runoff rates of $Q_5 = 39.4$ cfs and $Q_{100} = 81.3$ cfs will be piped southerly within a public 36" RCP.

Runoff rates of 3.7 cfs during the 5 year storm and 8.3 cfs during the 100 year storm are generated from the 1.97 acre Basin 4. Including bypass flows from Basin 3, total street flows of 3.8 cfs and 11.4 cfs reach the south end of Basin 4 where a proposed 15' on-grade public Type R inlet will be installed. This inlet will collect flows of 3.8 cfs during the 5 year storm and 8.9 cfs during the 100 year storm. During the 100 year storm, flows of 2.5 cfs will enter Basin 16 as street flows.

The total flows reaching Design Point #3 are $Q_5 = 41.7$ cfs and $Q_{100} = 87.1$ cfs. These flows will be piped southerly within a proposed public 42" RCP.

Basin 5, located along the west side of Monopoly Way, comprises 1.09 acres and generates runoff rates of 2.2 cfs during the 5 year storm and 4.8 cfs during the 100 year storm. A proposed public on-grade 10' Type R inlet to be constructed at the south end of this basin will collect runoff rates of 2.2 cfs and 4.5 cfs during the 5 and 100 year storms, respectively. A runoff rate of 0.3 cfs will bypass this inlet during the 100 year storm and enter Basin 9 as street flows.

Basin 6 consists of 2.24 acres along the east side of Monopoly Way. Runoff rates of 4.5 cfs and 9.5 cfs are generated from this basin during the 5 and 100 year storms, respectively. These flows reach a proposed 15' public on-grade Type R inlet which collects runoff rates of 4.5 cfs during the 5 year storm and 8.9 cfs during the 100 year storm. During the 100 year storm, 0.6 cfs will bypass this inlet and enter Basin 7 as street flows. A proposed public 18" RCP will convey these flows to Design Point #4.

Basin 7 comprises 1.22 acres along Cribbage Trail generating runoff rates of 3.2 cfs and 6.4 cfs during the 5 and 100 year storms, respectively. These flows continue westerly in Cribbage Trail to Monopoly Way combining with the bypass flows from Basin 6. Total street flows of 3.2 cfs during the 5 year storm and 7.0 cfs will reach a reach a proposed 10' public on-grade Type R inlet along the east side of Monopoly Way just south of Cribbage Trail. This inlet collects runoff rates of 3.2 cfs and 5.8 cfs during the 5 and 100 year storms, respectively. During the 100 year storm, 1.2 cfs will bypass this inlet and enter Basin 8 as street flows. A proposed public 18" RCP will convey the collected flows from the inlet within Basin 7 to the proposed public 24" RCP in Monopoly Way.

The total flows generated from Basins 5, 6 and 7 reach Design Point #4. Flow rates of $Q_5=9.4$ cfs and $Q_{100}=19.5$ cfs will be conveyed southeasterly within a proposed public 24" RCP.

Basin 8 consists of 1.63 acres along the northeasterly side of Monopoly Way. This basin generates runoff rates of 4.1 cfs during the 5 year storm and 8.4 cfs during the 100 year storm. Total street flows of 4.1 cfs during the 5 year storm and 9.6 cfs during the 100 year storm reach the south end of Basin 8 as street flow including the bypass flows from Basin 7. A proposed 15' on-grade Type R inlet at the south end of Basin 8 will collect runoff rates of 4.1 cfs during the 5 year storm and 9.0 cfs during the 100 year storm. A flow rate of 0.6 cfs will bypass this inlet during the 100 year storm and enter Basin 9 as street flows.

Basin 9 is located at the southwest and north side of Monopoly Way comprising 1.83 acres. Runoff rates of $Q_5=4.9$ cfs and $Q_{100}=9.8$ cfs are generated from this basin. Including bypass flows from Basin 5 and Basin 8, flow rates of total runoff rates of $Q_5=4.9$ cfs and $Q_{100}=10.7$ cfs reach a proposed public 15' sump Type R inlet at the east end of Basin 9. This inlet collects runoff rates of 4.9 cfs and 9.6 cfs during the 5 and 100 year storm, respectively. 1.1 cfs will bypass this inlet during the 100 year storm and enter Basin 11 as street flows.

Runoff rates of $Q_5=16.3$ cfs and $Q_{100}=33.3$ cfs generated from Basins 5 through 9 reach Design Point #5. A proposed public 30" RCP will convey these flows to Bartlett Street and Monopoly Way intersection.

As stated above, offsite area contribute flows of 49.5 cfs and 103.8 cfs during the 5 and 100 year storms, respectively, reach Design Point #6A from offsite Basins OS-4 and OS-5. These flows will be piped within a proposed public 36" RCP to the north end of Basin 10.

The 2.55 acre Basin 10 is located northwest of the Bartlett Street and Cribbage Trail intersection. Runoff rates of 3.8 cfs and 9.0 cfs are generated from this basin during the 5 and 100 year storms, respectively. It has been assumed street flows of $Q_5=3.0$ cfs and $Q_{100}=6.0$ cfs will enter this basin from future development from the north resulting in total flow rates of $Q_5=6.8$ cfs and $Q_{100}=15.0$ cfs reaching the south end of Basin 10. These flows reach a proposed on-grade public 15' type R inlet. This inlet collects total runoff rates of 6.8 cfs during the 5 year storm and 11.9 cfs during the 100 year storm. The bypass flow of 3.1 cfs will enter Basin 11 as street flow.

Total flows rates of $Q_5=52.5$ cfs and $Q_{100}=110.7$ cfs will reach Design Point #6B. A proposed public 36" RCP will convey these flows to the Monopoly Way and Bartlett Street intersection.

Combined flows from Design Points #5 and #6 will reach Design Point #7. A proposed public 42" RCP will convey flow rates of $Q_5=64.1$ cfs and $Q_{100}=134.5$ cfs within Bartlett Street.

The 0.72 acre Basin 11 is located along the west side of Bartlett Street and generates runoff rates of 1.9 cfs and 3.7 cfs during the 5 and 100 year storms, respectively. Additional flows of 4.2 cfs enter Basin 11 from Basins 9 and 10 during the 100 year storm resulting in total street flows of $Q_5=1.9$ cfs and $Q_{100}=7.9$ cfs reaching the south end of Basin 11. A proposed 10' on-grade public Type R inlet at the south end of Basin 11 will collect flows of 1.9 cfs during the 5 year storm and 6.3 cfs during the 100 year storm. Bypass flows of 1.6 cfs during the 100 year storm will enter Basin 15 as street flows.

Basin 12 comprises 1.44 acres along the east side of Bartlett Street. Runoff rates of 3.3 cfs and 6.8 cfs are generated from this basin during the 5 and 100 year storms, respectively. Like Basin 10, it has been assumed street flows of $Q_5=3.0$ cfs and $Q_{100}=6.0$ cfs will enter this basin from future development from the north resulting in total flow rates of $Q_5=6.3$ cfs and $Q_{100}=12.8$ cfs reaching the south end of Basin 12.

These flows reach a proposed on-grade public 15' Type R inlet at the south end of Basin 12. This inlet collects runoff rates of 6.3 cfs and 10.8 cfs during the 5 and 100 year storms, respectively. During the 100 year storm, a flow rate of 2.0 cfs will bypass this inlet and enter Basin 15 as street flows.

A proposed public 42" RCP will convey runoff rates of $Q_5 = 67.2$ cfs and $Q_{100} = 140.7$ cfs reaching Design Point #8.

Basin 13 is located along the Posey Place cul-de-sac. This 3.09 acre basin generates runoff rates of 6.6 cfs during the 5 year storm and 14.4 cfs during the 100 year storm. These flows approach a proposed public 15' on-grade public Type R inlet. This inlet collects runoff rates of 6.6 cfs during the 5 year storm and 11.6 cfs during the 100 year storm. During the 100 year storm, 2.8 cfs will bypass this inlet and enter Basin 14 as street flows.

Basin 14 consists of 0.41 acres along the north side of Forestgate Drive generating runoff rates of 1.1 cfs during the 5 year storm and 2.1 cfs during the 100 year storm. Including the bypass flows from Basin 13, total street flows of $Q_5 = 1.1$ cfs and $Q_{100} = 4.9$ cfs reach the southwest end of Basin 14. A proposed public 10' on-grade Type R inlet will collect flow rates of 1.1 cfs during the 5 year storm and 4.6 cfs during the 100 year storm. Bypass flows of 0.3 cfs during the 100 year storm will bypass this inlet and enter Basin 15 during the 100 year storm.

Flows from Basins 13 and 14 reach Design Point #9. Flow rates of 7.7 cfs during the 5 year storm and 16.5 cfs during the 100 year storm will be conveyed southwesterly within a proposed public 24" RCP within the Forestgate corridor.

Basin 15 is also located along the north side of Forestgate and consist of 0.89 acres. Runoff rates of $Q_5 = 2.1$ cfs and $Q_{100} = 4.3$ cfs generated from the basin. During the 100 year storm, 3.9 cfs under this basin from upstream Basins 11, 12 and 14, resulting in total flow rates of 2.1 cfs and 8.2 cfs during the 5 and 100 year storms, respectively, reaching the southwesterly end of Basin 15. A proposed public 15' on-grade public Type R inlet will collect runoff rates of 2.1 cfs during the 5 year storm and 8.0 cfs during the 100 year storm. During the 100 year storm, 0.2 cfs will enter Basin 16 as street flow.

Flow rates of 75.6 cfs during the 5 year storm and 158.4 cfs during the 100 year storm reach Design Point #10. These flows are conveyed southerly within a proposed public 42" RCP.

Basin 16 consists of 1.59 acres northeast of the Wolf Valley Drive and Forestgate Drive intersection generating runoff rates of $Q_5 = 4.1$ cfs and $Q_{100} = 8.3$ cfs. These flows along with the bypass flows from Basins 4 and 15 reach a proposed public 15' on-grade Type R inlet along the east side of Wolf Valley Drive just south of Forestgate Drive. Of the total flows of $Q_5 = 4.1$ cfs and $Q_{100} = 11.0$ cfs reaching this inlet, flow rates of 4.1 cfs during the 5 year storm and 8.2 cfs during the 100 year storm will be collected by this inlet. A flow rate of 2.8 cfs during the 100 year storm will bypass this inlet and enter Basin 17 as street flows.

A proposed public 48" RCP within Wolf Valley Drive will convey the flow rates of $Q_5 = 44.6$ cfs and $Q_{100} = 92.9$ cfs reaching Design Point #11.

Basin 17, located along the east side of Wolf Valley Drive, consists of 2.46 acres and generates runoff rates of 4.5 cfs during the 5 year storm and 10.2 cfs during the 100 year storm. With the bypass flows from Basin 16, total street flows of $Q_5 = 4.5$ cfs and $Q_{100} = 13.0$ cfs reach the south end of Basin 17. A proposed on-grade public 15' Type R inlet will be installed at this point and will collect runoff rates of 4.5 and 10.9 cfs during the 5 and 100 year storms, respectively. During the 100 year storm, 2.1 cfs will bypass this inlet and enter Basin 26 as street flows.

Basin 18 is located along the west side of Wolf Valley Drive consisting of 1.17 acres. Runoff rates of 2.5 cfs during the 5 year storm and 5.3 cfs during the 100 year storm. Including the bypass flows from Basin 2, total street flows of $Q_5 = 2.5$ cfs and $Q_{100} = 6.2$ cfs will reach the south end of Basin 18. An existing 15' on-grade public Type R inlet will collect these flows.

Basin 19A is located just north of Forsestgate Drive within the natural drainage way. Runoff rates of 1.8 cfs and 9.2 cfs are generated from this 3.99 acre basin during the 5 and 100 year storms, respectively. These flows reach the north side of Forestgate Drive. A proposed 10' public sump Type R inlet to be constructed along the north side of Forestgate Drive will collect these flows.

Basin 19B consists of 0.43 acres along the south side of Forestgate Drive generating runoff rates of 1.0 cfs and 2.1 cfs during the 5 and 100 year storm respectively. A proposed public 10' sump Type R inlet will collect these flows along the south side of Forestgate Drive.

Basin 20 comprises 1.19 acres at the southeast corner of Forestgate Drive and Bartlett Street. The runoff rates of 3.4 cfs during the 5 year storm and 6.6 cfs during the 100 year storm generated from this basin flow southerly within Bartlett Street to a proposed 15' public on-grade Type R inlet. This inlet will collect the 5 and 100 year flow rates reaching this inlet.

Flow rates of 76.9 cfs during the 5 year storm and 161.0 cfs during the 100 year storm reach Design Point #12. A proposed public 42" RCP will convey these flows to the Bartlett Street and Gallery Place intersection.

The 1.02 acre Basin 21 is located along the southwest side of Bartlett Street. The 2.8 cfs and 5.5 cfs generated from this basin during the 5 and 100 year storms, respectively, reach a proposed public on-grade 10' Type R inlet at the east end of Basin 21. This inlet will collect 2.8 cfs during the 5 year storm and 5.0 cfs during the 100 year storm. During the 100 year storm, 0.5 cfs will bypass this inlet and enter Basin 22 as street flows.

A proposed public 42" RCP will convey the total flows rates of $Q_5 = 78.7$ cfs and $Q_{100} = 164.5$ cfs reaching Design Point #13.

Basin 22 consists of 1.58 acres along the northwest side of Gallery Place. This basin generates runoff rates of 3.8 cfs during the 5 year storm and 7.9 cfs. Including bypass flows from Basin 21, total street flows of $Q_5 = 3.8$ cfs and $Q_{100} = 8.4$ cfs reach a proposed 15' on-grade Type R inlet. This inlet will collect runoff rates of 3.8 cfs during the 5 year storm and 8.1 cfs during the 100 year storm. Flow rates of 0.3 cfs will bypass this inlet and enter Basin 24 as street flows.

The 0.59 acre Basin 23 is located along the southeast side of Gallery Place. A proposed 10' on-grade public Type R inlet will collect runoff rates of 1.7 cfs and 3.4 cfs generated from this basin during the 5 and 100 year storms, respectively.

Design Point #14 is located at the south end of Basins 22 and 23. The total runoff rates of 82.1 cfs during the 5 year storm and 171.3 cfs during the 100 year storm reaching this point will be conveyed southerly within a proposed public 42" RCP.

Basin 24 is located along the westerly side of Gallery Place consisting of 0.76 acres and generating runoff rates of $Q_5 = 1.9$ cfs and $Q_{100} = 3.9$ cfs. Including the bypass flows from Basin 24, total street flows of $Q_5 = 1.9$ cfs and $Q_{100} = 4.2$ cfs reach a proposed public on-grade 10' Type R inlet at the south end of this basin. This inlet will collect runoff rates of 1.9 cfs and 4.1 cfs during the 5 and 100 year storms, respectively. A flow rate of 0.1 cfs will enter Basin 26 as street flows.

The 0.52 acre Basin 25, located along the east side of Gallery Place, generates flow rates of 1.6 cfs during the 5 year storm and 3.0 cfs during the 100 year storm. These flows approach a proposed public on-grade 10' Type R inlet. This inlet collects all of these flows.

Total flows of $Q_5 = 87.0$ cfs and $Q_{100} = 182.0$ cfs reach Design Point #15 at the intersection of Wolf Valley Drive and Gallery Place. A proposed 42" public RCP conveys these flows to the public 48" RCP in Wolf Valley Drive.

Design Point #16 is located just south of the Wolf Valley Drive and Gallery Place intersection where flows from Design Point #11 plus Design Point #15 merge. A proposed 48" RCP will convey flow rates of 123.0 cfs during the 5 year storm and 256.9 cfs during the 100 year from this location.

Basin 26 comprises a short stretch of Wolf Valley Drive from Gallery Place to a point 120 feet to the southeast. This 0.30 acre basin generates runoff rates of 1.2 cfs and 2.2 cfs during the 5 and 100 year storms. Bypass flows of 2.2 cfs enter this basin from upstream Basins 17 and 24. A proposed 15' on-grade public Type R inlet at the downstream end of Basin 26 will collect flows of 1.2 cfs and 4.4 cfs during the 5 and 100 year storms, respectively.

Total flow rates of $Q_5 = 123.3$ cfs and $Q_{100} = 257.2$ cfs reach Design Point #17 where a 48" public will convey these flows southerly.

DP#18 is at the north end of Revel at Wolf Ranch Filing No. 8 along the natural drainage way. It is anticipated flow rates of 27.3 cfs and 140.1 cfs will enter Filing No. 8 at this location from the above development and release rates from Pond F-14. A 42" public will be extended to this point to convey flows generated from the area north of this development.

DP#19 is located just south of Forestgate Drive in the open space area. Runoff rates of from DP#18 plus Basins 19A and 19B reach Design Point #19. A proposed 42" public RCP will convey the flow rates of 29.1 cfs and 147.4 cfs reaching this point.

Basin 27 comprises the open space and rear yards of the adjacent lots. This 3.05 acre basin generates runoff rates of 2.7 cfs and 8.3 cfs during the 5 and 100 year storms, respectively. These flows continue southerly as channel flows within the open space. A proposed 18" RCP will be constructed to under the proposed sidewalk to convey the localized flows from Basin 27. This open space area will have a proposed channel section to convey any overflows from upstream areas.

Design Point #20 is located at the downstream end of Basin 27 where flow rates of $Q_5 = 31.0$ cfs and $Q_{100} = 152.6$ cfs will be conveyed southerly within a proposed public 42" RCP.

Basin 28 consists of an additional 5.30 of rear yards and open space generating runoff rates of 4.4 cfs during the 5 year storm and 13.6 cfs during the 100 year storm.

A proposed Type 1 manhole with a grated top will be constructed at the south end of Basin 28 to collect the localized flows reaching that point from Basins 27 and 28. The flows reaching this proposed grated manhole are $Q_5 = 7.1$ cfs and $Q_{100} = 21.9$ cfs.

Total flow rates of 34.4 cfs during the 100 year storm and 162.4 cfs during the 100 year storm reach Design Point #21. These flows will be conveyed southerly within an existing 54" RCP stubbed to this location as part of the Elan at Wolf Ranch development.

DRAINAGE, BRIDGE AND POND FEES

The Revel at Wolf Ranch Filing No. 8 and 9 developments are within the Cottonwood Creek Drainage Basin. The area within Wolf Ranch is now a closed basin. Only the current Cottonwood Creek Drainage Basin Bridge Fee and the Surcharge Fee is now being paid for the Wolf Ranch Developments. The 2021 Drainage and Bridge are listed below.

Revel at Wolf Ranch Filing No. 8 Drainage Fee

	Area	\$/Acre	Total Fee
Cash Portion(Surcharge)	16.748	\$ 778.00	\$ 13,029.94
BRIDGE FEES	16.748	\$1,216.00	<u>\$ 20,365.57</u>
			\$ 33,395.51

Revel at Wolf Ranch Filing No. 9 Drainage Fee

	Area	\$/Acre	Total Fee
Cash Portion(Surcharge)	19.280	\$ 778.00	\$ 14,999.84
BRIDGE FEES	19.280	\$1,216.00	<u>\$ 23,444.48</u>
			\$ 38,444.32

DRAINAGE FACILITIES

The following drainage facilities will be required for Revel at Wolf Ranch Filings 8 and 9. Drainage facilities within this development is part of the overall Wolf Ranch Drainage system presented in the Wolf Ranch Master Development Drainage Plan. The Wolf Ranch Development is now considered at closed basin, therefore, none of these drainage facilities are private non-reimbursable items.

Revel at Wolf Ranch Filing No. 8 - (Public-Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
42" RCP	2,290	L.F.	\$ 175.00	\$ 400,750.00
36" RCP	0	L.F.	\$ 120.00	\$ 0.00
24" RCP	0	L.F.	\$ 95.00	\$ 0.00
18" RCP	654	L.F.	\$ 70.00	\$ 45,780.00
Type I Manhole	11	Ea.	\$ 9,000.00	\$ 99,000.00
Type II Manhole	2	Ea.	\$ 4,000.00	\$ 8,000.00
15' Type R Inlet	6	Ea.	\$ 10,000.00	\$ 60,000.00
10' Type R inlet	7	Ea.	\$ 8,000.00	\$ 56,000.00
Type I Manhole w\grate	1	Ea.	\$ 15,000.00	<u>\$ 15,000.00</u>
			Sub-Total	\$ 684,530.00
10% Eng. and Contingency				<u>\$ 68,453.00</u>
			Grand Total	\$752,983.00

Revel at Wolf Ranch Filing No. 9 - (Public-Non-Reimbursable)

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
42" RCP	287	L.F.	\$ 175.00	\$ 50,225.00
36" RCP	1,798	L.F.	\$ 120.00	\$ 215,760.00
30" RCP	236	L.F.	\$105.00	\$ 24,780.00
24" RCP	451	L.F.	\$ 95.00	\$ 42,845.00
18" RCP	386	L.F.	\$ 70.00	\$ 27,020.00
Type I Manhole	7	Ea.	\$ 9,000.00	\$ 63,000.00
Type II Manhole	5	Ea.	\$ 4,000.00	\$ 20,000.00
15' Type R Inlet	7	Ea.	\$ 10,000.00	\$70,000.00
10' Type R inlet	4	Ea.	\$ 8,000.00	\$32,000.00
Type I Manhole w\grate	0	Ea.	\$ 15,000.00	\$ 0.00
			Sub-Total	\$ 545,630.00
10% Eng. and Contingency				\$ 54,563.00
			Grand Total	\$600,193.00

FUTURE CONSTRUCTION DOCUMENTS, HYDRAULIC GRADE LINES (HGL) AND FUTURE VARIANCE

At this time, pipe velocities are provided based only on Manning's Equation. A table listing the velocities of each pipe segment is provided in the Appendix of this report.

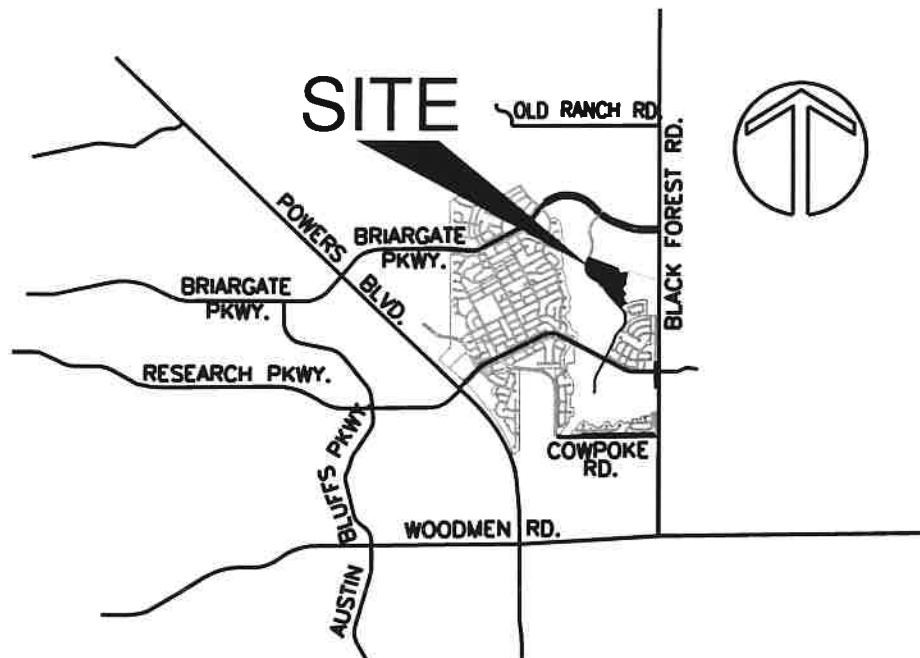
Once more detailed Construction Documents for the proposed storm sewers are prepared for this development, hydraulic grade line (hgl) calculations will be provided as an addendum to this report. We do not anticipate any variances will be required for this site.

