Appendix 1

Air Resources Board Letter
to Chuck Bonham, November 3, 2016

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

November 3, 2016

Chuck Bonham, Director
California Department of Fish and Wildlife
1416 9th Street, 12th Floor
Sacramento, California 95814

Dear Mr. Bonham:

As you requested, California Air Resources Board (ARB) staff reviewed the technical basis for the net zero greenhouse gas (GHG) determination in the Additional Environmental Analysis prepared for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan.

ARB staff consulted with Department of Fish and Wildlife staff and technical experts at Ascent Environmental, the principal consultant assisting the Department. In doing so, ARB staff reviewed the technical documentation provided for the evaluation of the project's total estimated GHG emissions and the reductions in emissions to be achieved through the mitigation measures. Based on staff's review, ARB finds the documentation provides an adequate technical basis to determine that the project would not result in any net additional GHG emissions after the mitigation measures are fully implemented.

If you have any questions regarding staff's analysis, please contact Mr. Kurt Karperos by email at kurt.karperos@arb.ca.gov or by phone at (916) 322-2739.

Sincerely,

Richard W. Corey
Executive Officer

cc: Kurt Karperos
Deputy Executive Officer

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: http://www.arb.ca.gov.

Appendix 2

Errata to Mitigation Monitoring and Reporting Plan, June 2017

I. INTRODUCTION

This Errata to the Mitigation Monitoring and Reporting Plan (MMRP) for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP Project), previously adopted by the California Department of Fish and Wildlife (CDFW) in December 2010, identifies those changes to the previously adopted MMRP that are necessary to respond to the California Supreme Court's decision in *Center for Biological Diversity v. Cal. Dept. of Fish and Wildlife* (2015) 62 Cal.4th 204.

The MMRP (as revised by this Errata) is required by CDFW as lead agency under CEQA (Pub. Resources Code, Sections 21000 et seq.) for the Project as analyzed in the previously certified 2010 Final EIR (State Clearinghouse No. 2000011025) and this Additional Environmental Analysis (AEA). Specifically, this Errata has been adopted to ensure that the avoidance or mitigation of significant effects as described in the Project's AEA are enforceable. As to global climate change, Mitigation Measures 2-1 through 2-13 contained herein replace and supersede (in full) Mitigation Measures GCC-1 through GCC-7 in the previously adopted MMRP (December 2010). Additionally, the Project Applicant's commitment to the installation of additional electric vehicle charging stations is reflected in this Errata. This Errata also reflects the elimination of BIO-44 and BIO-46 and the addition of new Project Design Features (PDF-3-1 through PDF-3-12) and mitigation measures (3-1a through 3-3f), in light of the Supreme Court's *CBD* decision and Section 2.2 of this document. The new PDFs and mitigation measures ensure that there is no "take" of unarmored threespine stickleback.

As to the greenhouse gas (GHG) emissions-reducing measures, because the Project will facilitate the phased development of a planned community, and because the regulatory and technological frameworks for GHG emissions are rapidly evolving and are expected to continue to do so for decades to come, minor modifications to the mitigation measures presented in this Errata are permitted, but can be made by the applicant or its designee only with the approval of CDFW and the County of Los Angeles Department of Regional Planning (DRP) staff. Following consultation with any other appropriate agencies or departments, CDFW and County DRP staff may determine the adequacy of any minor modifications by evaluating whether the proposal of the applicant or its designee results in equivalent or more beneficial environmental effects, as compared to the original mitigation measures. The minor modifications cannot result in the creation of new or substantially more severe environmental effects; instead, at a minimum, the modifications must achieve equivalent environmental benefits. CDFW and County DRP must render their determination based on the evidentiary record before them, including supporting materials and analyses prepared at the request of the applicant or its designee. The minor modifications procedure, described above, is generally applicable to the Project Design Features and mitigation measures set forth in this Errata and the MMRP adopted by CDFW in 2010.

As required by Public Resource Code section 21081.6(a)(2), the custodian and location of the documents constituting the record of proceedings for the Project are the California Department of Fish and Wildlife, South Coast Region, located at 3883 Ruffin Road, San Diego, California 92123. All inquiries relating to the record should be directed to the South Coast Region at (858) 467-4201.

