



City of Eastvale  
**APPROVED**

By: [Signature]  
Date: 6/5/2018

*CITY ENGINEER,  
CONTRACTED BY INTERWEST*

## Technical Memorandum

To: Jason Ardery  
From: Eric Hays, Senior Engineer – Stormwater Engineering, Albert A. Webb Associates  
Date: June 24, 2017  
Re: Preliminary Offsite Hydrology and Hydraulic Study for the Polopolus Project

### Introduction

Webb Associates has prepared a preliminary offsite Hydrology and Hydraulic study for the Polopolus Project. The proposed project is located in the City of Eastvale, County of Riverside, on the west side of Hamner Avenue at the intersection of Hamner Avenue and A Street. The existing storm drain in Hamner Avenue, Line H, was originally designed to convey tributary flows southerly to Eastvale MDP storm drain Line E-3, located at the intersection of Citrus and Hamner Avenues. However, the Polopolis site was not included as one of the tributary areas in the original study. Therefore, this study was conducted to determine the flows generated from the site and whether the existing storm drain in Hamner (Line H) has capacity to handle those flows.

### Hydrology Analysis

The Riverside County Rational Method, described in the Riverside County Hydrology Manual, was utilized to determine 100-year storm flows generated from tributary areas surrounding existing storm drains, Line H and Line E-3. The analysis concluded that approximately 146 acres of commercial and residential areas are generating a maximum 100-year flow of 234 cfs. The proposed Polopolus site produces a total of 70 cfs from 27 acres of area. Some tributary areas have been re-assigned to different storm drain systems from what was originally designed. Therefore Line E-3 is conveying less flow, while Line H flows have increased. See Appendix A for rational study results and Appendix B for hydrology map.

### Hydraulic Analysis

Hydraulic calculations were performed utilizing the Riverside County Flood Control and Water Conservation District methodology in conjunction with WSPGW version 10.0 software program to obtain water surface elevations along Line H and the downstream segment of Line E-3. The information for the WSPG models is located in Appendix C of this technical memorandum. This study modeled hydraulics parameters from Tract 30816 storm drain plans and Eastvale MDP Line E-3 storm drain plans. See Appendix D for Line H and Line E-3 storm drain plans.

An initial downstream water surface elevation of 586.5 was used in the original line E-3 plans. This corresponds to the peak flow elevation of the Santa Ana River at the downstream connection point. However, this elevation is overly conservative because it assumes that the peak flow from the local

storm drain coincides with the peak flow in the River, which is not a realistic assumption. Recent Hamner Avenue street improvement plans have changed the design of Line E-3 downstream of the connection point with Line H. Line E-3 outlets to a detention/infiltration basin facility located parallel to Hamner Avenue. The basins are part of Silverlakes Equestrian and Sports Park project. Based on the geometry of the basins, initial water surface elevation modeled for Line E-3 was assumed to be 582.6 (soffit +1). This elevation is considered to be one foot below basin top before over spilling the top of the basin.

As stated above, with the change in tributary areas for both storm drain systems, Line E-3 is conveying less flow and line H is conveying more flow. Both models were assessed to determine if the water surface elevations with the new flow rates were higher than the rim elevations at the existing manholes or the flowline elevations at the existing catch basins and inlets.

## **Conclusion**

Based upon the results of the analysis prepared for this technical memorandum, it is concluded that the existing storm drain facilities have sufficient capacity to convey the calculated flow rates. Line E-3 experienced reduced flows which has no adverse effect on the system. Line H experiences increased flows due to changes in tributary areas and the addition of flows from proposed site; however, the models confirm there is no adverse effect on this system. The hydrologic and hydraulic calculations provided in this study suggest that existing storm drain facilities are capable of accepting runoff from proposed Polopolus project. Therefore, assuming the review agencies agree that the downstream control water surface elevation used in this study is acceptable; no onsite detention for the 100-year storm event is required for the Polopolus site.

## **Appendices**

- APPENDIX A – Hydrology Analysis
- APPENDIX B – Hydrology Map
- APPENDIX C – Hydraulic Analysis
- APPENDIX D – Reference