SUMMARY

Runoff generated from The Revel at Wolf Ranch Filing No. 8 and 9 will be collected within streets, inlets and drainage pipes and conveyed to the Pond F28 Detention Basin. The conveyance of these flows to Pond F28 is consistent with the overall Wolf Ranch Master Plan and Master Development Drainage Plan and with the Cottonwood Creek Drainage Basin Planning Study. The development of these subdivisions will not adversely affect the downstream and surrounding developments if these facilities are properly installed and properly maintained.

APPENDIX

APPENDIX



VICINITY MAP

NO SCALE

FIGURE 1

JOB NO. 21-002

FILE: 21002FP.DWG
DATE: 01/29/21



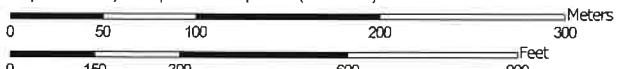
Soil Map—El Paso County Area, Colorado
(Revel at Wolf Ranch Filings 8 & 9)



Soil Map may not be valid at this scale.



Map Scale: 1:3,900 if printed on A portrait (8.5" x 11") sheet.



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







































Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

1/27/2021
Page 1 of 3

Soil Map—El Paso County Area, Colorado
(Revel at Wolf Ranch Filings 8 & 9)

MAP LEGEND

Area of Interest (AOI)			Spoil Area
	Area of Interest (AOI)		Stony Spot
Soils			Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features		Water Features	
	Blowout		Streams and Canals
	Borrow Pit	Transportation	
	Clay Spot		Rails
	Closed Depression		Interstate Highways
	Gravel Pit		US Routes
	Gravelly Spot		Major Roads
	Landfill		Local Roads
	Lava Flow	Background	
	Marsh or swamp		Aerial Photography
	Mine or Quarry		
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

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 18, Jun 5, 2020

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

Date(s) aerial images were photographed: Aug 19, 2018—Sep 23, 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
71	Pring coarse sandy loam, 3 to 8 percent slopes	35.0	100.0%
Totals for Area of Interest		35.0	100.0%

TABLE 16.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro- logic Group	Flooding			Bedrock		Potential frost action
		Frequency	Duration	Months	Depth	Hardness	
Manvel: 50-----	C	None-----	---	---	In >60	---	High.
Manzanola: 51, 52, 53-----	C	None to rare	---	---	>60	---	Moderate.
Midway: 54-----	D	None-----	---	---	10-20	Rippable	Moderate.
Nederland: 55-----	B	None-----	---	---	>60	---	Moderate.
Nelson: 156: Nelson part----	B	None-----	---	---	20-40	Rippable	Low.
Tassel part----	D	None-----	---	---	10-20	Rippable	Low.
Neville: 57-----	B	None-----	---	---	>60	---	High.
158: Neville part----	B	None-----	---	---	>60	---	High.
Rednun part----	C	None-----	---	---	>60	---	Moderate.
Nunn: 59-----	C	None-----	---	---	>60	---	Moderate.
Olney: 60, 61-----	B	None-----	---	---	>60	---	Moderate.
162: Olney part----	B	None-----	---	---	>60	---	Moderate.
Vona part----	B	None-----	---	---	>60	---	Moderate.
Paunsaugunt: 163: Paunsaugunt part-----	D	None-----	---	---	10-20	Hard	Moderate.
Rock outcrop part-----	D	---	---	---	---	---	---
Penrose: 164: Penrose part----	D	None-----	---	---	10-20	Rippable	Low.
Manvel part----	C	None-----	---	---	>60	---	High.
Perrypark: 65-----	B	None-----	---	---	>60	---	Moderate.
Peyton: 66, 67-----	B	None-----	---	---	>60	---	Moderate.
168, 169: Peyton part----	B	None-----	---	---	>60	---	Moderate.
Pring part----	B	None-----	---	---	>60	---	Moderate.
Pits, gravel: 70-----	A	---	---	---	---	---	---
Pring: 71, 72-----	B	None-----	---	---	>60	---	Moderate.
Razor: 73, 74-----	C	None-----	---	---	20-40	Rippable	Moderate.

See footnote at end of table.

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 to areas of 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, NNGS12
National Geodetic Survey
SSM-C-3, 85202
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/>.

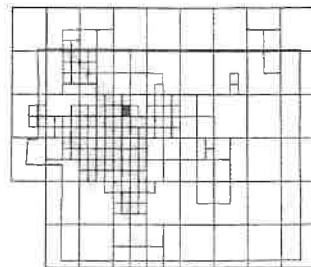
If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/firm>.

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 Cooperative Technical Partner (CTP) agreement between the State of Colorado Water Conservation Board (CWCB) and the Federal Emergency Management Agency (FEMA).

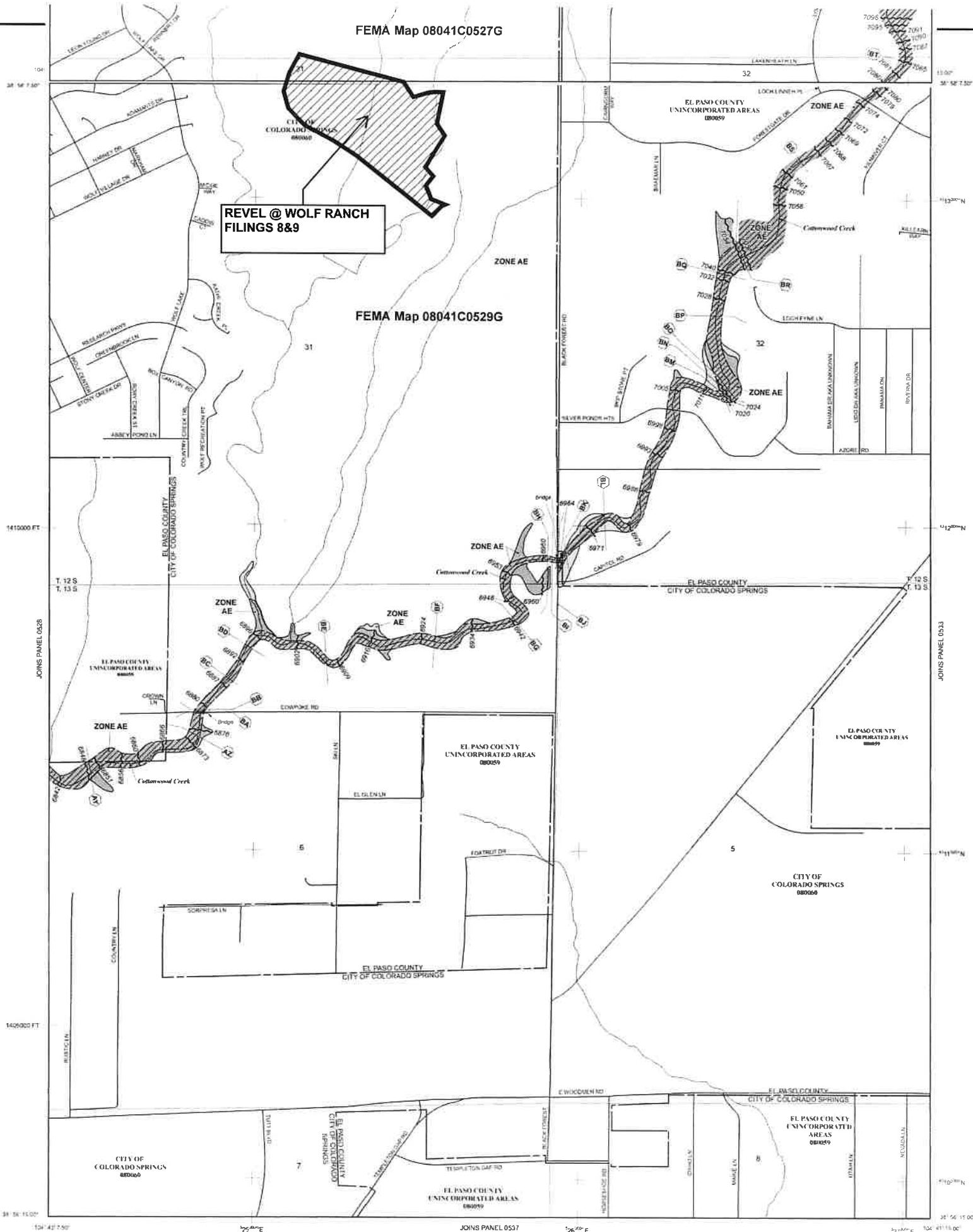


Additional Flood Hazard information and resources are available from local communities and the Colorado Water Conservation Board.

FEMA Map 08041C0527G

FEMA Map 08041C0529G

REVEL @ WOLF RANCH
FILINGS 8&9



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, AV, and VE. The base flood elevation is the water surface elevation of the 1% annual chance flood.

- ZONE A** No Base Flood Elevations determined. Base Flood Elevation determined.
- ZONE AE** Flood depths of 1 to 3 feet (usually areas of ponding). Base Flood Elevation determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding). Base Flood Elevation determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain). Average depths determined. For areas of shallow (in 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 destroyed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE AV** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevation determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevation determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevation determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain area 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 D Areas determined to be outside the 0.2% annual chance floodplain. 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 (EL 967) Base Flood Elevation line and value; elevation in feet
- Base Flood Elevation value where uniform within zone; elevation in feet

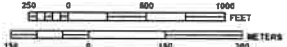
* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- Cross section line
- Transverse line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 1000-meter Universal Transverse Mercator grid ticks, zone 13
- 5000-foot grid ticks. Colorado State Plane coordinate system, central zone (SPZ09N 0202). Lambert Conformal Conic Projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- River Mile
- MAP REPOSITORIES: Refer to Map Repositories list on Map Index
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP: MARCH 17, 1987
- 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 include map amendments 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" = 500'



PANEL 0529G

FIRM

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

PANEL 529 OF 1300

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SHEET
COLORADO SPRINGS CITY OF	48007	0529	G
EL PASO COUNTY	08009	0529	G

© 2018 by FEMA. The Map Repository should be used for the purpose of obtaining the Community Number (FIRM) and should be used in accordance with the subject community only.



MAP NUMBER
08041C0529G

MAP REVISED
DECEMBER 7, 2018

Federal Emergency Management Agency

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 85 WEST, AND TOWNSHIP 13 SOUTH, RANGE 85 WEST.

Site-Level Low Impact Development (LID) Design Effective Impervious Calculator
LID Credit by Impervious Reduction Factor (IRF) Method

UD-BMP (Version 3.06, November 2016)

User Input

Calculated cells

---Design Storm: 1-Hour Rain Depth

WQCV Event

0.60

inches

---Minor Storm: 1-Hour Rain Depth

10-Year Event

1.75

inches

---Major Storm: 1-Hour Rain Depth

100-Year Event

2.50

inches

Optional User Defined Storm

CUHP

(CUHP) NOAA 1 Hour Rainfall Depth and Frequency for User Defined Storm

100-Year Event

Max Intensity for Optional User Defined Storm

0

Designer: Kent Rockwell

Company: Rockwell Consulting

Date: January 30, 2021

Project: Revel at Wolf Ranch Filings 8 and 9

Location:

SITE INFORMATION (USER-INPUT)

Sub-basin Identifier	Bsns 1-12	Bsns 13-18	Bsns 19-22												
Receiving Pervious Area Soil Type	Sandy Loam	Sandy Loam	Sandy Loam												
Total Area (ac., Sum of DCIA, UIA, RPA, & SPA)	5.400	32.730	8.350												
Directly Connected Impervious Area (DCIA, acres)	1.940	18.040	0.000												
Unconnected Impervious Area (UIA, acres)	0.740	2.020	2.530												
Receiving Pervious Area (RPA, acres)	0.710	1.010	2.000												
Separate Pervious Area (SPA, acres)	2.010	11.660	3.820												
RPA Treatment Type: Conveyance (C), Volume (V), or Permeable Pavement (PP)	c	C	C												

CALCULATED RESULTS (OUTPUT)

Total Calculated Area (ac, check against input)	5.400	32.730	8.350												
Directly Connected Impervious Area (DCIA, %)	35.9%	55.1%	0.0%												
Unconnected Impervious Area (UIA, %)	13.7%	6.2%	30.3%												
Receiving Pervious Area (RPA, %)	13.1%	3.1%	24.0%												
Separate Pervious Area (SPA, %)	37.2%	35.6%	45.7%												
A _R (RPA / UIA)	0.959	0.500	0.791												
I _s Check	0.510	0.670	0.560												
f / I for WQCV Event:	1.7	1.7	1.7												
f / I for 10-Year Event:	0.5	0.5	0.5												
f / I for 100-Year Event:	0.3	0.3	0.3												
f / I for Optional User Defined Storm CUHP:															
IRF for WQCV Event:	0.66	0.74	0.69												
IRF for 10-Year Event:	0.90	0.92	0.90												
IRF for 100-Year Event:	0.93	0.96	0.94												
IRF for Optional User Defined Storm CUHP:															
Total Site Imperviousness: I _{total}	49.6%	61.3%	30.3%												
Effective Imperviousness for WQCV Event:	45.0%	59.7%	20.8%												
Effective Imperviousness for 10-Year Event:	48.2%	60.8%	27.4%												
Effective Imperviousness for 100-Year Event:	48.7%	61.0%	28.5%												
Effective Imperviousness for Optional User Defined Storm CUHP:															

LID / EFFECTIVE IMPERVIOUSNESS CREDITS

WQCV Event CREDIT: Reduce Detention By:	6.0%	2.3%	22.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10-Year Event CREDIT*: Reduce Detention By:	3.0%	0.8%	10.2%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100-Year Event CREDIT*: Reduce Detention By:	1.8%	0.4%	6.3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
User Defined CUHP CREDIT: Reduce Detention By:															

Total Site Imperviousness:	54.4%
Total Site Effective Imperviousness for WQCV Event:	51.0%
Total Site Effective Imperviousness for 10-Year Event:	53.4%
Total Site Effective Imperviousness for 100-Year Event:	53.7%
Total Site Effective Imperviousness for Optional User Defined Storm CUHP:	

Notes:
* Use Green-Ampt average infiltration rate values from Table 3-3.
** Flood control detention volume credits based on empirical equations from Storage Chapter of USDCM.
*** Method assumes that 1-hour rainfall depth is equivalent to 1-hour intensity for calculation purposed

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: A
AREA: 13.89
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Ac Residential	0	0.30	0.50	0.00%
Streets	0	0.90	0.95	0.00%
Open Space	13.89	0.08	0.35	100.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	13.89			100%

COMPOSITE: C5= 0.08 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	300	4.0%		20.19
Swale	1000	3.2%	1.3	13.31
				<u>33.50</u>
Tc Total:				33.50

Intensity, I (inches/hr)

I5 I100
2.3 in/hr 3.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5 Q100
2.6 cfs 18.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: B
AREA: 14.58
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Ac Residential	0	0.30	0.50	0.00%
Streets	0	0.90	0.95	0.00%
Open Space	14.58	0.08	0.35	100.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	14.58			100%

COMPOSITE: C5= 0.08 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	300	2.7%		22.98
Swale	1780	2.8%	1.2	25.33
				<u> </u>
Tc Total:				48.31

Intensity, I (inches/hr)

I5	I100
<u>1.8</u> in/hr	<u>3.0</u> in/hr

PEAK FLOW: Q-CIA in cfs

Q5	Q100
<u>2.1</u> cfs	<u>15.1</u> cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: C
AREA: 23.84
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Ac Residential	0	0.30	0.50	0.00%
Streets	0	0.90	0.95	0.00%
Open Space	23.84	0.08	0.35	100.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	23.84			100%

COMPOSITE: C5= 0.08 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	300	4.0%		20.19
Swale	2420	2.8%	1.2	34.43
				<u> </u>
Tc Total:				54.62

Intensity, I (inches/hr)

I5 I100
 1.6 in/hr 2.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5 Q100
 3.0 cfs 22.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: D
AREA: 39.08
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Ac Residential	0	0.30	0.50	0.00%
Streets	0	0.90	0.95	0.00%
Open Space	39.08	0.08	0.35	100.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	39.08			100%

COMPOSITE: C5= 0.08 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	300	3.3%		21.51
Swale	2925	2.8%	1.2	41.62
				<u>63.13</u>
Tc Total:				63.13

Intensity, I (inches/hr)

I5 1.4 in/hr I100 2.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5 4.3 cfs Q100 31.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: E
AREA: 12.41
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Ac Residential	0	0.30	0.50	0.00%
Streets	0	0.90	0.95	0.00%
Open Space	12.41	0.08	0.35	100.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	12.41			100%

COMPOSITE: C5= 0.08 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	300	5.3%		18.40
Swale	2060	3.0%	1.2	28.32
				<u> </u>
Tc Total:				46.71

Intensity, I (inches/hr)

I5 I100
1.8 in/hr 3.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5 Q100
1.8 cfs 13.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: F
AREA: 23.63
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/4 Ac Residential	0	0.30	0.50	0.00%
Streets	0	0.90	0.95	0.00%
Open Space	23.63	0.08	0.35	100.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	23.63			100%

COMPOSITE: C5= 0.08 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	300	2.7%		22.98
Swale	2930	3.0%	1.2	40.28
				<u> </u>
Tc Total:				63.26

Intensity, I (inches/hr)

I5 I100
1.4 in/hr 2.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5 Q100
2.6 cfs 18.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP#H-1
AREA: 98.96
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Basin C	23.84	0.08	0.35	24.09%
Basin D	39.08	0.08	0.35	39.49%
Basin E	12.41	0.08	0.35	12.54%
Basin F	23.63	0.08	0.35	23.88%
	98.96			100%

COMPOSITE: C5= 0.08 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	300	2.7%		22.98
Swale	2930	3.0%	1.2	40.28

Tc Total: 63.26

Intensity, I (inches/hr)

I5

I100

1.4 in/hr

2.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

10.8 cfs

79.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: OS-1 West
AREA: 8.97
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Ac Residential	8.97	0.45	0.59	100.00%
Streets	0.00	0.90	0.96	0.00%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	8.97			100%

COMPOSITE: C5= 0.45 C100= 0.59

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	0	8.0%	4.2	0.00
Street	640	3.0%	3.5	<u>3.08</u>
Tc Total:				15.90

Intensity, I (inches/hr)

I5

I100

3.4 in/hr

5.8 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

13.9 cfs

30.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: OS-2 West
AREA: 7.38
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Townhomes	7.38	0.67	0.77	100.00%
Streets	0.00	0.90	0.96	0.00%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	7.38			100%

COMPOSITE: C5= 0.67 C100= 0.77

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	0	8.0%	4.2	0.00
Street	450	2.0%	2.8	<u>2.65</u>
Tc Total:				15.47

Intensity, I (inches/hr)

I5

I100

3.5 in/hr

5.8 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

17.2 cfs

33.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: OS-3 West
AREA: 2.42
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Townhomes	2.42	0.67	0.77	100.00%
Streets	0.00	0.90	0.96	0.00%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	2.42			100%

COMPOSITE: C5= 0.67 C100= 0.77

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	60	3.0%		9.93
Lot Drainage	0	8.0%	4.2	0.00
Street	200	2.0%	2.8	<u>1.18</u>
Tc Total:				11.11

Intensity, I (inches/hr)

I5

I100

4.0 in/hr

6.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

6.4 cfs

12.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: OS-4 West
AREA: 16.21
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Ac Residential	16.21	0.45	0.59	100.00%
Streets	0.00	0.90	0.96	0.00%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	16.21			100%

COMPOSITE: C5= 0.45 C100= 0.59

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	0	3.0%	2.6	0.00
Street	640	3.0%	3.5	<u>3.08</u>
Tc Total:				15.90

Intensity, I (inches/hr)

I5

I100

3.4 in/hr

5.8 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

25.0 cfs

55.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: OS-5 West
AREA: 18.23
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Ac Residential	8.00	0.45	0.59	43.88%
Townhomes	10.23	0.67	0.77	56.12%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	18.23			100%

COMPOSITE: C5= 0.57 C100= 0.69

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	0	3.0%	2.6	0.00
Street	500	3.0%	3.5	<u>2.41</u>
Tc Total:				15.22

Intensity, I (inches/hr)

I5

I100

3.5 in/hr

5.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

36.6 cfs

74.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: OS-6 West
AREA: 7.18
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Ac Residential	2.68	0.45	0.59	37.33%
Townhomes	0.00	0.67	0.77	0.00%
Open Space	4.5	0.08	0.35	62.67%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	7.18			100%

COMPOSITE: C5= 0.22 C100= 0.44

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	65	3.0%		6.58
Swale	1500	3.0%	2.6	9.62
Street	0	3.0%	3.5	<u>0.00</u>
Tc Total:				16.21

Intensity, I (inches/hr)

I5

I100

3.4 in/hr

5.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

5.3 cfs

18.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: OS-7 West
AREA: 17.43
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Ac Residential	12.43	0.45	0.59	71.31%
Townhomes	0.00	0.67	0.77	0.00%
Open Space	5	0.08	0.35	28.69%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	17.43			100%

COMPOSITE: C5= 0.34 C100= 0.52

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Street	300	3.0%	2.6	1.92
Street	1100	3.0%	10.0	<u>1.83</u>
Tc Total:				16.57

Intensity, I (inches/hr)

I5

I100

3.4 in/hr

5.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

20.2 cfs

51.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 1
AREA: 0.81
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Ac Residential	0.00	0.45	0.59	0.00%
Streets	0.38	0.90	0.96	46.91%
Open Space	0.43	0.08	0.35	53.09%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	0.81			100%

COMPOSITE: C5= 0.46 C100= 0.64

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	20	3.0%		5.73
Lot Drainage	0	8.0%	4.2	0.00
Street	720	3.0%	3.5	<u>3.46</u>
Tc Total:				9.20

Intensity, I (inches/hr)

I5

I100

4.3 in/hr

7.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.6 cfs

3.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 2
AREA: 0.83
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Ac Residential	0.00	0.45	0.59	0.00%
Streets	0.33	0.90	0.96	39.76%
Open Space	0.5	0.08	0.35	60.24%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	0.83			100%

COMPOSITE: C5= 0.41 C100= 0.59

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	20	3.0%		5.73
Lot Drainage	0	4.0%	3.0	0.00
Street	660	3.0%	3.5	<u>3.18</u>
Tc Total:				8.91

Intensity, I (inches/hr)

I5

I100

4.3 in/hr

7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.5 cfs

3.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 3
AREA: 1.79
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.70	0.45	0.59	39.11%
Streets	0.38	0.90	0.96	21.23%
Open Space	0.71	0.08	0.35	39.66%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.79			100%

COMPOSITE: C5= 0.40 C100= 0.57

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		9.27
Lot Drainage	0	5.0%	3.4	0.00
Street	720	3.0%	3.5	<u>3.46</u>
Tc Total:				12.74

Intensity, I (inches/hr)

I5

I100

3.8 in/hr

6.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

2.7 cfs

6.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 4
AREA: 1.97
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.24	0.45	0.59	62.94%
Streets	0.33	0.90	0.96	16.75%
Open Space	0.4	0.08	0.35	20.30%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.97			100%

COMPOSITE: C5= 0.45 C100= 0.60

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	6.0%		6.50
Lot Drainage	0	3.0%	2.6	0.00
Street	660	3.0%	3.5	<u>3.18</u>
Tc Total:				9.67

Intensity, I (inches/hr)

I5

I100

4.2 in/hr

7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

3.7 cfs

8.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 5
AREA: 1.09
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.77	0.45	0.59	70.64%
Streets	0.20	0.90	0.96	18.35%
Open Space	0.12	0.08	0.35	11.01%
	0	0.00	0.00	0.00%
	1.09			100%

COMPOSITE: C5= 0.49 C100= 0.63

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.5%		7.76
Lot Drainage	0	3.0%	3.5	0.00
Street	270	1.5%	2.4	1.84
Tc Total:				9.60

Intensity, I (inches/hr)

I5

I100

4.2 in/hr

7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

2.2 cfs

4.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 6
AREA: 2.24
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.28	0.45	0.59	57.14%
Streets	0.66	0.90	0.96	29.46%
Open Space	0.30	0.08	0.35	13.39%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	2.24			100%

COMPOSITE: C5= 0.53 C100= 0.67

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		10.00
Lot Drainage	150	4.0%	3.0	0.83
Street	270	1.5%	2.4	<u>1.84</u>
Tc Total:				12.67

Intensity, I (inches/hr)

I5

I100

3.8 in/hr

6.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

4.5 cfs

9.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 7
AREA: 1.22
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.76	0.45	0.59	62.30%
Streets	0.46	0.90	0.96	37.70%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.22			100%

COMPOSITE: C5= 0.62 C100= 0.73

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.5%		7.76
Lot Drainage	0	3.0%	2.6	0.00
Street	270	3.3%	3.6	<u>1.24</u>
Tc Total:				9.00

Intensity, I (inches/hr)

I5

I100

4.3 in/hr

7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

3.2 cfs

6.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 8
AREA: 1.63
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.24	0.45	0.59	76.07%
Streets	0.39	0.90	0.96	23.93%
Open Space	0.00	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.63			100%

COMPOSITE: C5= 0.56 C100= 0.68

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		5.91
Lot Drainage	100	3.0%	2.6	0.64
Street	150	1.5%	2.4	<u>1.02</u>
Tc Total:				7.57

Intensity, I (inches/hr)

I5

I100

4.5 in/hr

7.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

4.1 cfs

8.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 9
AREA: 1.83
SOIL TYPE: C & D

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.25	0.45	0.59	68.31%
Streets	0.58	0.90	0.96	31.69%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.83			100%

COMPOSITE: C5= 0.59 C100= 0.71

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		5.91
Lot Drainage	250	3.5%	2.8	1.48
Street	70	1.5%	2.4	<u>0.48</u>
Tc Total:				7.87

Intensity, I (inches/hr)

I5

I100

4.5 in/hr

7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

4.9 cfs

9.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 10
AREA: 2.55
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.23	0.45	0.59	48.24%
Streets	0.49	0.90	0.96	19.22%
Open Space	0.83	0.08	0.35	32.55%
	<u>0</u>	0.00	0.00	<u>0.00%</u>
	2.55			100%

COMPOSITE: C5= 0.42 C100= 0.58

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	150	4.0%	4.0	0.63
Street	200	4.0%	4.0	<u>0.83</u>
Tc Total:				14.27

Intensity, I (inches/hr)

I5

I100

3.6 in/hr

6.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

3.8 cfs

9.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 11
AREA: 0.72
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.47	0.45	0.59	65.28%
Streets	0.25	0.90	0.96	34.72%
Open Space	0	0.08	0.35	0.00%
	0	0.00	0.00	0.00%
	0.72			100%

COMPOSITE: C5= 0.61 C100= 0.72

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	4.0%		7.43
Lot Drainage	0	50.0%	14.1	0.00
Street	300	2.3%	3.0	1.65
Tc Total:				9.08

Intensity, I (inches/hr)

I5

I100

4.3 in/hr

7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.9 cfs

3.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 12
AREA: 1.44
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.99	0.45	0.59	68.75%
Streets	0.38	0.90	0.96	26.39%
Open Space	0.07	0.08	0.35	4.86%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.44			100%

COMPOSITE: C5= 0.55 C100= 0.68

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	4.0%		7.43
Lot Drainage	0	4.0%	4.0	0.00
Street	480	2.7%	3.3	<u>2.43</u>
Tc Total:				9.86

Intensity, I (inches/hr)

I5

I100

4.2 in/hr

7.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

3.3 cfs

6.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 13
AREA: 3.09
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	2.26	0.45	0.59	73.14%
Streets	0.50	0.90	0.96	16.18%
Open Space	0.33	0.08	0.35	10.68%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	3.09			100%

COMPOSITE: C5= 0.48 C100= 0.62

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		5.91
Lot Drainage	180	4.0%	3.0	1.00
Street	200	2.0%	2.8	<u>1.18</u>
Tc Total:				8.09

Intensity, I (inches/hr)

I5

I100

4.4 in/hr

7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

6.6 cfs

14.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 14
AREA: 0.41
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.30	0.45	0.59	73.17%
Streets	0.11	0.90	0.96	26.83%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	0.41			100%

COMPOSITE: C5= 0.57 C100= 0.69

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	6.0%		6.50
Lot Drainage	0	4.0%	4.0	0.00
Street	200	1.5%	2.4	<u>1.36</u>
Tc Total:				7.86

Intensity, I (inches/hr)

I5

I100

4.5 in/hr

7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.1 cfs

2.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 15
AREA: 0.89
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.70	0.45	0.59	78.65%
Streets	0.19	0.90	0.96	21.35%
Open Space	0	0.08	0.35	0.00%
	0	0.00	0.00	0.00%
	0.89			100%

COMPOSITE: C5= 0.55 C100= 0.67

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	4.0%		7.43
Lot Drainage	240	4.0%	4.0	1.00
Street	110	2.0%	2.8	0.65
Tc Total:				9.08

Intensity, I (inches/hr)

I5

I100

4.3 in/hr

7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

2.1 cfs

4.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 16
AREA: 1.59
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.10	0.45	0.59	69.18%
Streets	0.49	0.90	0.96	30.82%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.59			100%

COMPOSITE: C5= 0.59 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	4.0%		7.43
Lot Drainage	0	4.0%	4.0	0.00
Street	200	3.0%	3.5	<u>0.96</u>
Tc Total:				8.39

Intensity, I (inches/hr)

I5

I100

4.4 in/hr

7.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

4.1 cfs

8.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 17
AREA: 2.46
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.81	0.45	0.59	73.58%
Streets	0.24	0.90	0.96	9.76%
Open Space	0.41	0.08	0.35	16.67%
	0	0.00	0.00	0.00%
	2.46			100%

COMPOSITE: C5= 0.43 C100= 0.59

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	6.0%		6.50
Lot Drainage	0	4.0%	4.0	0.00
Street	500	2.0%	2.8	2.95
Tc Total:				9.44

Intensity, I (inches/hr)

I5

I100

4.2 in/hr

7.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

4.5 cfs

10.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 18
AREA: 1.17
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.49	0.45	0.59	41.88%
Streets	0.46	0.90	0.96	39.32%
Open Space	0.22	0.08	0.35	18.80%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.17			100%

COMPOSITE: C5= 0.56 C100= 0.69

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	30	3.0%		7.02
Lot Drainage	0	4.0%	4.0	0.00
Street	900	2.5%	3.2	<u>4.74</u>
Tc Total:				11.76

Intensity, I (inches/hr)

I5

I100

3.9 in/hr

6.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

2.5 cfs

5.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 19A
AREA: 3.99
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.00	0.45	0.59	0.00%
Streets	0.23	0.90	0.96	5.76%
Open Space	3.76	0.08	0.35	94.24%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	3.99			100%

COMPOSITE: C5= 0.13 C100= 0.39

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Swale	300	3.5%	2.8	1.78
Street	0	2.5%	3.2	<u>0.00</u>
Tc Total:				14.60

Intensity, I (inches/hr)

I5

I100

3.6 in/hr

6.0 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.8 cfs

9.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 19B
AREA: 0.43
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.00	0.45	0.59	0.00%
Streets	0.23	0.90	0.96	53.49%
Open Space	0.2	0.08	0.35	46.51%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	0.43			100%

COMPOSITE: C5= 0.52 C100= 0.68

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	30	2.0%		8.02
Lot Drainage	0	4.0%	4.0	0.00
Street	150	1.5%	2.4	<u>1.02</u>
Tc Total:				9.05

Intensity, I (inches/hr)

I5

I100

4.3 in/hr

7.2 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.0 cfs

2.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 20
AREA: 1.19
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.71	0.45	0.59	59.66%
Streets	0.48	0.90	0.96	40.34%
Open Space	0	0.08	0.35	0.00%
	0	0.00	0.00	0.00%
	1.19			100%

COMPOSITE: C5= 0.63 C100= 0.74

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	30	3.0%		4.47
Lot Drainage	0	4.0%	4.0	0.00
Street	600	2.0%	2.8	3.54
Tc Total:				8.01

Intensity, I (inches/hr)

I5

I100

4.5 in/hr

7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

3.4 cfs

6.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 21
AREA: 1.02
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.55	0.45	0.59	53.92%
Streets	0.47	0.90	0.96	46.08%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.02			100%

COMPOSITE: C5= 0.66 C100= 0.76

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		8.17
Lot Drainage	0	4.0%	4.0	0.00
Street	175	1.7%	2.6	<u>1.12</u>
Tc Total:				9.29

Intensity, I (inches/hr)

I5

I100

4.2 in/hr

7.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

2.8 cfs

5.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 22
AREA: 1.58
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.26	0.45	0.59	79.75%
Streets	0.32	0.90	0.96	20.25%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	1.58			100%

COMPOSITE: C5= 0.54 C100= 0.66

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	6.0%		6.50
Lot Drainage	0	4.0%	4.0	0.00
Street	300	2.7%	3.3	<u>1.52</u>
Tc Total:				8.02

Intensity, I (inches/hr)

I5

I100

4.5 in/hr

7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

3.8 cfs

7.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 23
AREA: 0.59
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.35	0.45	0.59	59.32%
Streets	0.24	0.90	0.96	40.68%
Open Space	0	0.08	0.35	0.00%
	0	0.00	0.00	0.00%
	0.59			100%

COMPOSITE: C5= 0.63 C100= 0.74

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	50	3.0%		5.77
Lot Drainage	0	4.0%	4.0	0.00
Street	300	2.7%	3.3	1.52
Tc Total:				7.30

Intensity, I (inches/hr)

I5

I100

4.6 in/hr

7.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.7 cfs

3.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 24
AREA: 0.76
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.55	0.45	0.59	72.37%
Streets	0.21	0.90	0.96	27.63%
Open Space	0	0.08	0.35	0.00%
	0	0.00	0.00	0.00%
	0.76			100%

COMPOSITE: C5= 0.57 C100= 0.69

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	80	3.0%		7.30
Lot Drainage	0	4.0%	4.0	0.00
Street	200	4.0%	4.0	0.83
Tc Total:				8.14

Intensity, I (inches/hr)

I5

I100

4.4 in/hr

7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.9 cfs

3.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 25
AREA: 0.52
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.27	0.45	0.59	51.92%
Streets	0.25	0.90	0.96	48.08%
Open Space	0	0.08	0.35	0.00%
	0	0.00	0.00	0.00%
	0.52			100%

COMPOSITE: C5= 0.67 C100= 0.77

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	50	3.0%		5.77
Lot Drainage	0	4.0%	4.0	0.00
Street	400	3.3%	3.6	1.85
Tc Total:				7.62

Intensity, I (inches/hr)

I5

I100

4.5 in/hr

7.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.6 cfs

3.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 26
AREA: 0.30
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	0.03	0.45	0.59	10.00%
Streets	0.27	0.90	0.96	90.00%
Open Space	0	0.08	0.35	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	0.30			100%

COMPOSITE: C5= 0.86 C100= 0.92

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	50	3.0%		5.77
Lot Drainage	0	4.0%	4.0	0.00
Street	100	3.0%	3.5	<u>0.48</u>
Tc Total:				6.26

Intensity, I (inches/hr)

I5

I100

4.8 in/hr

8.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

1.2 cfs

2.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 27
AREA: 3.05
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	1.46	0.45	0.59	47.87%
Streets	0.00	0.90	0.96	0.00%
Open Space	1.59	0.08	0.35	52.13%
	<u>0</u>	0.00	0.00	<u>0.00%</u>
	3.05			100%

COMPOSITE: C5= 0.26 C100= 0.46

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	340	2.0%	2.1	2.67
Street	0	3.0%	3.5	<u>0.00</u>
Tc Total:				15.49

Intensity, I (inches/hr)

I5

I100

3.5 in/hr

5.8 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

2.7 cfs

8.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: 28
AREA: 5.30
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential Lots	2.43	0.45	0.59	45.85%
Streets	0.00	0.90	0.96	0.00%
Open Space	2.87	0.08	0.35	54.15%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	5.30			100%

COMPOSITE: C5= 0.25 C100= 0.46

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	565	2.0%	2.1	4.44
Street	0	3.0%	3.5	<u>0.00</u>
Tc Total:				17.25

Intensity, I (inches/hr)

I5

I100

3.3 in/hr

5.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

4.4 cfs

13.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #1
AREA: 18.77
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Basin OS-1	8.97	0.45	0.59	47.79%
Basin OS-2	7.38	0.67	0.77	39.32%
Basin OS-3	2.42	0.67	0.77	12.89%
	0	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	18.77			100%

COMPOSITE: C5= 0.56 C100= 0.68

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	300	3.5%	2.8	1.78
Pipe	1800	3.0%	15	2.00
Tc Total:				16.60

Intensity, I (inches/hr)

I5

I100

3.4 in/hr

5.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

35.7 cfs

72.6 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #2
AREA: 21.37
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Design Point #1	18.77	0.56	0.68	87.83%
Basin 1	0.81	0.46	0.64	3.79%
Basin 3	1.79	0.40	0.57	8.38%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
				0.00%
	21.37			100%

COMPOSITE: C5= 0.55 C100= 0.67

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	300	3.5%	2.8	1.78
Pipe	1800	3.0%	15	2.00
Tc Total:				16.60

Intensity, I (inches/hr)

I5

I100

3.4 in/hr

5.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

39.4 cfs

81.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #3
AREA: 24.17
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#2	21.37	0.55	0.67	88.42%
Basin 2	0.83	0.41	0.59	3.43%
Basin 4	1.97	0.45	0.60	8.15%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	24.17			100%

COMPOSITE: C5= 0.53 C100= 0.66

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	300	3.5%	2.8	1.78
Pipe	3250	3.0%	15	<u>3.61</u>

Tc Total: 18.21

Intensity, I (inches/hr)

I5

I100

3.2 in/hr

5.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

41.7 cfs

87.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #4
AREA: 4.55
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Basin 5	1.09	0.49	0.63	23.96%
Basin 6	2.24	0.53	0.67	49.23%
Basin 7	1.22	0.62	0.73	26.81%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>4.55</u>			<u>100%</u>

COMPOSITE: C5= 0.55 C100= 0.68

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		10.00
Lot Drainage	150	4.0%	3.0	0.83
Street	270	1.5%	2.4	<u>1.84</u>
Tc Total:				12.67

Intensity, I (inches/hr)

I5

I100

3.8 in/hr

6.3 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

9.4 cfs

19.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #5
AREA: 8.01
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#4	4.55	0.55	0.68	56.80%
Basin 8	1.63	0.56	0.68	20.35%
Basin 9	1.83	0.59	0.71	22.85%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	8.01			100%

COMPOSITE: C5= 0.56 C100= 0.68

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		10.00
Lot Drainage	150	4.0%	3.0	0.83
Street	270	1.5%	2.4	1.84
Pipe	850	1.5%	11	<u>1.29</u>
Tc Total:				13.96

Intensity, I (inches/hr)

I5

I100

3.6 in/hr

6.1 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

16.3 cfs

33.3 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #6A
AREA: 34.44
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
OS-4	16.21	0.45	0.59	47.07%
OS-5	18.23	0.57	0.69	52.93%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	34.44			100%

COMPOSITE: C5= 0.52 C100= 0.64

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	2775	1.5%	6	7.71

Tc Total: 24.42

Intensity, I (inches/hr)

I5

I100

2.8 in/hr

4.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

49.5 cfs

103.8 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #6B
AREA: 36.99
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP #6A	34.44	0.52	0.64	93.11%
Basin 10	2.55	0.42	0.58	6.89%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	36.99			100%

COMPOSITE: C5= 0.51 C100= 0.64

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	2775	1.5%	6	7.71

Tc Total: 24.42

Intensity, I (inches/hr)

I5

I100

2.8 in/hr

4.7 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

52.5 cfs

110.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #7
AREA: 45.00
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#5	8.01	0.56	0.68	17.80%
DP#6	36.99	0.51	0.64	82.20%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	45.00			100%

COMPOSITE: C5= 0.52 C100= 0.65

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3000	2.0%	6	8.33

Tc Total: 25.05

Intensity, I (inches/hr)

I5

I100

2.8 in/hr

4.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

64.1 cfs

134.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #8
AREA: 47.16
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#7	45.00	0.52	0.65	95.42%
Basin 11	0.72	0.61	0.72	1.53%
Basin 12	1.44	0.55	0.68	3.05%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	47.16			100%

COMPOSITE: C5= 0.52 C100= 0.65

TIME OF CONCENTRATION: Tc In Minutes:

Overland	100	2.0%	14.65
Lot Drainage	150	3.0%	2.06
Pipe	3075	2.0%	8.54
Tc Total:			25.25

Intensity, I (inches/hr)

I5

I100

2.7 in/hr

4.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

67.2 cfs

140.7 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #9
AREA: 3.50
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Basin 13	3.09	0.48	0.62	88.29%
Basin 14	0.41	0.57	0.69	11.71%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	0.00	0.00	<u>0.00%</u>
	3.50			100%

COMPOSITE: C5= 0.49 C100= 0.63

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	8.0%		5.91
Lot Drainage	180	4.0%	3.0	1.00
Street	200	2.0%	2.8	<u>1.18</u>

Tc Total: 8.09

Intensity, I (inches/hr)

I5

I100

4.4 in/hr

7.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

7.7 cfs

16.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #10
AREA: 53.34
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#8	47.16	0.52	0.65	88.41%
DP#9	3.50	0.49	0.63	6.56%
Basin 15	2.68	0.55	0.67	5.02%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	53.34			100%

COMPOSITE: C5= 0.52 C100= 0.65

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3150	2.0%	6	8.75

Tc Total: 25.46

Intensity, I (inches/hr)

I5

I100

2.7 in/hr

4.6 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

75.6 cfs

158.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #11
AREA: 25.76
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#3	24.17	0.53	0.66	93.83%
Basin 16	1.59	0.59	0.70	6.17%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	25.76			100%

COMPOSITE: C5= 0.54 C100= 0.67

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	3.0%		12.82
Lot Drainage	300	3.5%	2.8	1.78
Pipe	3350	3.0%	15	3.72
Tc Total:				18.32

Intensity, I (inches/hr)

I5

I100

3.2 in/hr

5.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

44.6 cfs

92.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #12
 AREA: 54.53
 SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#10	53.34	0.52	0.65	97.82%
Basin 20	1.19	0.63	0.74	2.18%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	54.53			100%

COMPOSITE: C5= 0.52 C100= 0.65

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3300	2.0%	6	9.17
Tc Total:				25.88

Intensity, I (inches/hr)

I5

I100

2.7 in/hr

4.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

76.9 cfs

161.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #13
AREA: 55.55
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#12	54.53	0.52	0.65	98.16%
Basin 21	1.02	0.66	0.76	1.84%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	55.55			100%

COMPOSITE: C5= 0.52 C100= 0.65

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3300	2.0%	6	9.17

Tc Total: 25.88

Intensity, I (inches/hr)

I5

I100

2.7 in/hr

4.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

78.7 cfs

164.5 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #14
 AREA: 57.72
 SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#13	55.55	0.52	0.65	96.24%
Basin 22	1.58	0.54	0.66	2.74%
Basin 23	0.59	0.63	0.74	1.02%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	0.00	0.00	<u>0.00%</u>
	57.72			100%

COMPOSITE: C5= 0.53 C100= 0.65

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3300	2.0%	6	<u>9.17</u>
Tc Total:				25.88

Intensity, I (inches/hr)

I5	I100
<u>2.7 in/hr</u>	<u>4.5 in/hr</u>

PEAK FLOW: Q-CIA in cfs

Q5	Q100
<u>82.1 cfs</u>	<u>171.3 cfs</u>

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #15
AREA: 61.46
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#14	57.72	0.53	0.65	93.91%
Basin 24	0.76	0.57	0.69	1.24%
Basin 25	0.52	0.67	0.77	0.85%
Basin 17	2.46	0.43	0.59	4.00%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	61.46			100%

COMPOSITE: C5= 0.52 C100= 0.65

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3300	2.0%	6	9.17

Tc Total: 25.88

Intensity, I (inches/hr)

I5

I100

2.7 in/hr

4.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

87.0 cfs

182.0 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #16
 AREA: 87.22
 SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#11	25.76	0.54	0.67	29.53%
DP#15	61.46	0.52	0.65	70.47%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	87.22			100%

COMPOSITE: C5= 0.53 C100= 0.66

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3500	2.0%	6	9.72

Tc Total: 26.43

Intensity, I (inches/hr)

I5

I100

2.7 in/hr

4.5 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

123.0 cfs

256.9 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #17
AREA: 88.69
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#16	87.22	0.53	0.66	98.34%
Basin 18	1.17	0.56	0.69	1.32%
Basin 26	0.30	0.86	0.92	0.34%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	88.69			100%

COMPOSITE: C5= 0.53 C100= 0.66

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	150	3.0%	1.2	2.06
Pipe	3800	2.0%	6	10.56

Tc Total: 27.27

Intensity, I (inches/hr)

I5

I100

2.6 in/hr

4.4 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

123.3 cfs

257.2 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #18
AREA: 49.61
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Basin OS-6	7.18	0.22	0.44	14.47%
Basin OS-7	17.43	0.34	0.52	35.13%
Pond F14 Release	25.00	0.07	0.65	50.39%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	49.61			100%

COMPOSITE: C5= 0.19 C100= 0.57

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	300	3.0%	2.6	1.92
Pipe	3400	2.0%	10	5.67

Tc Total: 22.24

Intensity, I (inches/hr)

I5

I100

2.9 in/hr

4.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5

Q100

27.3 cfs

140.1 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #19
AREA: 54.03
SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#18	49.61	0.19	0.57	91.82%
Basin 19A	3.99	0.13	0.39	7.38%
Basin 19B	0.43	0.52	0.68	0.80%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	54.03			100%

COMPOSITE: C5= 0.19 C100= 0.56

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	300	3.0%	2.6	1.92
Pipe	3700	2.0%	10	6.17

Tc Total: 22.74

Intensity, I (inches/hr)

I5	I100
2.9 in/hr	4.9 in/hr

PEAK FLOW: Q-CIA in cfs

Q5	Q100
29.1 cfs	147.4 cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #20
 AREA: 57.08
 SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#19	54.03	0.19	0.56	94.66%
Basin 27	3.05	0.26	0.46	5.34%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	0.00	0.00	<u>0.00%</u>
	57.08			100%

COMPOSITE: C5= 0.19 C100= 0.56

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	300	3.0%	2.6	1.92
Pipe	4000	2.0%	10	<u>6.67</u>

Tc Total: 23.24

Intensity, I (inches/hr)

I5	I100
<u>2.9 in/hr</u>	<u>4.8 in/hr</u>

PEAK FLOW: Q-CIA in cfs

Q5	Q100
<u>31.0 cfs</u>	<u>152.6 cfs</u>

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: Revel at Wolf Ranch Phase II B

BASIN: DP #21
 AREA: 62.38
 SOIL TYPE: B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP#20	57.08	0.19	0.56	91.50%
Basin 28	5.30	0.25	0.46	8.50%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	0.00	0.00	<u>0.00%</u>
	62.38			100%

COMPOSITE: C5= 0.19 C100= 0.55

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)
Overland	100	2.0%		14.65
Lot Drainage	300	3.0%	2.6	1.92
Pipe	4300	2.0%	10	<u>7.17</u>

Tc Total: 23.74

Intensity, I (inches/hr)

I5	I100
<u>2.8 in/hr</u>	<u>4.8 in/hr</u>

PEAK FLOW: Q-CIA in cfs

Q5	Q100
<u>34.4 cfs</u>	<u>162.4 cfs</u>

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

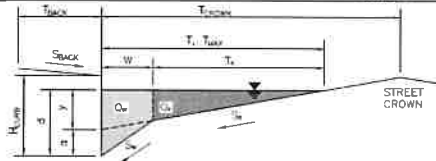
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Project:

Inlet ID:

Inlet 1

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK} =	10.0	ft
S_{BACK} =	0.020	ft/ft
n_{BACK} =	0.020	

H_{CURB} =	8.00	inches
T_{CROWN} =	17.0	ft
W =	2.00	ft
S_X =	0.020	ft/ft
S_W =	0.083	ft/ft
S_0 =	0.020	ft/ft
n_{STREET} =	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
T_{MAX} =	14.0	17.0	ft
d_{MAX} =	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

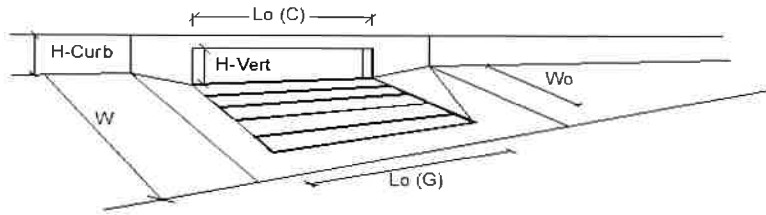
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q_{allow} =	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



Design Information (Input)	MINOR	MAJOR
Type of Inlet	CDOT Type R Curb Opening	
Local Depression (additional to continuous gutter depression 'a')	Type =	
Total Number of Units in the Inlet (Grate or Curb Opening)	1.0	1.0
Length of a Single Unit Inlet (Grate or Curb Opening)	1	1
Width of a Unit Grate (cannot be greater than W, Gutter Width)	15.00	15.00
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	N/A	N/A
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	N/A	N/A
Street Hydraulics: OK - Q < Allowable Street Capacity	0.10	0.10
Total Inlet Interception Capacity	Q = 4.6	8.1
Total Inlet Carry-Over Flow (flow bypassing inlet)	Q _o = 0.0	1.6
Capture Percentage = Q _i /Q _o =	C% = 100	84

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

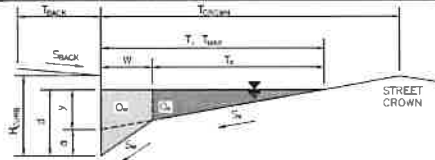
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 2

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} = 10.0$ ft
 $S_{BACK} = 0.020$ ft/ft
 $n_{BACK} = 0.020$

$H_{CURB} = 8.00$ inches
 $T_{CROWN} = 17.0$ ft
 $W = 2.00$ ft
 $S_X = 0.020$ ft/ft
 $S_W = 0.083$ ft/ft
 $S_O = 0.020$ ft/ft
 $n_{STREET} = 0.016$

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

☐ ☐ check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

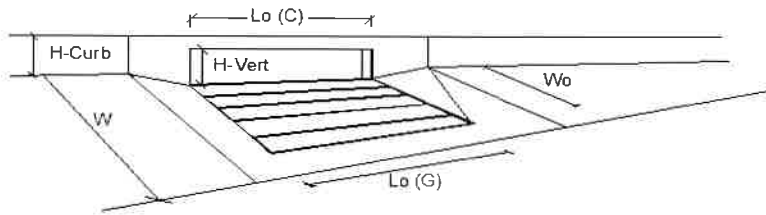
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



Design Information (Input)	MINOR	MAJOR
Type of Inlet	CDOT Type R Curb Opening	
Local Depression (additional to continuous gutter depression 'a')	Type =	
Total Number of Units in the Inlet (Grate or Curb Opening)	CDOT Type R Curb Opening	
Length of a Single Unit Inlet (Grate or Curb Opening)	a _{Local} = 1.0 1.0 inches	
Width of a Unit Grate (cannot be greater than W, Gutter Width)	No = 1 1	
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	L _o = 10.00 10.00 ft	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	W _o = N/A N/A ft	
Street Hydraulics: OK - Q < Allowable Street Capacity	C _r G = N/A N/A	
Total Inlet Interception Capacity	C _r C = 0.10 0.10	
Total Inlet Carry-Over Flow (flow bypassing inlet)	Q = 1.5 4.3 cfs	
Capture Percentage = Q _i /Q _s =	Q _b = 0.0 0.9 cfs	
	C% = 100 82 %	

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

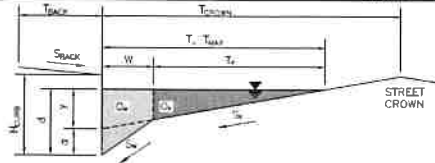
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 3

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

T_{BACK}	=	10.0	ft
S_{BACK}	=	0.020	ft/ft
n_{BACK}	=	0.020	

H_{CURB}	=	8.00	inches
T_{CRON}	=	17.0	ft
W	=	2.00	ft
S_x	=	0.020	ft/ft
S_W	=	0.083	ft/ft
S_C	=	0.020	ft/ft
n_{STREET}	=	0.016	

	Minor Storm	Major Storm	
T_{MAX}	14.0	17.0	ft
d_{MAX}	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

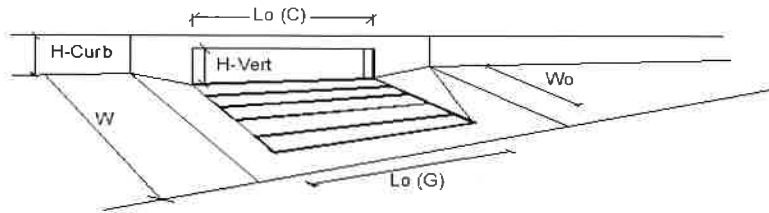
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q_{ALLOW}	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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')		$a_{LOCAL} =$	1.0	1.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		$N_o =$	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)		$C_r-G =$	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		$C_r-C =$	0.10	0.10	
Street Hydraulics: OK - $Q < Q_c$ Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		$Q_c =$	5.6	9.4	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		$Q_o =$	0.1	3.1	cfs
Capture Percentage = $Q_c/Q_o =$		$C\% =$	98	75	%

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

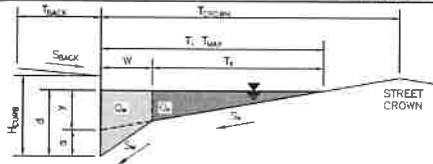
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 4

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK}	=	10.0	ft
S_{BACK}	=	0.020	ft/ft
n_{BACK}	=	0.020	

H_{CURB}	=	8.00	inches
T_{CROWN}	=	17.0	ft
W	=	2.00	ft
S_X	=	0.020	ft/ft
S_W	=	0.083	ft/ft
S_O	=	0.020	ft/ft
n_{STREET}	=	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
T_{MAX}	14.0	17.0	ft
d_{MAX}	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

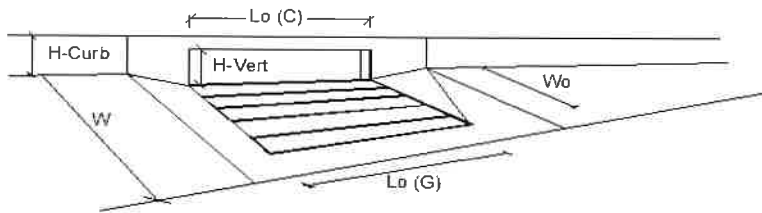
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q_{allow}	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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} =	1.0	1.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		N_o =	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_r-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_r-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity			MINOR	MAJOR	
Total Inlet Interception Capacity		Q =	3.8	8.9	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	2.5	cfs
Capture Percentage = Q_i/Q_b =		$C\%$ =	100	78	%

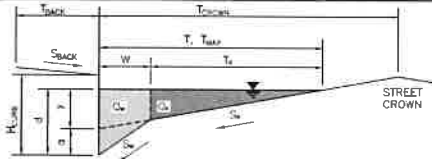
ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

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

Revel at Wolf Ranch Filings 8 and 9

Project:
Inlet ID:

Inlet 5

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_0 =$	0.015	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

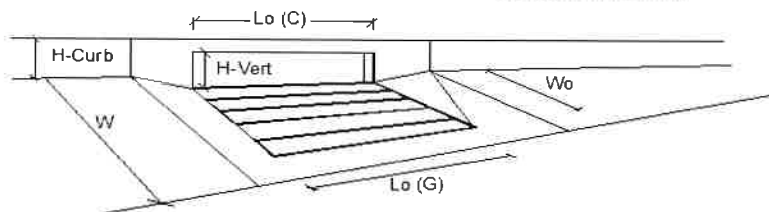
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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 _u =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W _u =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C _{r-G} =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C _{r-C} =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	2.2	4.5	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q _o =	0.0	0.3	cfs
Capture Percentage = Q _i /Q _o =		C% =	100	95	%

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

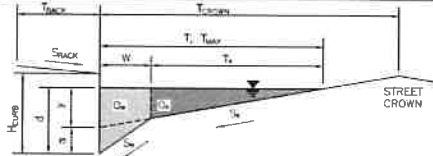
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 6

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} = 10.0$ ft
 $S_{BACK} = 0.020$ ft/ft
 $n_{BACK} = 0.020$

$H_{CURB} = 6.00$ inches
 $T_{CROWN} = 17.0$ ft
 $W = 2.00$ ft
 $S_X = 0.020$ ft/ft
 $S_W = 0.083$ ft/ft
 $S_0 = 0.015$ ft/ft
 $n_{STREET} = 0.016$

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

☐ ☐ check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

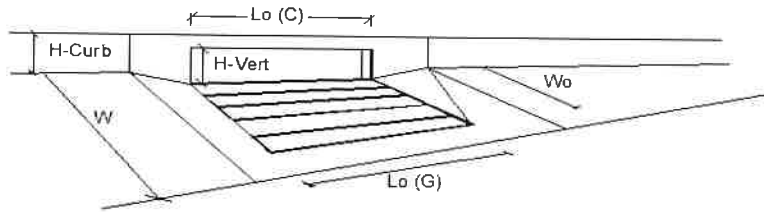
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{ALLOW} =$	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		N_o =	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_r-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_r-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity					
Total Inlet Interception Capacity		Q =	4.5	8.9	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	0.6	cfs
Capture Percentage = Q_i/Q_o =		C% =	100	94	%

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

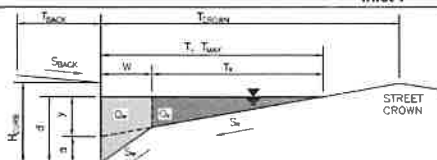
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 7

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} = 10.0$ ft
 $S_{BACK} = 0.020$ ft/ft
 $n_{BACK} = 0.020$

$H_{CURB} = 6.00$ inches
 $T_{CROWN} = 17.0$ ft
 $W = 2.00$ ft
 $S_X = 0.020$ ft/ft
 $S_W = 0.083$ ft/ft
 $S_0 = 0.015$ ft/ft
 $n_{STREET} = 0.016$

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

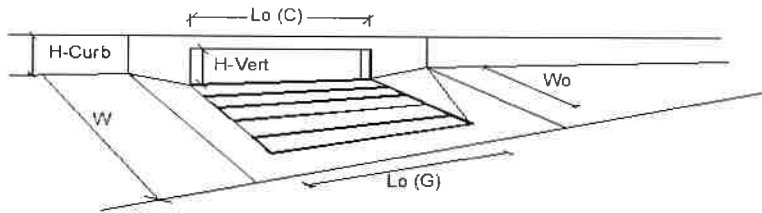
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{ALLOW} =$	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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 _{r-G} =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C _{r-C} =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	3.2	5.8	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q _b =	0.0	1.2	cfs
Capture Percentage = Q/Q _o =		C% =	100	83	%

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

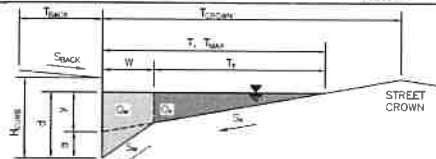
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 8

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK}	10.0	ft
S_{BACK}	0.020	ft/ft
n_{BACK}	0.020	

H_{CURB}	6.00	inches
T_{CROWN}	17.0	ft
W	2.00	ft
S_X	0.020	ft/ft
S_W	0.083	ft/ft
S_O	0.015	ft/ft
n_{STREET}	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
T_{MAX}	14.0	17.0	ft
d_{MAX}	6.0	12.0	inches
			check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion**MAJOR STORM Allowable Capacity is based on Spread Criterion**

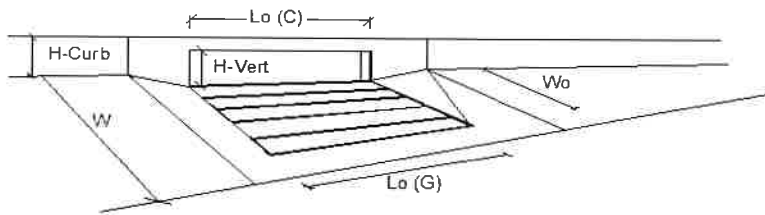
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q_{allow}	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

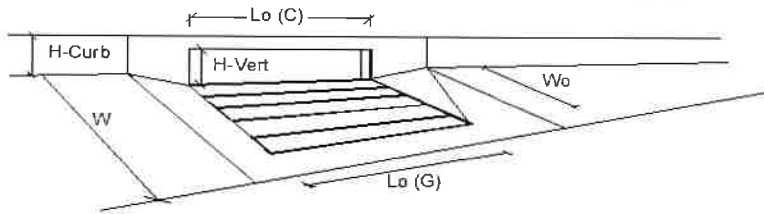
Version 4.05 Released March 2017



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)		N_o =	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_r-G =	N/A N/A
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_r-C =	0.10 0.10
Street Hydraulics: OK - Q < Allowable Street Capacity			
Total Inlet Interception Capacity		Q =	4.1 9.0 cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0 0.6 cfs
Capture Percentage = Q_i/Q_o =		$C\%$ =	100 93 %

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



Design Information (Input)	MINOR	MAJOR	
Type of Inlet	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 _g = 15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)	W _g = N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)	C _r G = N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)	C _r C = 0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity			
Total Inlet Interception Capacity	Q = 4.9	9.6	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)	Q _b = 0.0	1.1	cfs
Capture Percentage = Q _i /Q _s =	C% = 100	90	%

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

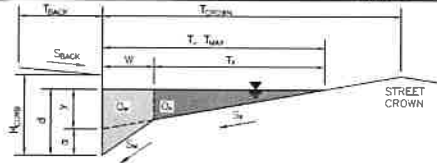
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 10

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_O =$	0.019	ft/ft
$n_{STREET} =$	0.016	

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$q_{MAX} =$	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

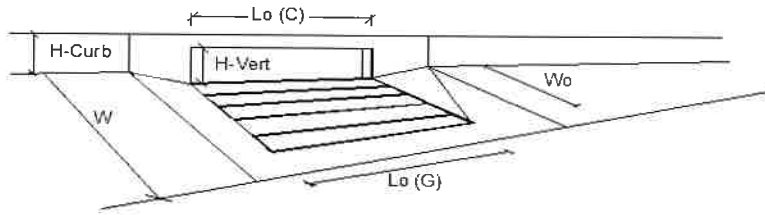
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	9.4	15.1	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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	2.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		N_o =	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_r-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_r-C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	6.8	11.9	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	3.1	cfs
Capture Percentage = Q_i/Q_o =		C% =	100	79	%

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

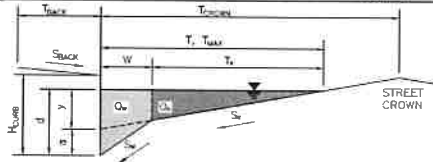
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 11

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_L =$	0.020	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

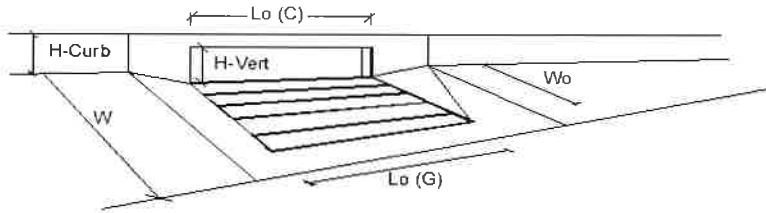
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		N_o =	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_r-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_r-C =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	1.9	6.3	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	1.6	cfs
Capture Percentage = Q_i/Q_o =		$C\%$ =	100	79	%

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

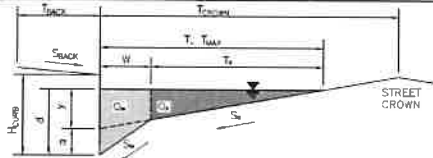
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 12



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} = 10.0$ ft
 $S_{BACK} = 0.020$ ft/ft
 $n_{BACK} = 0.020$

$H_{CURB} = 6.00$ inches
 $T_{CROWN} = 17.0$ ft
 $W = 2.00$ ft
 $S_x = 0.020$ ft/ft
 $S_w = 0.083$ ft/ft
 $S_o = 0.015$ ft/ft
 $n_{STREET} = 0.016$

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

☐ ☐ check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

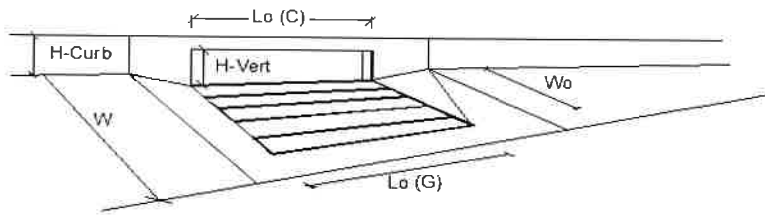
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		N_o =	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)		$C_r G$ =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		$C_r C$ =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	6.3	10.8	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	2.0	cfs
Capture Percentage = Q_i/Q_o =		$C\%$ =	100	84	%

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

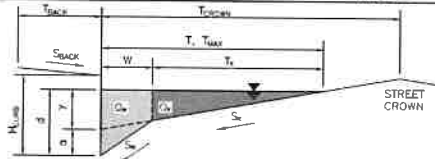
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 13

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK}	10.0	ft
S_{BACK}	0.020	ft/ft
n_{BACK}	0.020	

H_{CURB}	6.00	inches
T_{CROWN}	17.0	ft
W	2.00	ft
S_X	0.020	ft/ft
S_W	0.083	ft/ft
S_O	0.018	ft/ft
n_{STREET}	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
T_{MAX}	14.0	17.0	ft
d_{MAX}	6.0	12.0	inches
			check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

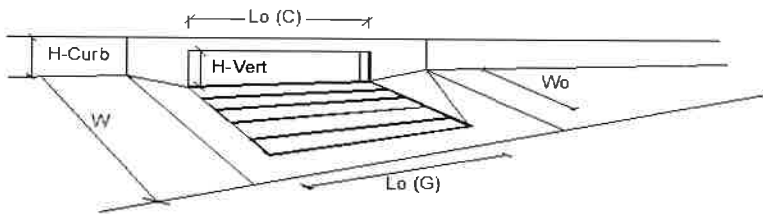
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q_{allow}	9.1	14.6	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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 _{RG} =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C _{RC} =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	6.6	11.6	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q _b =	0.0	2.8	cfs
Capture Percentage = Q _i /Q _a =		C% =	100	81	%

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

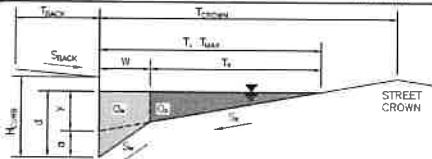
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Project:

Inlet ID:

Inlet 14

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK}	10.0	ft
S_{BACK}	0.020	ft/ft
n_{BACK}	0.020	

H_{CURB}	6.00	inches
T_{CROWN}	17.0	ft
W	2.00	ft
S_x	0.020	ft/ft
S_y	0.083	ft/ft
S_o	0.015	ft/ft
n_{STREET}	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
T_{MAX}	14.0	17.0	ft
d_{MAX}	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

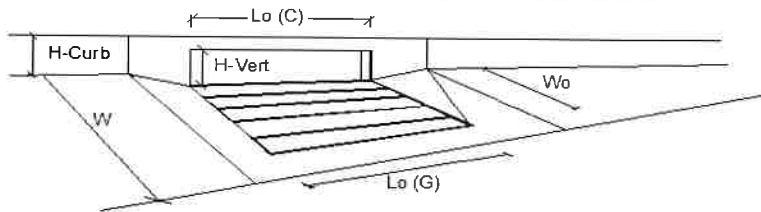
	Minor Storm	Major Storm	
Q_{allow}	8.3	13.3	cfs

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		N_o =	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)		$C_r G$ =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		$C_r C$ =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	1.1	4.6	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	0.3	cfs
Capture Percentage = Q/Q_o =		$C\%$ =	100	94	%

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

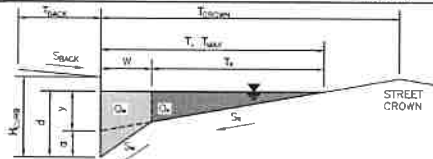
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 15

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_C =$	0.015	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

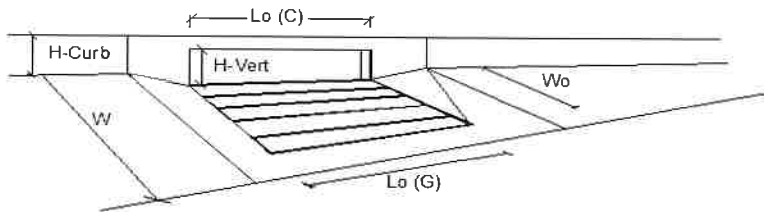
	Minor Storm	Major Storm	
$Q_{allow} =$	8.3	13.3	cfs

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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 _r G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C _r C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	2.1	8.0	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q _b =	0.0	0.2	cfs
Capture Percentage = Q _i /Q _o =		C% =	100	97	%

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

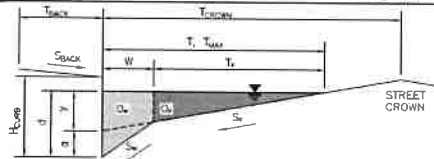
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 16

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK}	10.0	ft
S_{BACK}	0.020	ft/ft
n_{BACK}	0.020	

H_{CURB}	6.00	inches
------------	------	--------

T_{CROWN}	17.0	ft
-------------	------	----

W	2.00	ft
-----	------	----

S_x	0.020	ft/ft
-------	-------	-------

S_w	0.083	ft/ft
-------	-------	-------

S_o	0.020	ft/ft
-------	-------	-------

n_{STREET}	0.016	
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Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
T_{MAX}	14.0	17.0	ft
d_{MAX}	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

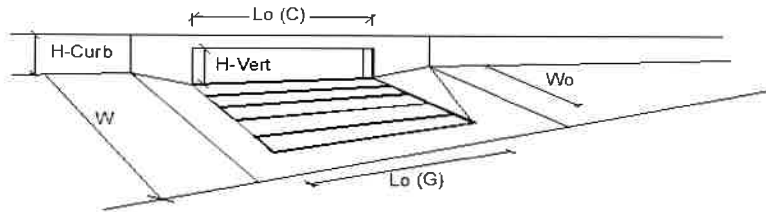
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q_{allow}	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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 _u =	15.00	15.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W _u =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C _{r-G} =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C _{r-C} =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	4.1	8.2	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q _b =	0.0	0.3	cfs
Capture Percentage = Q _i /Q _b =		C% =	100	97	%

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

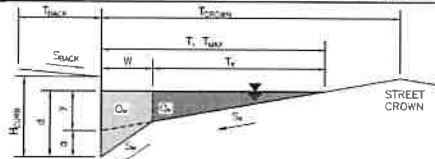
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Project:

Inlet ID:

Inlet 17

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_O =$	0.020	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

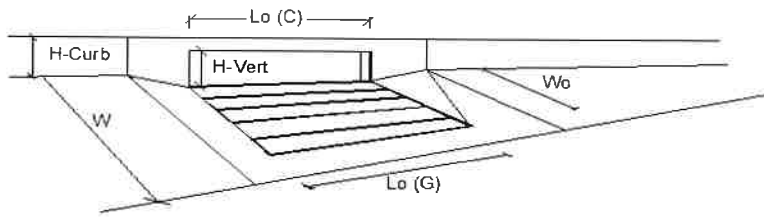
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{ALLOW} =$	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		$C_r G$ =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		$C_r C$ =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity					
Total Inlet Interception Capacity		Q =	4.5	10.9	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	2.1	cfs
Capture Percentage = Q_i/Q_b =		C% =	100	84	%

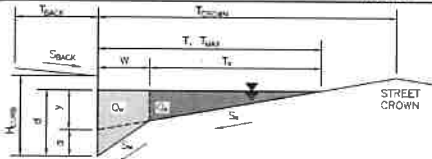
ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

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

Revel at Wolf Ranch Filings 8 and 9

Project:
Inlet ID:

Inlet 18

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_O =$	0.020	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

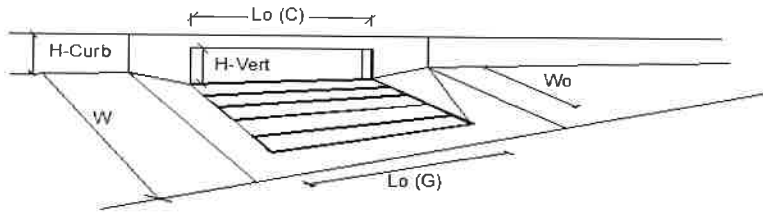
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	9.6	15.4	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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 _{T-G} =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C _{T-C} =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	2.5	6.2	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q _b =	0.0	0.0	cfs
Capture Percentage = Q _i /Q _b =		C% =	100	100	%

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

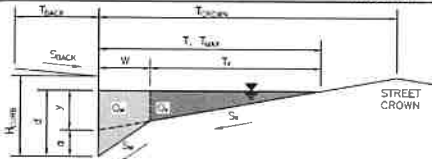
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Project:

Inlet ID:

Inlet 19A

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	8.00	inches
$T_{CROWN} =$	18.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_O =$	0.000	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Check boxes are not applicable in SUMP conditions

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	18.0	ft
$d_{MAX} =$	6.0	12.0	inches

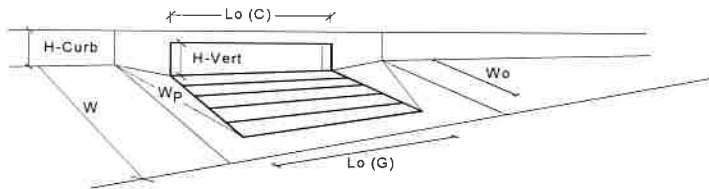
MINOR STORM Allowable Capacity is based on Depth Criterion

MAJOR STORM Allowable Capacity is based on Depth Criterion

	Minor Storm	Major Storm	
$Q_{ALLOW} =$	SUMP	SUMP	cfs

INLET IN A SUMP OR SAG LOCATION

Version 4.05 Released March 2017



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} =	1.00	1.00	inches
Number of Unit Inlets (Grate or Curb Opening)		N _o =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	3.7	6.3	inches
Grate Information			MINOR	MAJOR	<input checked="" type="checkbox"/> 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
Area Opening 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 _l (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 (see USDCM Figure ST-5)		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 _l (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} =	0.14	0.36	ft
Combination Inlet Performance Reduction Factor for Long Inlets		RF _{Combination} =	0.35	0.59	
Curb Opening Performance Reduction Factor for Long Inlets		RF _{Curb} =	0.76	0.95	
Grated Inlet Performance Reduction Factor for Long Inlets		RF _{Grate} =	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)			MINOR	MAJOR	
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		Q _a =	1.8	9.2	cfs
		Q _{PEAK REQUIRED} =	1.8	9.2	cfs

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

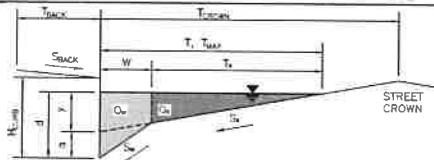
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Inlet 19B

Project:

Inlet ID:

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} = 10.0$ ft
 $S_{BACK} = 0.020$ ft/ft
 $n_{BACK} = 0.020$

$H_{CURB} = 8.00$ inches
 $T_{CROWN} = 18.0$ ft
 $W = 2.00$ ft
 $S_x = 0.020$ ft/ft
 $S_w = 0.083$ ft/ft
 $S_o = 0.000$ ft/ft
 $n_{STREET} = 0.016$

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Check boxes are not applicable in SUMP conditions

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	18.0	ft
$d_{MAX} =$	6.0	12.0	inches

MINOR STORM Allowable Capacity is based on Depth Criterion

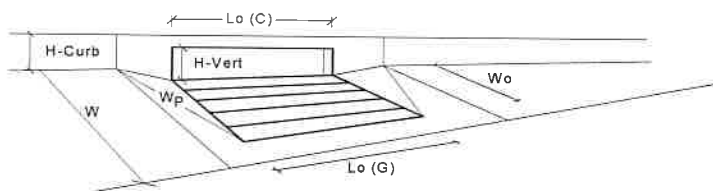
MAJOR STORM Allowable Capacity is based on Depth Criterion

$Q_{ALLOW} =$

	Minor Storm	Major Storm	
	SUMP	SUMP	cfs

INLET IN A SUMP OR SAG LOCATION

Version 4.05 Released March 2017



Design Information (Input)		MINOR		MAJOR	
Type of Inlet	CDOT Type R Curb Opening	CDOT Type R Curb Opening			
Local Depression (additional to continuous gutter depression 'a' from above)		Type =			
Number of Unit Inlets (Grate or Curb Opening)		θ_{local} =	1.00	1.00	inches
Water Depth at Flowline (outside of local depression)		No =	1	1	
Grate Information		Ponding Depth =	3.2	3.8	inches
Length of a Unit Grate			MINOR	MAJOR	<input checked="" type="checkbox"/> Override Depths
Width of a Unit Grate		$L_o (G)$ =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)		W_o =	N/A	N/A	feet
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		A_{ratio} =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		$C_f (G)$ =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		$C_w (G)$ =	N/A	N/A	
Curb Opening Information		$C_o (G)$ =	N/A	N/A	
Length of a Unit Curb Opening			MINOR	MAJOR	
Height of Vertical Curb Opening in Inches		$L_o (C)$ =	10.00	10.00	feet
Height of Curb Orifice Throat in Inches		H_{weir} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)		H_{throat} =	6.00	6.00	inches
Side Width for Depression Pan (typically the gutter width of 2 feet)		Theta =	63.40	63.40	degrees
Clogging Factor for a Single Curb Opening (typical value 0.10)		W_p =	2.00	2.00	feet
Curb Opening Weir Coefficient (typical value 2.3-3.7)		$C_f (C)$ =	0.10	0.10	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		$C_w (C)$ =	3.60	3.60	
		$C_o (C)$ =	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} =	0.10	0.15	ft
Combination Inlet Performance Reduction Factor for Long Inlets		RF _{Combination} =	0.30	0.36	
Curb Opening Performance Reduction Factor for Long Inlets		RF _{Curb} =	0.70	0.77	
Grated Inlet Performance Reduction Factor for Long Inlets		RF _{Grate} =	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)			MINOR	MAJOR	
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		Q_s =	1.0	2.1	cfs
		$Q_{PEAK REQUIRED}$ =	1.0	2.1	cfs

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

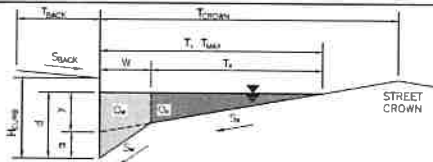
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Inlet 20

Project:

Inlet ID:

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_X =$	0.020	ft/ft
$S_W =$	0.083	ft/ft
$S_O =$	0.015	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

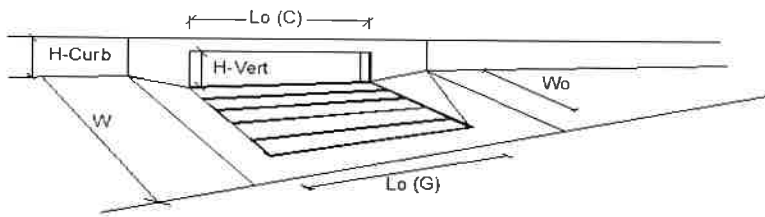
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		N _o =	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 _r G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C _r C =	0.10	0.10	
Street Hydraulics: OK - Q < Allowable Street Capacity		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	3.4	6.6	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q _b =	0.0	0.0	cfs
Capture Percentage = Q _i /Q _t =		C% =	100	100	%

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

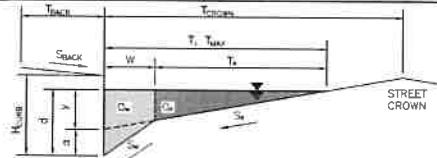
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project:

Revel at Wolf Ranch Filings 8 and 9

Inlet ID:

Inlet 21

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

T _{BACK} =	10.0	ft
S _{BACK} =	0.020	ft/ft
n _{BACK} =	0.020	

H _{CURB} =	6.00	inches
T _{CROWN} =	17.0	ft
W =	2.00	ft
S _X =	0.020	ft/ft
S _W =	0.083	ft/ft
S _O =	0.015	ft/ft
n _{STREET} =	0.016	

	Minor Storm	Major Storm	
T _{MAX} =	14.0	17.0	ft
d _{MAX} =	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

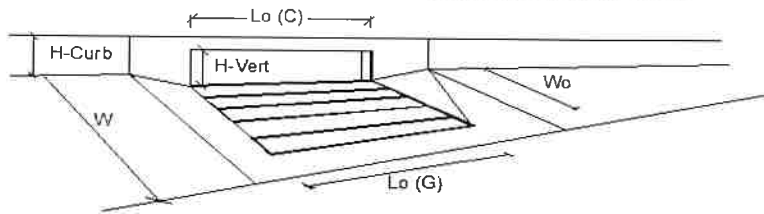
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q _{ALLOW} =	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		N_o =	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_rG =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_rC =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	2.8	5.0	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	0.5	cfs
Capture Percentage = Q_i/Q_o =		$C\%$ =	100	91	%

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

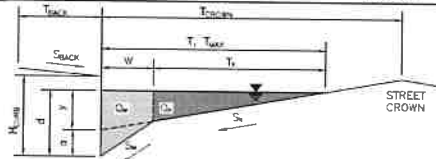
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Project:

Inlet ID:

Inlet 22

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} = 10.0$ ft
 $S_{BACK} = 0.020$ ft/ft
 $n_{BACK} = 0.020$

$H_{CURB} = 6.00$ inches
 $T_{CROWN} = 17.0$ ft
 $W = 2.00$ ft
 $S_X = 0.020$ ft/ft
 $S_W = 0.083$ ft/ft
 $S_O = 0.015$ ft/ft
 $n_{STREET} = 0.016$

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

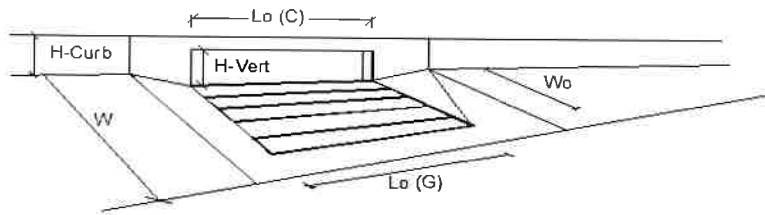
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
$Q_{allow} =$	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



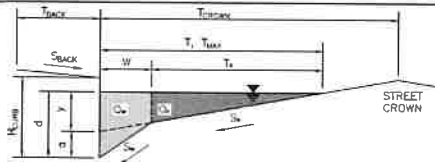
Design Information (Input)		MINOR		MAJOR	
Type of Inlet	CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		N_o =	1	1	
Length of a Single Unit 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)		$C_r G$ =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		$C_r C$ =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	3.8	8.1	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	0.3	cfs
Capture Percentage = Q/Q_o =		$C\%$ =	100	97	%

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

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

Revel at Wolf Ranch Filings 8 and 9

Inlet 23

Project:
Inlet ID:**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{BACK} =$	10.0	ft
$S_{BACK} =$	0.020	ft/ft
$n_{BACK} =$	0.020	

$H_{CURB} =$	6.00	inches
$T_{CROWN} =$	17.0	ft
$W =$	2.00	ft
$S_x =$	0.020	ft/ft
$S_w =$	0.083	ft/ft
$S_o =$	0.015	ft/ft
$n_{STREET} =$	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

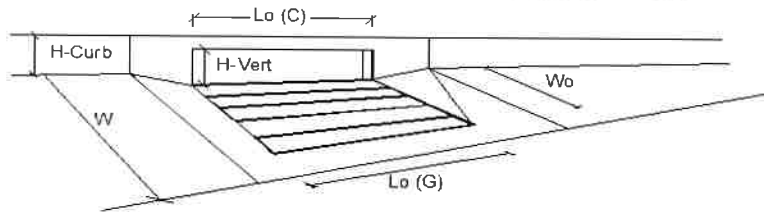
	Minor Storm	Major Storm	
$Q_{allow} =$	8.3	13.3	cfs

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



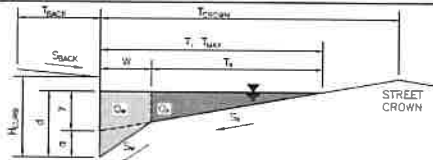
Design Information (input)		MINOR		MAJOR	
Type of Inlet	CDOT Type R Curb Opening	Type =	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a')		a_{LOCAL} =	3.0	3.0	inches
Total Number of Units in the Inlet (Grate or Curb Opening)		N_0 =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_0 =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W , Gutter Width)		W_0 =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_{rG} =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_{rC} =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	1.7	3.4	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	0.0	cfs
Capture Percentage = Q_i/Q_a =		$C\%$ =	100	100	%

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

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

Revel at Wolf Ranch Filings 8 and 9

Inlet 24



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

$T_{\text{BACK}} =$	10.0	ft
$S_{\text{BACK}} =$	0.020	ft
$n_{\text{BACK}} =$	0.020	

 $H_{CURB} = 6.00$ inches
$$T_{\text{CROWN}} = \boxed{17.0} \text{ ft}$$

W =	2.00	ft
-----	------	----

 $S_x = 0.020 \text{ ft}$

$S_W =$	0.083	ft
---------	-------	----

$S_O =$	0.030	fu
---------	-------	----

$$n_{\text{STREET}} = 0.016$$

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)	
---	--

	Minor Storm	Major Storm	
$T_{MAX} =$	14.0	17.0	ft
$d_{MAX} =$	6.0	12.0	inches

check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion

MAJOR STORM Allowable Capacity is based on Spread Criterion

	Minor Storm	Major Storm
$Q_{\text{allow}} =$	11.7	18.8

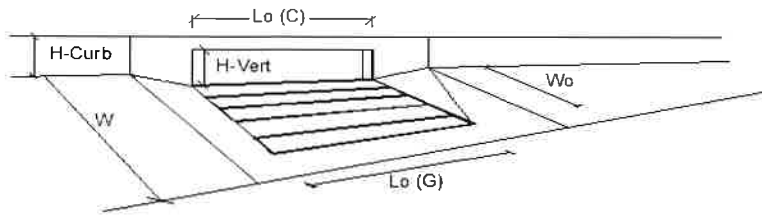
cfs

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



Design Information (Input)	MINOR	MAJOR
Type of Inlet	CDOT Type R Curb Opening	
Local Depression (additional to continuous gutter depression 'a')		
Total Number of Units in the Inlet (Grate or Curb Opening)		
Length of a Single Unit Inlet (Grate or Curb Opening)		
Width of a Unit Grate (cannot be greater than W, Gutter Width)		
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		
Total Inlet Interception Capacity	MINOR	MAJOR
Total Inlet Carry-Over Flow (flow bypassing inlet)	Q = 1.9	4.1 cfs
Capture Percentage = $Q_i/Q_o =$	Qo = 0.0	0.1 cfs
	C% = 100	98 %

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

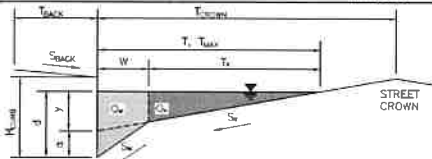
(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Revel at Wolf Ranch Filings 8 and 9

Project:

Inlet ID:

Inlet 25

**Gutter Geometry (Enter data in the blue cells)**

Maximum Allowable Width for Spread Behind Curb

Side Slope Behind Curb (leave blank for no conveyance credit behind curb)

Manning's Roughness Behind Curb (typically between 0.012 and 0.020)

Height of Curb at Gutter Flow Line

Distance from Curb Face to Street Crown

Gutter Width

Street Transverse Slope

Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)

Street Longitudinal Slope - Enter 0 for sump condition

Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK}	=	10.0	ft
S_{BACK}	=	0.020	ft/ft
n_{BACK}	=	0.020	

H_{CURB}	=	6.00	inches
T_{CROWN}	=	17.0	ft
W	=	2.00	ft
S_X	=	0.020	ft/ft
S_W	=	0.083	ft/ft
S_O	=	0.015	ft/ft
n_{STREET}	=	0.016	

Max. Allowable Spread for Minor & Major Storm

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

Allow Flow Depth at Street Crown (leave blank for no)

	Minor Storm	Major Storm	
T_{MAX}	14.0	17.0	ft
d_{MAX}	6.0	12.0	inches
	<input type="checkbox"/>	<input type="checkbox"/>	check = yes

MINOR STORM Allowable Capacity is based on Spread Criterion**MAJOR STORM Allowable Capacity is based on Spread Criterion**

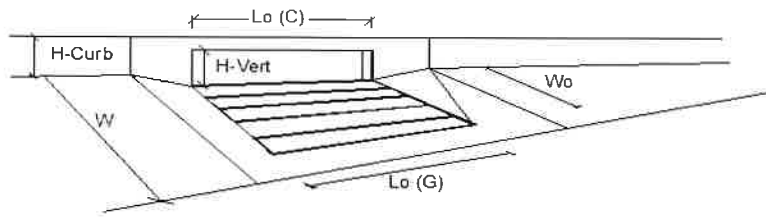
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

	Minor Storm	Major Storm	
Q_{allow}	8.3	13.3	cfs

INLET ON A CONTINUOUS GRADE

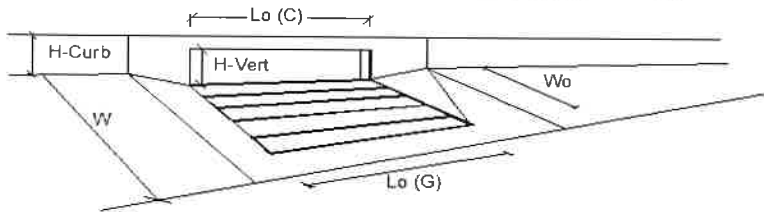
Version 4.05 Released March 2017



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)		N_u =	1	1	
Length of a Single Unit Inlet (Grate or Curb Opening)		L_u =	10.00	10.00	ft
Width of a Unit Grate (cannot be greater than W, Gutter Width)		W_u =	N/A	N/A	ft
Clogging Factor for a Single Unit Grate (typical min. value = 0.5)		C_r-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_r-C =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q_i =	1.6	3.0	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_o =	0.0	0.0	cfs
Capture Percentage = Q_i/Q_o =		$C\%$ =	100	100	%

INLET ON A CONTINUOUS GRADE

Version 4.05 Released March 2017



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)		N_o =	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_r-G =	N/A	N/A	
Clogging Factor for a Single Unit Curb Opening (typical min. value = 0.1)		C_r-C =	0.10	0.10	
Street Hydraulics: OK - $Q < \text{Allowable Street Capacity}$		MINOR		MAJOR	
Total Inlet Interception Capacity		Q =	1.2	4.4	cfs
Total Inlet Carry-Over Flow (flow bypassing inlet)		Q_b =	0.0	0.0	cfs
Capture Percentage = Q/Q_b =		$C\%$ =	100	100	%

Revel at Wolf Ranch Filing No. 8 and 9
Feb. 1, 2021
Impervious vs Pervious Areas

Basin	Total Area (Acres)	Impervious Area (Acres)	% Imp	Pervious Area	% Pervious (fps)
1	0.81	0.38	47%	0.43	53%
2	0.83	0.33	40%	0.50	60%
3	1.79	0.84	47%	0.96	53%
4	1.97	1.14	58%	0.83	42%
5	1.09	0.70	64%	0.39	36%
6	2.24	1.49	67%	0.75	33%
7	1.22	0.95	78%	0.27	22%
8	1.63	1.20	73%	0.43	27%
9	1.83	1.39	76%	0.44	24%
10	2.55	1.29	51%	1.26	49%
11	0.72	0.56	77%	0.16	23%
12	1.44	1.02	71%	0.42	29%
13	3.09	1.97	64%	1.12	36%
14	0.41	0.31	74%	0.11	26%
15	0.89	0.65	72%	0.25	28%
16	1.59	1.21	76%	0.39	24%
17	2.46	1.42	58%	1.04	42%
18	1.17	0.78	67%	0.39	33%
19A	3.99	0.23	6%	3.76	94%
19B	0.43	0.23	53%	0.20	47%
20	1.19	0.94	79%	0.25	21%
21	1.02	0.83	81%	0.19	19%
22	1.58	1.14	72%	0.44	28%
23	0.59	0.47	79%	0.12	21%
24	0.76	0.57	75%	0.19	25%
25	0.52	0.43	82%	0.09	18%
26	0.30	0.29	97%	0.01	4%
27	3.05	0.95	31%	2.10	69%
28	5.30	1.58	30%	3.72	70%

46.46 25.25 54% 21.21 46%

Revel at Wolf Ranch Filing No. 8 and 9

Feb. 1, 2021

Manning's Equation

n= 0.013

Pipe No.	Slope	PIPE SIZE (Inches)	5 YEAR STORM			100 YEAR STORM		
			Q5	FLOW DEPTH	VELOCITY	Q100	FLOW DEPTH	VELOCITY
				(Ft)	(fps)		(Ft)	(fps)
1	2.0%	36"	35.7	1.28	12.38	72.6	1.98	14.63
2	1.5%	18"	4.6	0.62	6.64	8.1	0.87	7.59
3	1.5%	18"	1.5	0.35	4.77	4.3	0.60	6.51
4	1.5%	18"	5.6	0.69	7.01	9.4	0.95	7.94
5	2.0%	36"	39.4	1.35	12.69	81.3	2.15	14.99
6	1.5%	18"	3.8	0.56	6.31	8.9	0.92	7.83
7	2.0%	42"	41.7	1.30	12.72	87.1	1.98	15.48
8	1.5%	18"	2.2	0.42	5.37	4.5	0.62	6.49
9	1.5%	18"	4.5	0.62	6.49	8.9	0.92	7.83
10	1.5%	24"	6.7	0.67	7.25	14.3	1.02	8.83
11	1.5%	18"	3.2	0.51	5.98	5.8	0.71	7.02
12	1.5%	24"	9.4	0.81	7.87	19.5	1.24	9.51
13	1.5%	18"	4.1	0.59	6.31	9.0	0.93	7.81
14	1.5%	30"	13.5	0.88	8.67	28.5	1.35	10.49
15	1.5%	18"	4.9	0.65	6.65	9.6	0.97	7.93
16	1.5%	30"	16.3	0.98	9.10	33.3	1.49	10.90
17	2.8%	36"	49.5	1.40	15.28	103.8	2.29	17.88
18	1.5%	18"	6.8	0.78	7.29	11.9	1.14	8.25
19	2.8%	36"	52.5	1.45	15.46	110.7	2.44	17.96
20	1.6%	42"	64.1	1.76	13.17	134.5	3.10	14.91
21	1.5%	18"	1.9	0.39	5.14	6.3	0.74	7.23
22	1.5%	18"	6.3	0.74	7.23	10.8	1.06	8.07
23	2.0%	42"	67.2	1.69	14.54	140.7	2.83	16.85
24	2.0%	18"	6.6	0.70	8.15	11.6	1.00	9.24
25	2.0%	18"	6.6	0.70	8.15	11.6	1.00	9.24
26	1.5%	18"	1.1	0.30	4.34	4.6	0.62	6.64
27	2.0%	24"	7.7	0.67	8.33	16.5	1.02	10.19
28	1.5%	18"	2.1	0.41	5.31	8.0	0.86	7.62
29	2.3%	42"	75.6	1.74	15.73	158.4	3.01	17.99
30	1.5%	18"	4.1	0.59	6.31	8.2	0.87	7.69
31	1.6%	48"	44.6	1.35	11.95	92.9	2.02	14.52
32	1.5%	18"	4.5	0.62	6.49	10.9	1.06	8.15
33	1.5%	18"	2.5	0.45	5.60	6.2	0.74	7.11
34	1.5%	18"	3.4	0.53	6.07	6.6	0.77	7.20
35	2.35%	42"	76.9	1.64	15.85	161.0	2.54	19.12
36	1.5%	18"	2.8	0.48	5.72	5.0	0.65	6.78
37	2.35%	42"	80.0	1.77	16.07	164.5	3.16	17.99
38	1.5%	18"	3.8	0.56	6.31	8.1	0.87	7.59
39	1.5%	18"	1.7	0.37	5.01	3.4	0.53	6.07
40	3.0%	42"	82.1	1.69	17.76	171.3	2.82	20.61
41	3.0%	42"	82.1	1.69	17.76	171.3	2.82	20.61
42	1.5%	18"	1.9	0.39	5.14	4.1	0.59	6.31
43	3.0%	42"	84.0	1.71	17.94	175.4	2.89	20.60
44	1.5%	18"	1.6	0.36	4.89	3.0	0.50	5.77
45	3.0%	42"	87.0	1.74	18.10	182.0	3.03	20.54
46	1.6%	48"	123.0	2.02	19.23	256.9	3.63	21.43
47	1.5%	18"	1.2	0.31	4.54	4.4	0.61	6.50
48	4.2%	48"	123.3	1.95	22.27	257.2	3.2	23.95
49	2.5%	42"	27.3	0.98	12.25	140.1	2.55	18.60
50	2.5%	42"	29.1	1.02	12.36	147.1	2.66	18.72
51	2.5%	42"	31.0	1.05	12.75	148.4	2.76	18.81

DP#1

1

2

3

DP#2

4

DP#3

5

6

5+6

7

DP#4

8

DP#4+8

9

DP#5

Offsite

10

DP#6

DP#7

11

12

DP#8

13

13

14

DP#9

15

DP#10

16

DP#11

17

18

20

DP#12

21

DP#13

22

23

DP#14

DP#14

24

DP#14+24

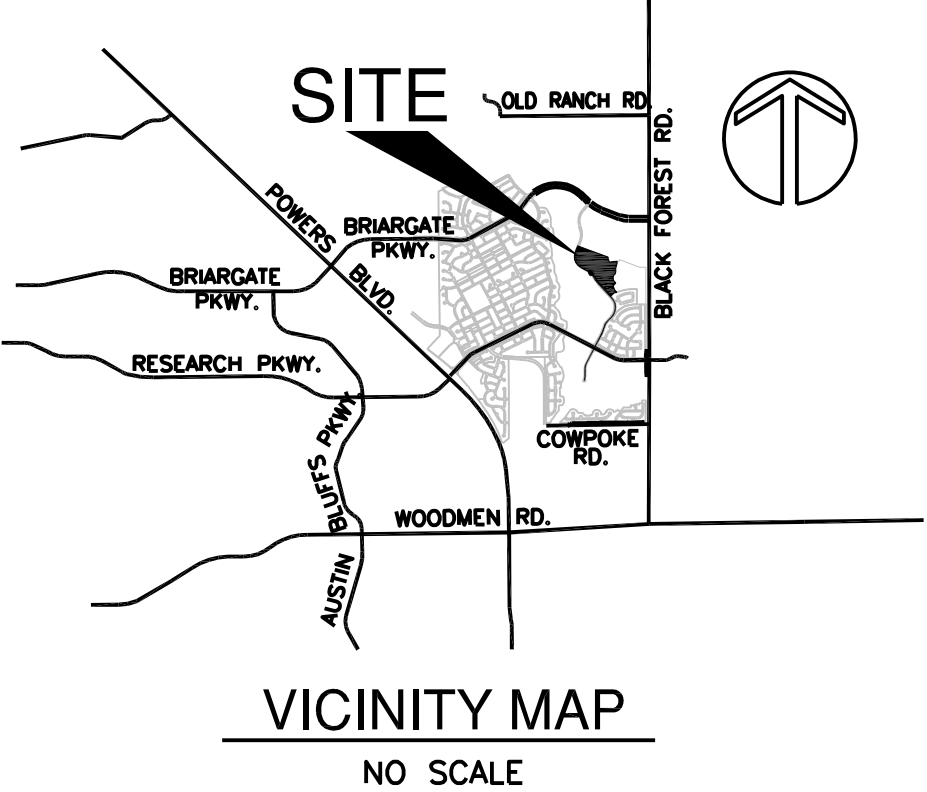
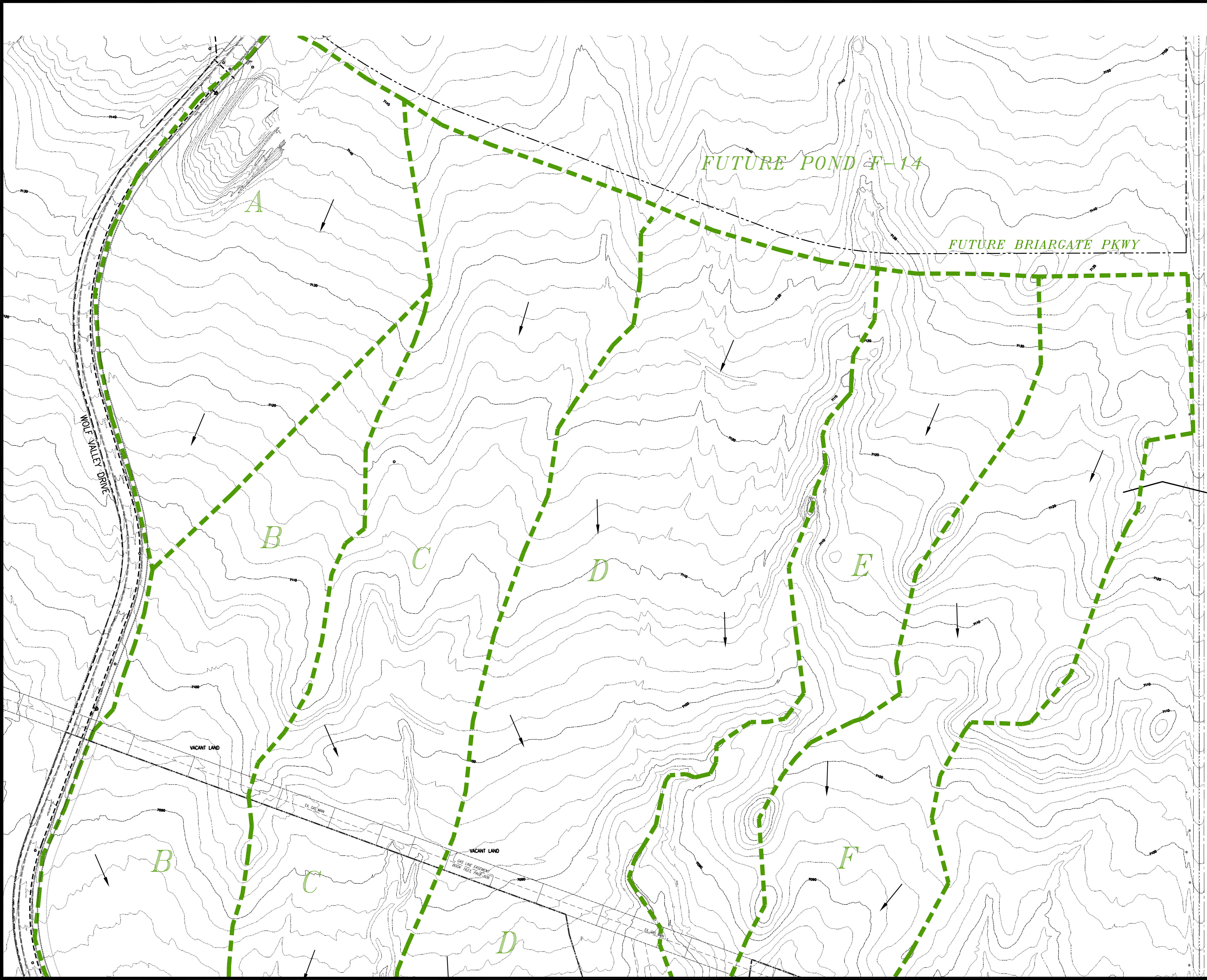
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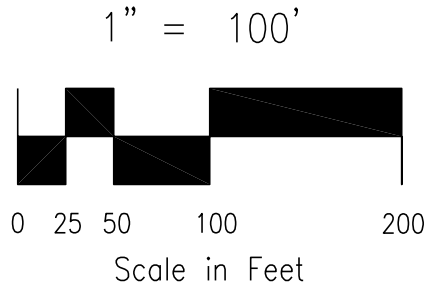
DP#16

26

DP#17



- LEGEND**
- EXISTING CONTOURS
 - HISTORIC BASIN BOUNDARIES
 - HISTORIC BASIN DESIGNATOR
 - HISTORIC DESIGN POINT
 - PROPOSED 2' CONTOURS
 - DIRECTION OF FLOW
 - FILING BOUNDARIES



HISTORIC DRAINAGE BASINS

BASIN	Area (Acres)	Q _s (cfs)	Q ₁₀₀ (cfs)
A	13.89	2.6	18.9
B	14.58	2.1	15.1
C	23.84	3.0	22.1
D	39.08	4.3	31.3
E	12.41	1.8	13.2
F	23.63	2.6	18.9
DP #H-1	98.96	10.8	79.1

EXHIBIT 1 - SHEET 1 OF 2

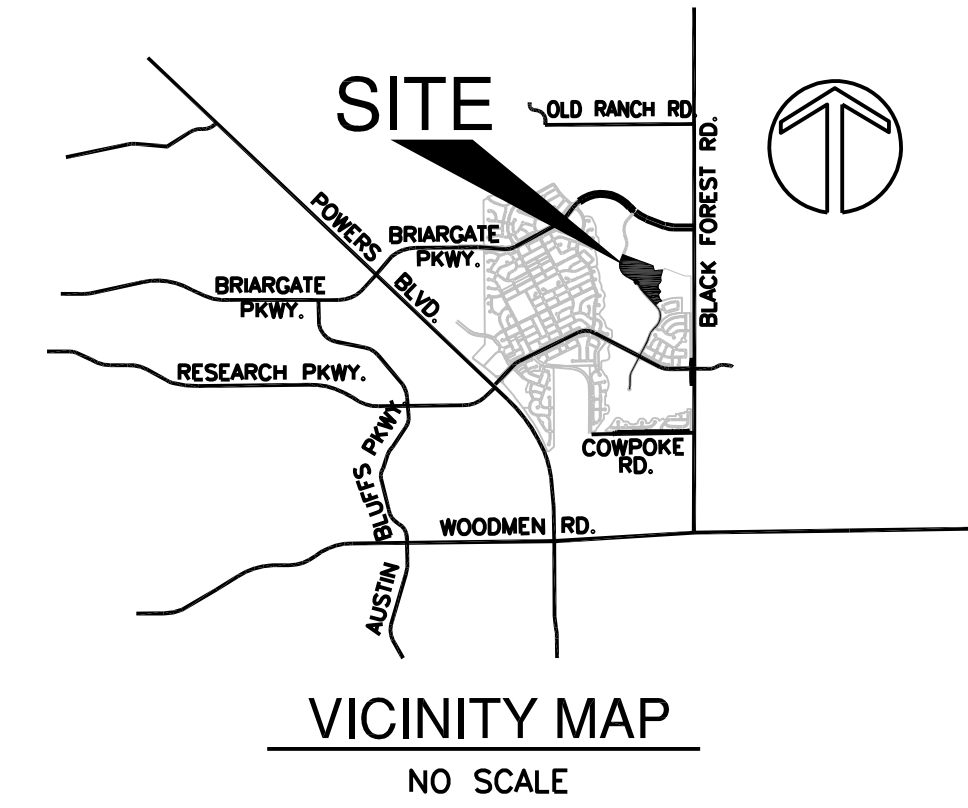
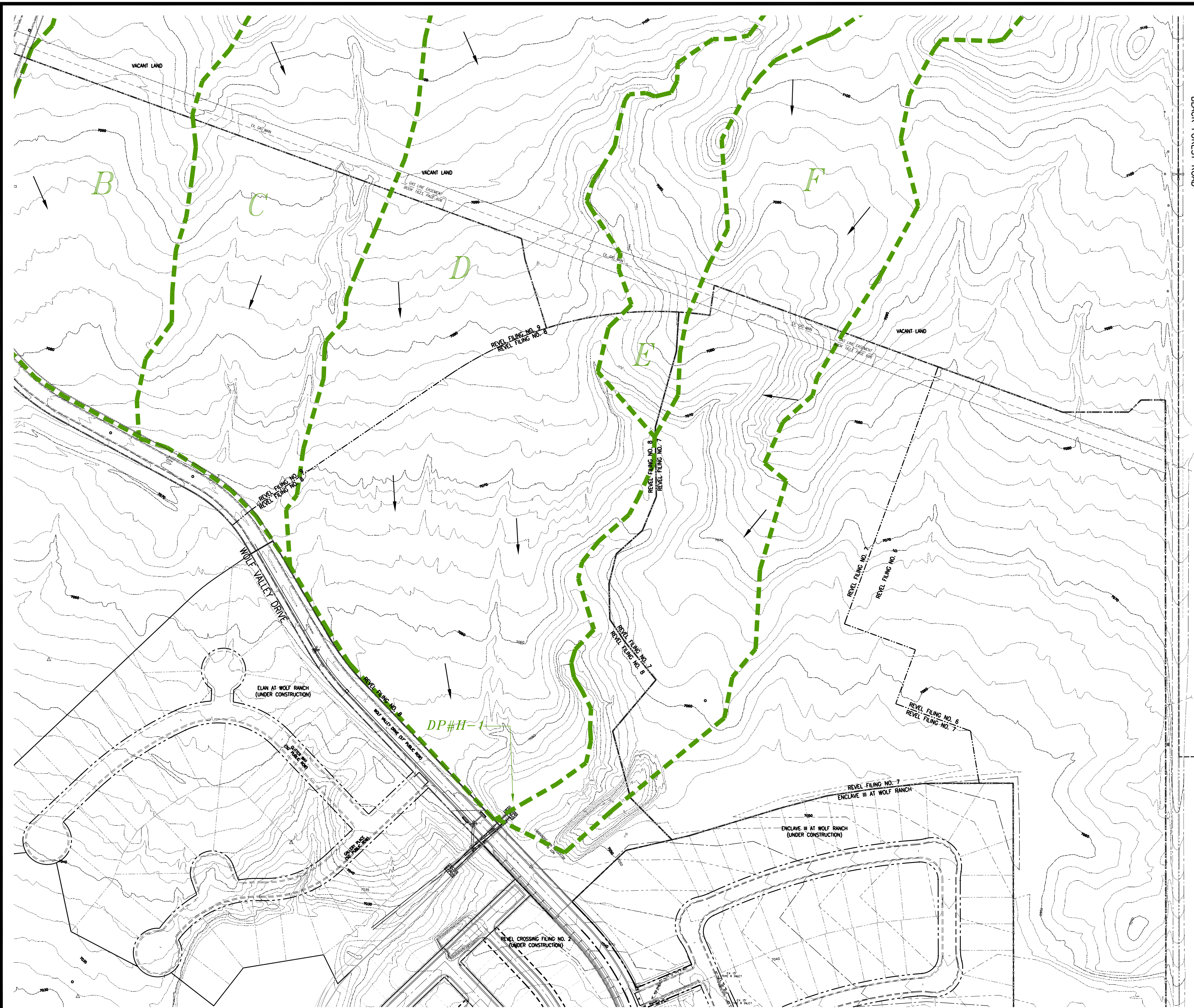
FILE: 20017\20017BAS3.DWG 2/1/21

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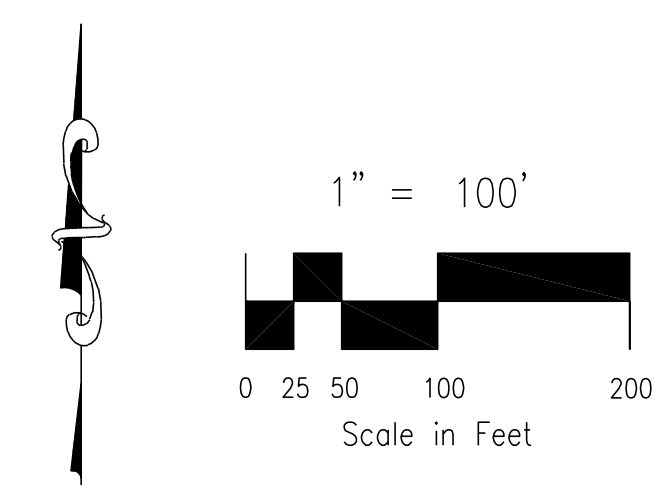
REVEL AT WOLF RANCH PHASE II B (REVEL FILINGS 8 & 9)
HISTORIC DRAINAGE

SCALE : 1"=100' DRAWN BY : KDR
DATE : 2/1/21 CHECKED BY : KDR

20-017
JOB NO.



- LEGEND**
- EXISTING CONTOURS
 - HISTORIC BASIN BOUNDARIES
 - HISTORIC BASIN DESIGNATOR
 - HISTORIC DESIGN POINT
 - PROPOSED 2' CONTOURS
 - DIRECTION OF FLOW
 - FILING BOUNDARIES



HISTORIC DRAINAGE BASINS

BASIN	Area (Acres)	Q ₅ (cfs)	Q ₁₀₀ (cfs)
A	13.89	2.6	18.9
B	14.58	2.1	15.1
C	23.84	3.0	22.1
D	39.08	4.3	31.3
E	12.41	1.8	13.2
F	23.63	2.6	18.9
DP #H-1	98.96	10.8	79.1

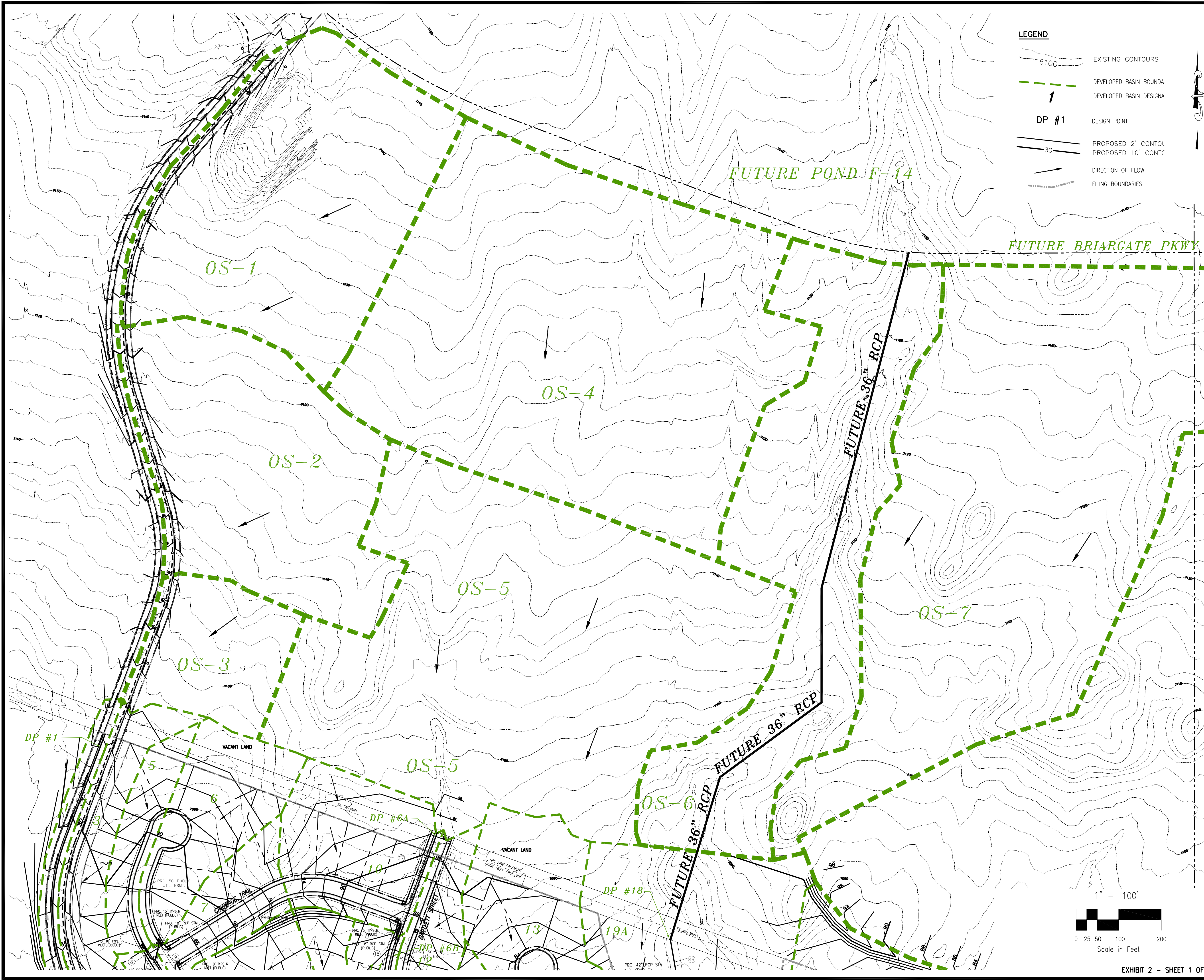
EXHIBIT 1 - SHEET 2 OF 2

FILE: 20017\20017BAS3.DWG 2/1/21

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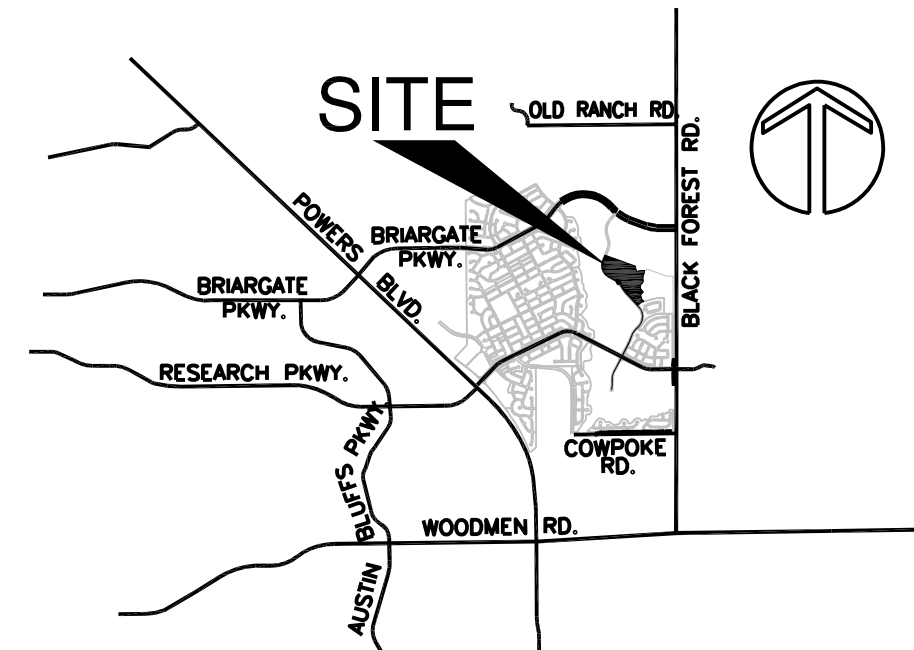
TITLE : REVEL AT WOLF RANCH PHASE II B (REVEL FILINGS 8 & 9) HISTORIC DRAINAGE

SCALE : 1"=100'	DRAWN BY : KDR	20-017
DATE : 2/1/21	CHECKED BY : KDR	JOB NO.



LEGEND

- 6100 EXISTING CONTOURS
- 1 DEVELOPED BASIN BOUNDARY
- 1 DEVELOPED BASIN DESIGNATION
- DP #1 DESIGN POINT
- 30 PROPOSED 2' CONTOL
- 30 PROPOSED 10' CONTC
- DIRECTION OF FLOW
- FILING BOUNDARIES



VICINITY MAP

NO SCALE

BASIN	Area (Acres)	Q ₅ (cfs)	Q ₁₀₀ (cfs)
OS-1	8.97	13.9	30.5
OS-2	7.38	17.2	33.1
OS-3	2.42	6.4	12.4
OS-4	16.21	25.0	55.1
OS-5	18.23	36.6	74.0
OS-6	7.18	5.3	18.0
OS-7	17.43	20.2	51.4

DEVELOPED DRAINAGE BASINS

BASIN	Area (Acres)	Q ₅ (cfs)	Q ₁₀₀ (cfs)
1	0.81	1.6	3.7
2	0.83	1.5	3.6
3	1.79	2.7	6.5
4	1.97	3.7	8.3
5	1.09	2.2	4.8
6	2.24	4.5	9.5
7	1.22	3.2	6.4
8	1.63	4.1	8.4
9	1.83	4.9	9.8
10	2.55	3.8	9.0
11	0.72	1.9	3.7
12	1.44	3.3	6.8
13	3.09	6.6	14.4
14	0.41	1.1	2.1
15	0.89	2.1	4.3
16	1.59	4.1	8.3
17	2.46	4.5	10.2
18	1.17	2.5	5.3
19A	3.90	1.8	9.2
19B	0.43	1.0	2.1
20	1.19	3.4	6.6
21	1.02	2.8	5.5
22	1.58	3.8	7.9
23	0.59	1.7	3.4
24	0.76	1.9	3.9
25	0.52	1.6	3.0
26	0.30	1.2	2.2
27	3.05	2.7	8.3
28	5.30	4.4	13.6

DESIGN POINTS

Design Point	Area (Acres)	Q ₅ (cfs)	Q ₁₀₀ (cfs)
DP#1	18.77	35.7	72.6
DP#2	21.37	39.4	81.3
DP#3	24.17	41.7	87.1
DP#4	4.55	9.4	19.5
DP#5	8.01	16.3	33.3
DP#6A	34.44	49.5	103.8
DP#6B	36.99	52.5	110.7
DP#7	45.00	64.1	134.5
DP#8	47.16	67.2	140.7
DP#9	3.50	7.7	16.5
DP#10	53.34	75.6	158.4
DP#11	25.76	44.6	92.9
DP#12	54.53	76.9	161.0
DP#13	55.55	78.7	164.5
DP#14	57.72	82.1	171.3
DP#15	61.46	87.0	182.0
DP#16	87.22	123.0	256.9
DP#17	88.69	123.3	257.2
DP#18	49.61	27.3	140.1
DP#19	54.03	29.1	147.4
DP#20	57.08	31.0	152.6
DP#21	62.38	34.4	162.4

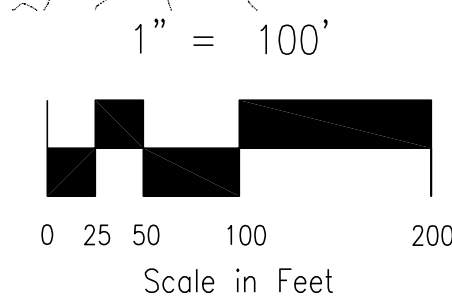



EXHIBIT 2 - SHEET 1 OF 3

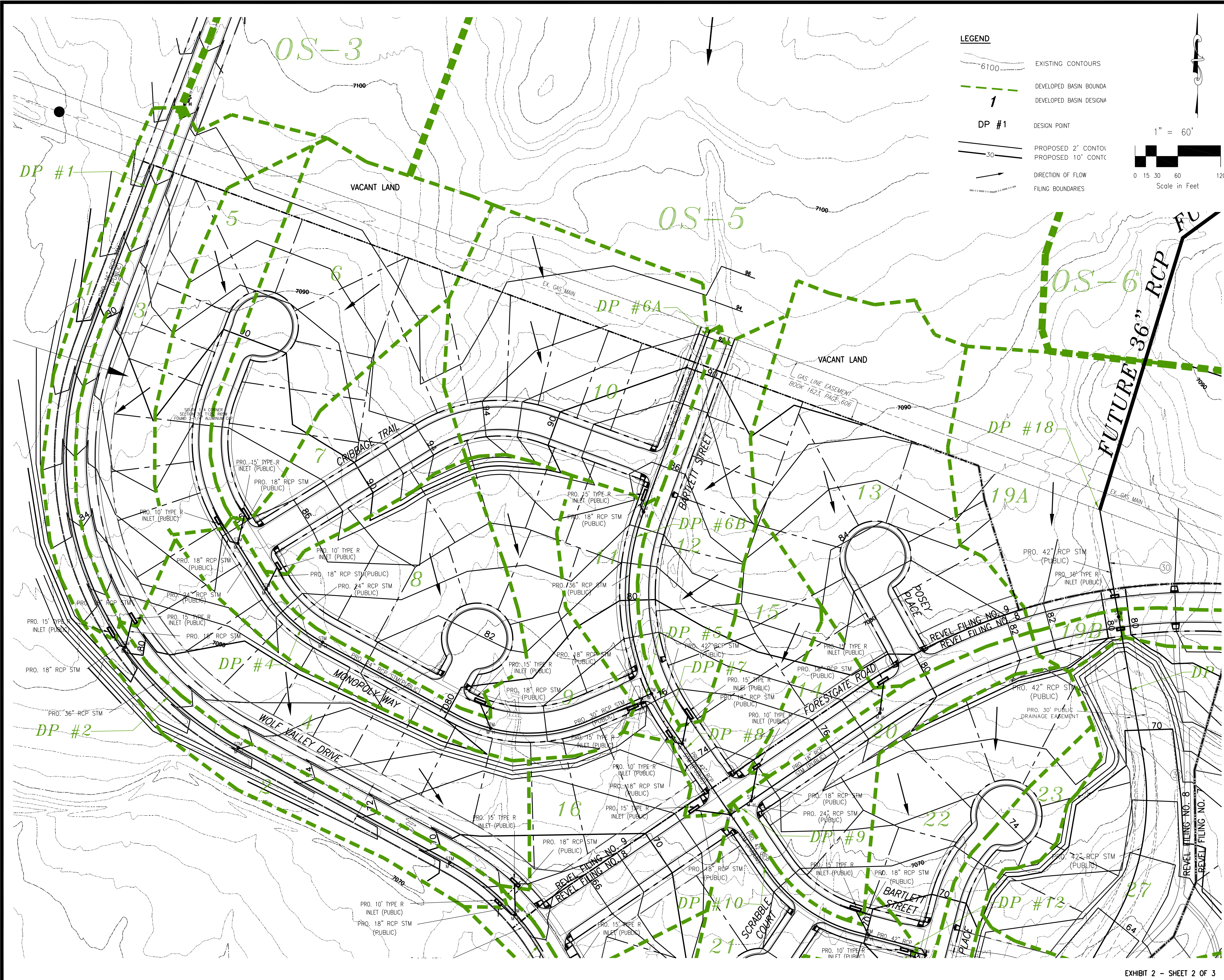
FILE: 20017\20017BAS3.DWG 2/1/21



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REVEL AT WOLF RANCH PHASE II A (REVEL FILINGS 8 & 9)
TITLE : DEVELOPED DRAINAGE PLAN
SCALE : 1"=100' DRAWN BY : KDR
DATE : 2/1/21 CHECKED BY : KDR

20-017
JOB NO.



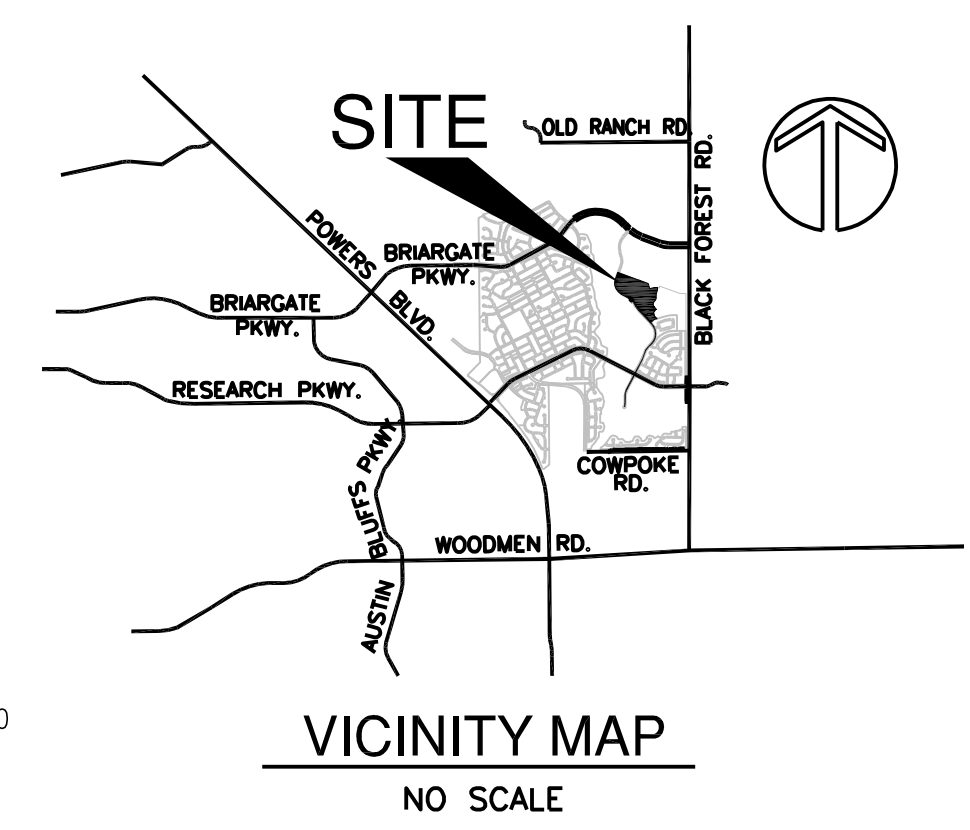
LEGEND

- EXISTING CONTOURS
- DEVELOPED BASIN BOUNDARY
- DEVELOPED BASIN DESIGN
- DESIGN POINT
- PROPOSED 2' CONTOL
- PROPOSED 10' CONTC
- DIRECTION OF FLOW
- FILING BOUNDARIES

1" = 60'

0 15 30 60 120

Scale in Feet



BASIN	Area (Acres)	Q _s (cfs)	Q ₁₀₀ (cfs)
OS-1	8.97	13.9	30.5
OS-2	7.38	17.2	33.1
OS-3	2.42	6.4	12.4
OS-4	16.21	25.0	55.1
OS-5	18.23	36.6	74.0
OS-6	7.18	5.3	18.0
OS-7	17.43	20.2	51.4

DEVELOPED DRAINAGE BASINS

BASIN	Area (Acres)	Q _s (cfs)	Q ₁₀₀ (cfs)
1	0.81	1.6	3.7
2	0.83	1.5	3.6
3	1.79	2.7	6.5
4	1.97	3.7	8.3
5	1.09	2.2	4.8
6	2.24	4.5	9.5
7	1.22	3.2	6.4
8	1.63	4.1	8.4
9	1.83	4.9	9.8
10	2.55	3.8	9.0
11	0.72	1.9	3.7
12	1.44	3.3	6.8
13	3.09	6.6	14.4
14	0.41	1.1	2.1
15	0.89	2.1	4.3
16	1.59	4.1	8.3
17	2.46	4.5	10.2
18	1.17	2.5	5.3
19A	3.90	1.8	9.2
19B	0.43	1.0	2.1
20	1.19	3.4	6.6
21	1.02	2.8	5.5
22	1.58	3.8	7.9
23	0.59	1.7	3.4
24	0.76	1.9	3.9
25	0.52	1.6	3.0
26	0.30	1.2	2.2
27	3.05	2.7	8.3
28	5.30	4.4	13.6

DESIGN POINTS

Design Point	Area (Acres)	Q _s (cfs)	Q ₁₀₀ (cfs)
DP#1	18.77	35.7	72.6
DP#2	21.37	39.4	81.3
DP#3	24.17	41.7	87.1
DP#4	4.55	9.4	19.5
DP#5	8.01	16.3	33.3
DP#6A	34.44	49.5	103.8
DP#6B	36.99	52.5	110.7
DP#7	45.00	64.1	134.5
DP#8	47.16	67.2	140.7
DP#9	3.50	7.7	16.5
DP#10	53.34	75.6	158.4
DP#11	25.76	44.6	92.9
DP#12	54.53	76.9	161.0
DP#13	55.55	78.7	164.5
DP#14	57.72	82.1	171.3
DP#15	61.46	87.0	182.0
DP#16	87.22	123.0	256.9
DP#17	88.69	123.3	257.2
DP#18	49.61	27.3	140.1
DP#19	54.03	29.1	147.4
DP#20	57.08	31.0	152.6
DP#21	62.38	34.4	162.4

FILE: 20017\20017BAS3.DWG 2/1/21

ROCKWELL CONSULTING, Inc.

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REVEL AT WOLF RANCH PHASE II A (REVEL FILINGS 8 & 9)

DEVELOPED DRAINAGE PLAN

TITLE :

SCALE : 1"=60' DRAWN BY : KDR

DATE : 2/1/21 CHECKED BY : KDR

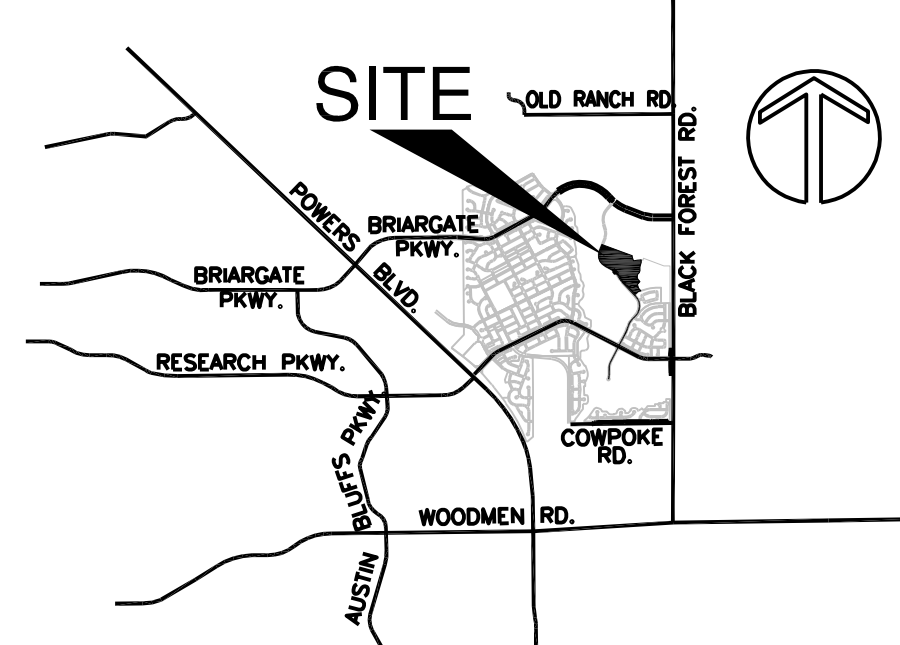
20-017

JOB NO.



LEGEND

- EXISTING CONTOURS
- DEVELOPED BASIN BOUNDAR
- DEVELOPED BASIN DESIGNAT
- DESIGN POINT
- PROPOSED 2' CONTOU
- PROPOSED 10' CONTOU
- DIRECTION OF FLOW
- FILING BOUNDARIES



VICINITY MAP
NO SCALE

BASIN	Area (Acres)	Q ₅ (cfs)	Q ₁₀₀ (cfs)
OS-1	8.97	13.9	30.5
OS-2	7.38	17.2	33.1
OS-3	2.42	6.4	12.4
OS-4	16.21	25.0	55.1
OS-5	18.23	36.6	74.0
OS-6	7.18	5.3	18.0
OS-7	17.43	20.2	51.4

DEVELOPED DRAINAGE BASINS

BASIN	Area (Acres)	Q ₅ (cfs)	Q ₁₀₀ (cfs)
1	0.81	1.6	3.7
2	0.83	1.5	3.6
3	1.79	2.7	6.5
4	1.97	3.7	8.3
5	1.09	2.2	4.8
6	2.24	4.5	9.5
7	1.22	3.2	6.4
8	1.63	4.1	8.4
9	1.83	4.9	9.8
10	2.55	3.8	9.0
11	0.72	1.9	3.7
12	1.44	3.3	6.8
13	3.09	6.6	14.4
14	0.41	1.1	2.1
15	0.89	2.1	4.3
16	1.59	4.1	8.3
17	2.46	4.5	10.2
18	1.17	2.5	5.3
19A	3.90	1.8	9.2
19B	0.43	1.0	2.1
20	1.19	3.4	6.6
21	1.02	2.8	5.5
22	1.58	3.8	7.9
23	0.59	1.7	3.4
24	0.76	1.9	3.9
25	0.52	1.6	3.0
26	0.30	1.2	2.2
27	3.05	2.7	8.3
28	5.30	4.4	13.6

DESIGN POINTS

Design Point	Area (Acres)	Q ₅ (cfs)	Q ₁₀₀ (cfs)
DP#1	18.77	35.7	72.6
DP#2	21.37	39.4	81.3
DP#3	24.17	41.7	87.1
DP#4	4.55	9.4	19.5
DP#5	8.01	16.3	33.3
DP#6A	34.44	49.5	103.8
DP#6B	36.99	52.5	110.7
DP#7	45.00	64.1	134.5
DP#8	47.16	67.2	140.7
DP#9	3.50	7.7	16.5
DP#10	53.34	75.6	158.4
DP#11	25.76	44.6	92.9
DP#12	54.53	76.9	161.0
DP#13	55.55	78.7	164.5
DP#14	57.72	82.1	171.3
DP#15	61.46	87.0	182.0
DP#16	87.22	123.0	256.9
DP#17	88.69	123.3	257.2
DP#18	49.61	27.3	140.1
DP#19	54.03	29.1	147.4
DP#20	57.08	31.0	152.6
DP#21	62.38	34.4	162.4

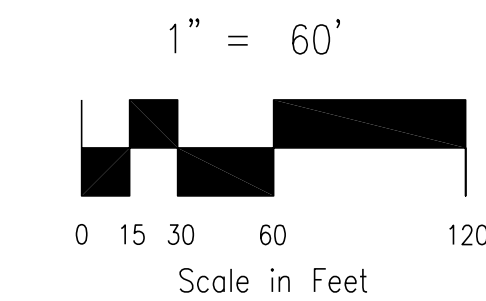
EXHIBIT 2 - SHEET 3 OF 3 FILE: 20017\20017BAS3.DWG 2/1/21

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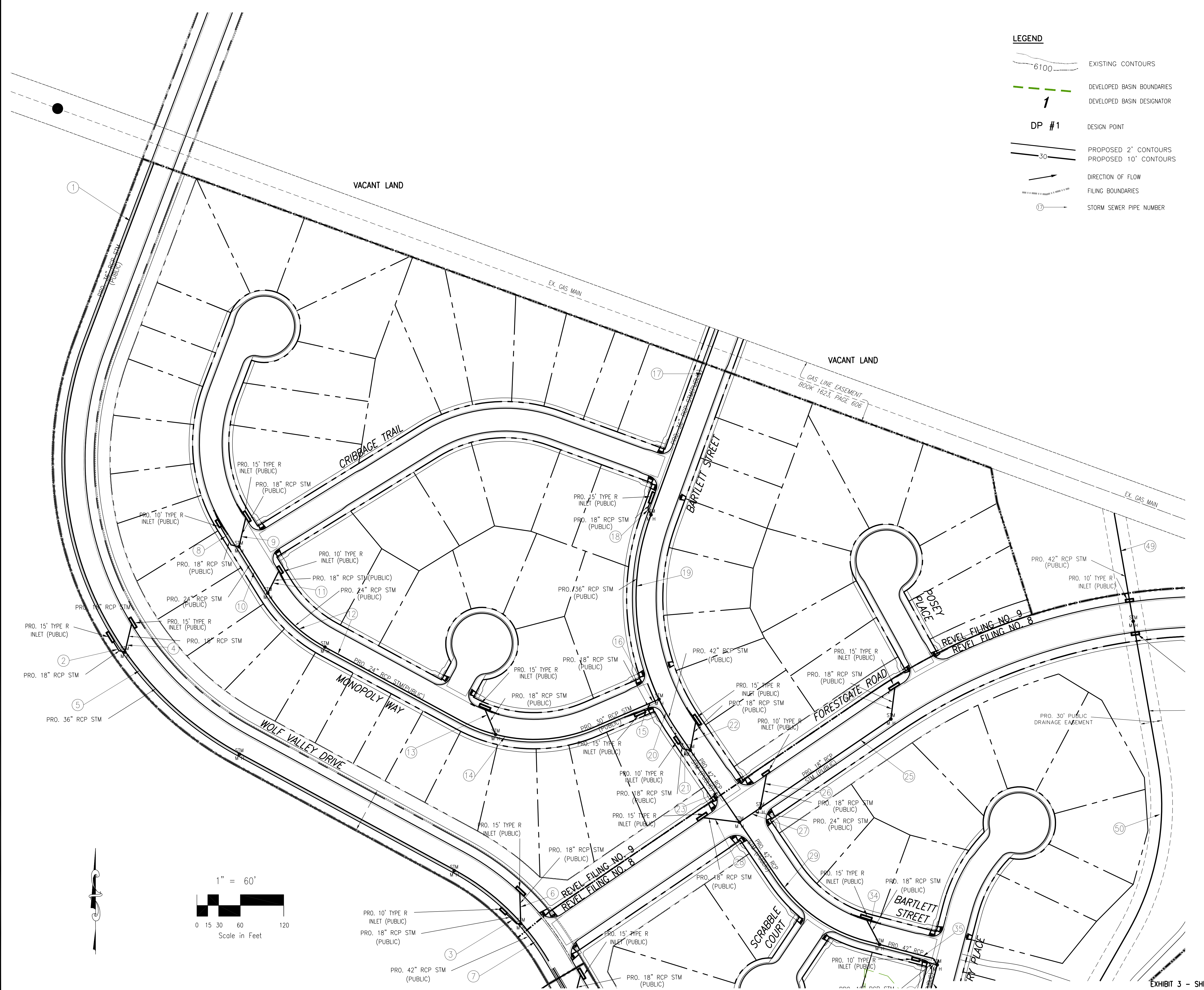
REVEL AT WOLF RANCH PHASE II A (REVEL FILINGS 8 & 9)
DEVELOPED DRAINAGE PLAN

SCALE : 1"=60' DRAWN BY : KDR
DATE : 2/1/21 CHECKED BY : KDR

20-017
JOB NO.

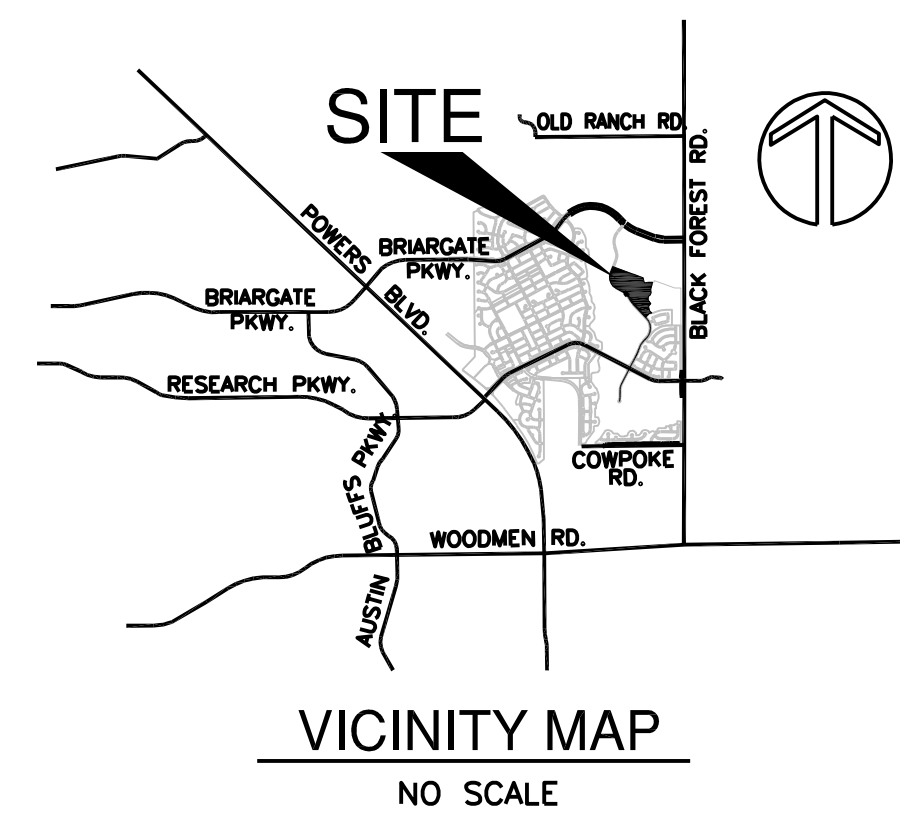


1" = 60'

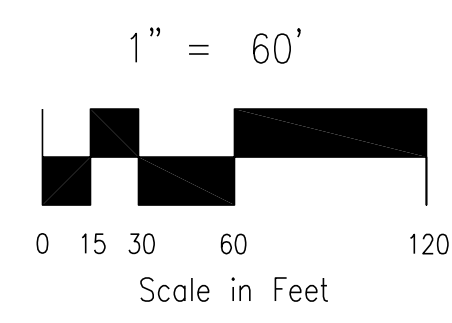


LEGEND

- EXISTING CONTOURS
- DEVELOPED BASIN BOUNDARIES
- DEVELOPED BASIN DESIGNATOR
- DESIGN POINT
- PROPOSED 2' CONTOURS
- PROPOSED 10' CONTOURS
- DIRECTION OF FLOW
- FILING BOUNDARIES
- STORM SEWER PIPE NUMBER



Revel at Wolf Ranch Filing No. 8 and 9									
Feb. 1, 2021									
Manning's Equation									
n= 0.013									
Pipe No.	Slope	PIPE SIZE (Inches)	QS	5 YEAR STORM		100 YEAR STORM		Q100 (cfs)	VELOCITY (fps)
				DEPTH (ft)	VELOCITY (fps)	DEPTH (ft)	VELOCITY (fps)		
1	2.2%	30"	35.7	1.28	12.38	72.8	1.98	14.83	
2	1.0%	18"	4.6	0.62	6.64	8.1	0.87	7.29	
3	1.0%	18"	1.5	0.35	4.77	4.3	0.60	6.51	
4	1.0%	18"	5.6	0.69	7.01	9.4	0.95	7.94	
5	2.0%	30"	39.4	1.35	12.69	81.3	2.15	14.99	
6	1.0%	18"	3.8	0.56	6.31	8.9	0.92	7.83	
7	2.0%	42"	41.7	1.30	12.72	87.1	1.98	15.48	
8	1.0%	18"	2.2	0.42	5.37	4.5	0.62	6.49	
9	1.0%	18"	4.5	0.62	6.49	8.9	0.92	7.83	
10	1.0%	24"	6.7	0.67	7.25	14.3	1.02	8.83	
11	1.0%	18"	3.2	0.51	5.98	5.4	0.71	7.02	
12	1.0%	24"	9.4	0.81	7.87	19.5	1.24	9.51	
13	1.0%	18"	4.1	0.59	6.31	9.0	0.93	7.81	
14	1.0%	30"	13.5	0.86	8.87	28.6	1.35	10.49	
15	1.0%	18"	4.9	0.65	6.66	9.6	0.97	7.93	
16	1.0%	30"	16.3	0.98	9.10	33.3	1.48	10.90	
17	2.8%	30"	49.5	1.41	15.29	103.9	2.32	17.93	
18	1.0%	18"	6.6	0.78	7.29	11.9	1.14	8.25	
19	2.8%	30"	52.5	1.45	15.46	110.7	2.44	17.96	
20	1.0%	42"	94.1	1.76	15.17	154.5	3.10	14.91	
21	1.0%	18"	1.9	0.39	5.14	6.3	0.74	7.23	
22	1.0%	18"	6.3	0.74	7.23	10.8	1.06	8.07	
23	2.0%	42"	67.2	1.69	14.54	140.7	2.83	16.85	
24	2.0%	18"	6.6	0.70	8.15	11.6	1.00	9.24	
25	2.0%	18"	6.0	0.70	8.15	11.6	1.00	9.24	
26	1.0%	18"	1.1	0.30	4.34	4.8	0.62	6.84	
27	2.0%	24"	7.1	0.67	6.33	16.5	1.02	8.19	
28	1.0%	18"	2.1	0.41	5.31	8.0	0.86	7.82	
29	2.0%	42"	75.6	1.74	15.73	158.4	3.01	17.99	
30	1.0%	18"	4.1	0.59	6.31	8.2	0.87	7.69	
31	1.0%	48"	44.6	1.35	11.95	92.9	2.02	14.52	
32	1.0%	18"	4.5	0.62	6.49	10.9	1.08	8.15	
33	1.0%	18"	2.5	0.45	5.60	6.2	0.74	7.11	
34	1.0%	18"	3.4	0.53	6.07	6.6	0.77	7.20	
35	2.35%	42"	76.9	1.64	15.86	161.0	2.54	19.12	
36	1.0%	18"	2.8	0.48	5.72	5.0	0.65	6.78	
37	2.35%	42"	80.0	1.77	16.07	164.5	3.16	17.99	
38	1.0%	18"	3.6	0.56	6.31	8.1	0.87	7.59	
39	1.0%	18"	0.7	0.37	5.01	3.4	0.63	6.07	
40	3.0%	42"	82.1	1.69	17.76	171.3	2.82	20.61	
41	3.0%	42"	82.1	1.69	17.76	171.3	2.82	20.61	
42	1.0%	18"	1.9	0.39	5.14	4.1	0.59	6.31	
43	3.0%	42"	84.0	1.71	17.94	175.4	2.89	20.60	
44	1.0%	18"	1.6	0.36	4.99	3.0	0.50	5.77	
45	3.0%	42"	87.0	1.74	18.10	182.0	3.03	20.54	
46	1.0%	48"	120.0	2.02	19.23	296.9	3.63	21.40	
47	1.0%	18"	120	0.31	4.54	4.4	0.61	6.50	
48	4.2%	48"	123.3	1.95	22.27	297.2	3.2	23.95	
49	2.0%	42"	27.3	0.98	12.25	140.1	2.55	18.60	
50	2.6%	42"	29.1	1.02	12.36	147.1	2.66	18.71	
51	2.6%	42"	31.0	1.05	12.75	152.6	2.76	18.73	



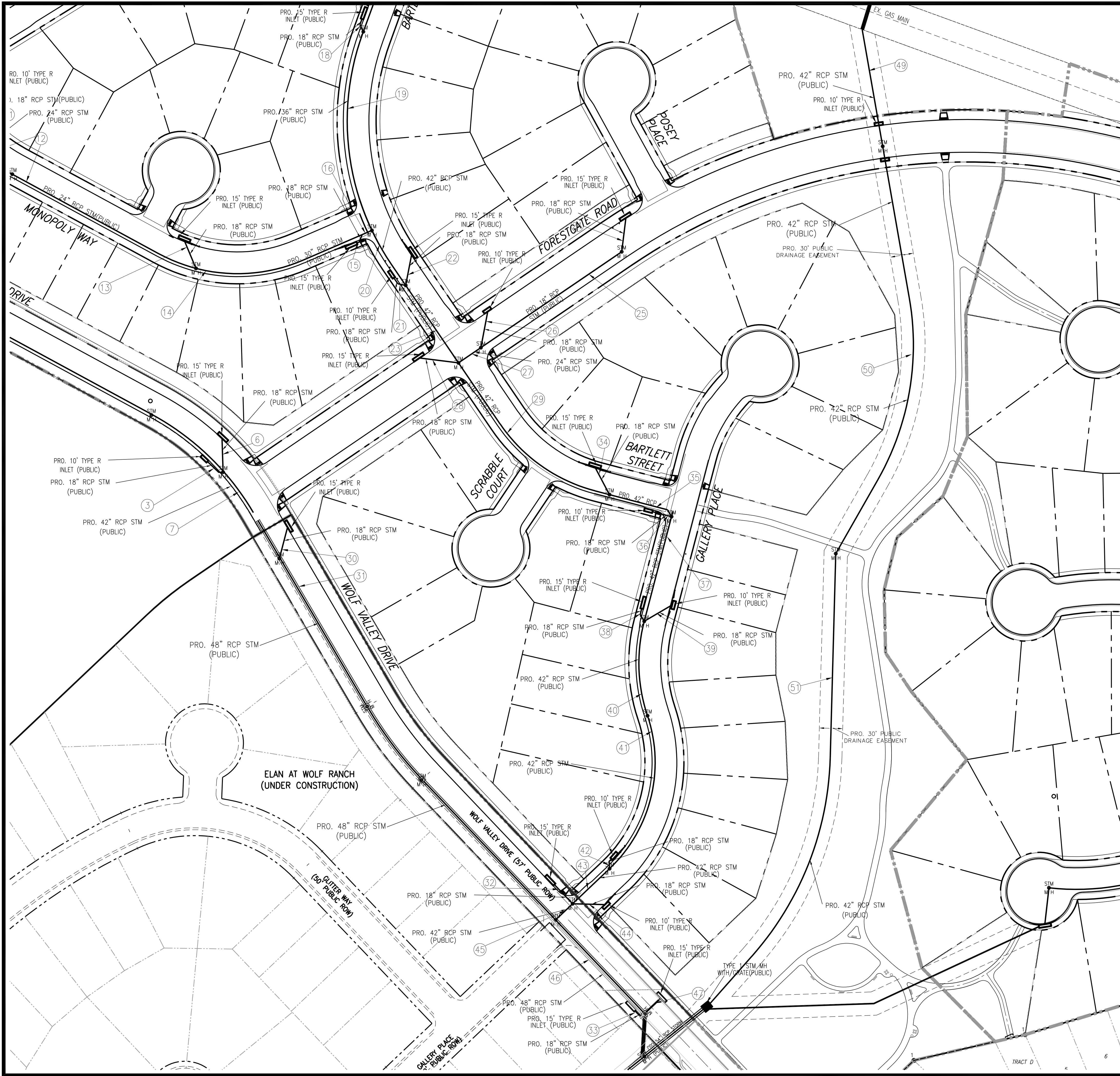
FILE: 20017\20017BAS3.DWG 2/1/21

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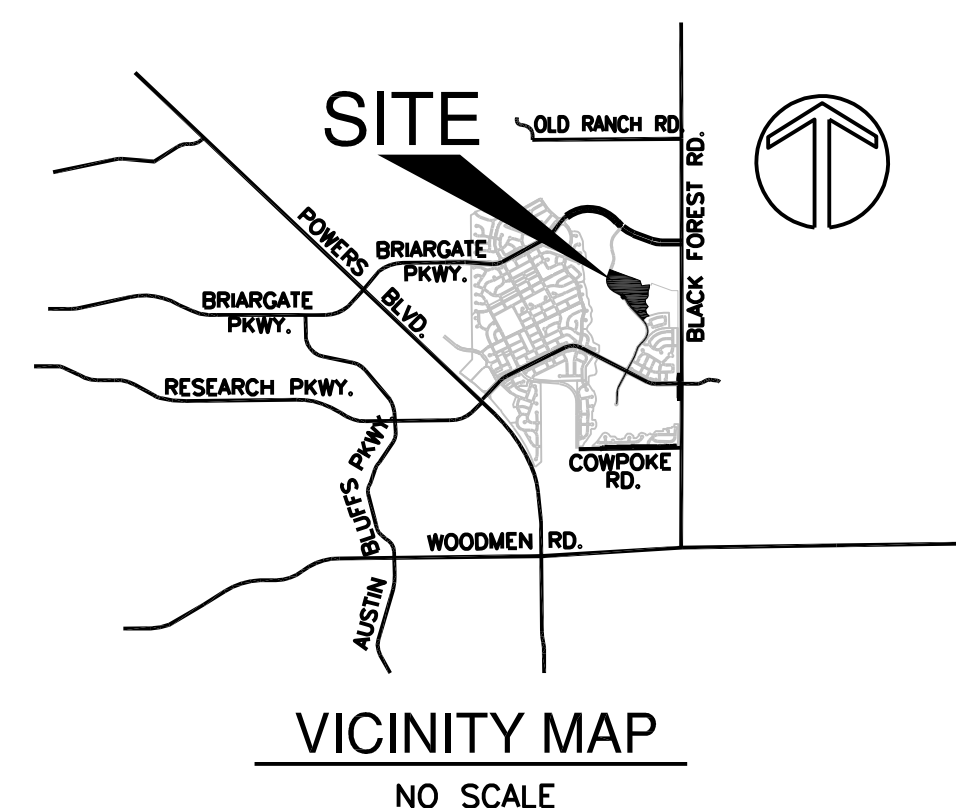
REVEL AT WOLF RANCH PHASE II A (REVEL FILINGS 8 & 9)
PRELIMINARY STORM PIPES SIZES

SCALE : 1"=60'	DRAWN BY : KDR	20-017 JOB NO.
DATE : 2/1/21	CHECKED BY : KDR	



LEGEND

- EXISTING CONTOURS
- DEVELOPED BASIN BOUNDARIES
- DEVELOPED BASIN DESIGNATOR
- DESIGN POINT
- PROPOSED 2' CONTOURS
- PROPOSED 10' CONTOURS
- DIRECTION OF FLOW
- FILING BOUNDARIES
- STORM SEWER PIPE NUMBER



Revel at Wolf Ranch Filing No. 8 and 9 Feb. 1, 2021											
Manning's Equation											
n=0.013											
Pipe No.	Slope	PIPE SIZE (Inches)	Q5	5 YEAR STORM		Q100	100 YEAR STORM		Q100	100 YEAR STORM	
				FLOW DEPTH (Ft)	VELOCITY (Fps)		FLOW DEPTH (Ft)	VELOCITY (Fps)		FLOW DEPTH (Ft)	VELOCITY (Fps)
1	2.0%	36"	36.7	1.28	12.38	72.8	1.38	14.83			
2	1.5%	18"	4.6	0.62	6.64	8.1	0.87	7.59			
3	1.5%	18"	1.5	0.35	4.77	4.3	0.60	6.51			
4	1.5%	18"	5.6	0.69	7.01	9.4	0.85	7.94			
5	2.0%	36"	39.4	1.35	12.69	81.3	2.15	14.99			
6	1.5%	18"	3.8	0.56	6.31	8.9	0.82	7.63			
7	2.0%	42"	47.7	1.50	12.72	87.1	1.98	15.48			
8	1.5%	18"	2.2	0.42	5.37	4.5	0.62	6.49			
9	1.5%	18"	4.5	0.62	6.49	8.9	0.82	7.63			
10	1.5%	24"	6.7	0.67	7.25	14.3	1.02	8.83			
11	1.5%	18"	3.2	0.51	5.98	5.8	0.71	7.02			
12	1.5%	24"	9.4	0.81	7.87	19.5	1.24	9.51			
13	1.5%	18"	4.1	0.69	6.31	9.0	0.83	7.81			
14	1.5%	30"	13.5	0.88	8.67	28.9	1.35	10.49			
15	1.5%	18"	4.9	0.65	6.65	9.6	0.97	7.93			
16	1.5%	30"	16.3	0.99	9.10	33.3	1.49	10.90			
17	2.8%	36"	49.5	1.41	15.29	103.8	2.32	17.93			
18	1.5%	18"	6.8	0.78	7.29	11.9	1.14	8.29			
19	2.8%	36"	52.5	1.45	15.46	110.7	2.44	17.96			
20	1.8%	42"	64.1	1.76	13.17	134.5	3.10	14.91			
21	1.5%	18"	1.9	0.39	5.14	6.3	0.74	7.23			
22	1.5%	18"	6.3	0.74	7.23	10.8	1.06	8.07			
23	2.0%	42"	67.2	1.69	14.54	140.7	2.83	16.85			
24	2.0%	18"	6.6	0.70	6.15	11.6	1.00	9.24			
25	2.0%	18"	6.6	0.70	6.15	11.6	1.00	9.24			
26	1.5%	18"	1.1	0.30	4.34	4.6	0.62	6.64			
27	2.0%	24"	7.7	0.67	6.33	16.5	1.02	10.19			
28	1.5%	18"	2.1	0.41	5.31	6.0	0.66	7.62			
29	2.3%	42"	75.6	1.74	15.73	158.4	3.01	17.99			
30	1.5%	18"	4.1	0.59	6.31	9.2	0.87	7.69			
31	1.6%	48"	44.6	1.35	11.95	92.9	2.02	14.52			
32	1.5%	18"	4.5	0.62	6.49	10.9	1.06	8.15			
33	1.5%	18"	2.5	0.45	5.60	6.2	0.74	7.11			
34	1.5%	18"	3.4	0.53	6.07	6.6	0.77	7.20			
35	2.35%	42"	76.9	1.64	15.85	161.0	2.54	19.12			
36	1.5%	18"	2.8	0.48	5.72	5.0	0.65	6.78			
37	2.35%	42"	80.0	1.77	16.07	164.5	3.16	17.99			
38	1.5%	18"	3.8	0.56	6.31	8.1	0.87	7.59			
39	1.5%	18"	1.7	0.37	5.01	3.4	0.53	6.07			
40	3.0%	42"	82.1	1.69	17.76	171.3	2.82	20.61			
41	3.0%	42"	82.1	1.69	17.76	171.3	2.82	20.61			
42	1.5%	18"	1.9	0.39	5.14	4.1	0.59	6.31			
43	3.0%	42"	84.0	1.71	17.94	175.4	2.89	20.60			
44	1.5%	18"	1.6	0.36	4.89	3.0	0.50	5.77			
45	3.0%	42"	87.0	1.74	18.10	182.0	3.03	20.54			
46	1.8%	48"	123.0	2.02	19.23	259.9	3.86	21.45			
47	1.5%	18"	0.31	0.14	4.54	1.4	0.61	6.50			
48	4.2%	48"	123.3	1.95	22.27	257.2	3.2	23.95			
49	2.5%	42"	27.3	0.98	12.25	140.1	2.55	18.80			
50	2.5%	42"	29.1	1.02	12.36	147.1	2.66	18.71			
51	2.5%	42"	31.0	1.05	12.75	152.6	2.76	18.73			

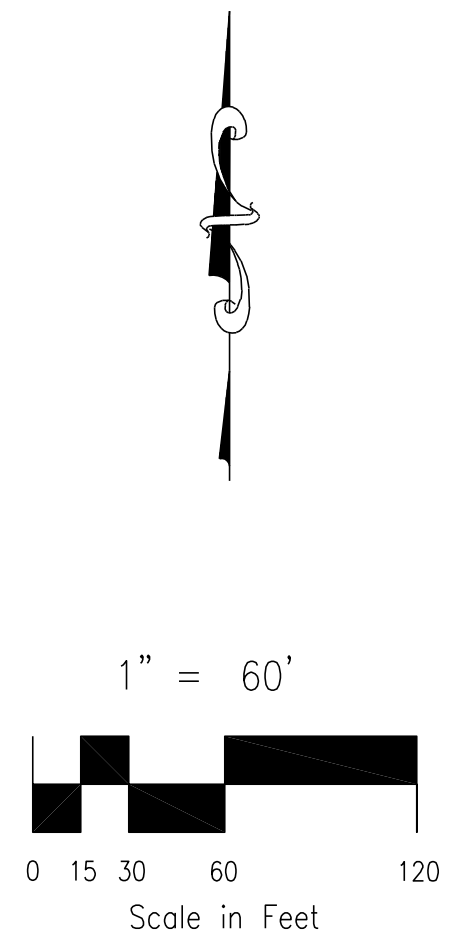


EXHIBIT 3 - SHEET 2 OF 2

FILE: 20017\20017BAS3.DWG 2/1/21

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REVEL AT WOLF RANCH PHASE II A (REVEL FILINGS 8 & 9)
PRELIMINARY STORM PIPES SIZES

SCALE: 1"=60' DRAWN BY: KDR
DATE: 2/1/21 CHECKED BY: KDR

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