ERRATA TO MITIGATION MONITORING AND REPORTING PLAN

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
The following mitigation measures have been added or deleted, since CDFW's issuance of the original MMRP (December 2010) to address potential impacts to unarmored threespine stickleback, and to comply with the Supreme Court's *CBD* opinion.			
PDF-3-1: To avoid impacts on the unarmored threespine stickleback, as well as other sensitive fish in the Santa Clara River, no construction activities shall take place in the wetted channel of the Santa Clara River.	CDFW; LA County Dept. of Public Works	**Sub-Notification review by CDFW:** Review of bridge construction plans and pre-construction site conditions. **Field Verification:** Qualified biologists shall be present during any construction activity that takes place in the dry riverbed of the River to ensure that such construction activity does not make contact with or disturb the wetted channel of the River. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County identifying where construction activities in the Santa Clara River have occurred and demonstrating that such activities have not taken place in the wetted channel of the River.	
PDF-3-2: The construction methods for the two permanent bridges at Commerce Center Drive and Long Canyon Road shall be modified to: (i) reduce the number of bridge piers and include a span between columns supported by piles that accommodates the maximum dry season flow within the Santa Clara River; and (ii) relocate bridge piers to	CDFW; LA County Dept. of Public Works	**Bridge Plan Check.** **Sub-Notification review by CDFW:** Review of bridge construction plans and pre-construction site conditions. **Field Verification:** Prior to construction of bridge piles, the qualified biologist shall confirm the "no water contact construction	

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span the bridge deck across the entirety of the wetted portion of the Santa Clara River channel to allow for a "no water contact construction zone" within the wetted channel and avoid the need for stream diversion or dewatering during construction.		zone" to ensure that such construction activity does not make contact with or disturb the wetted channel of the River. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County identifying where construction activities in the Santa Clara River have occurred and demonstrating that such activities have not taken place in the wetted channel of the River.	
PDF-3-3: To avoid contact with the wetted channels of the Santa Clara River during construction, the span between permanent bridge piers shall increase from the 100-foot span analyzed in the 2010 Final EIR to a minimum of a 165-foot span over the wetted channel.	CDFW; LA County Dept. of Public Works	**Bridge Plan Check** **Sub-Notification review by CDFW:** Review of bridge construction plans.	
PDF-3-4: The 165-foot span over the wetted channel shall conform to Caltrans Bridge Design Standards, the County of Los Angeles Department of Public Works geotechnical review requirements, and applicable seismic stability and operational safety standards.	CDFW; LA County Dept. of Public Works	**Bridge Plan Check**	
PDF-3-5: The project shall use the full-depth casing method for constructing CIDH shafts for the permanent bridges.	CDFW; LA County Dept. of Regional Planning	**Sub-Notification review by CDFW:** Review of bridge construction plans. **Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure that such construction activities adhere to this Project Design Feature.	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
		Reporting: Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such bridge construction activities adhere to this Project Design Feature.	
PDF-3-6: All permanent bridge pier and structure construction from within the riverbed ~~and bank stabilization construction work~~ shall be completed during the dry season (defined as June 1 through September 30), and may require multiple construction seasons.	CDFW; LA County Dept. of Regional Planning	**Sub-Notification review by CDFW:** Review of construction schedule. **Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure that such construction activities adhere to this Project Design Feature. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such bridge construction activities adhere to this Project Design Feature.	
PDF-3-7: All construction of the permanent bridge decks and subsequent deck work shall occur from the top of the superstructure and no access to the wetted channel of the Santa Clara River shall be allowed for this work to be completed.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure that such construction activities adhere to this Project Design Feature. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such bridge construction activities adhere to this Project Design Feature.	
PDF-3-8: With respect to the temporary haul route bridges, all steel pile supports shall be installed and removed when the column and	CDFW; LA County Dept. of	**Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure that such construction	

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pile locations are outside of the wetted portion of the Santa Clara River and when there is a clear weather window as predicted by NOAA weather data. A clear weather forecast is defined for this project as a 40 percent or less chance of a 0.1 inch or greater precipitation event within the next 48 hours. Modular bridge decks, and all travel surface materials above the deck, shall be removed from the river prior to November 30 and shall not be installed until after May 1 of each year they are in use, consistent with NOAA weather data.	Regional Planning	activities adhere to this Project Design Feature. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such bridge construction activities adhere to this Project Design Feature.	
PDF-3-9: Bank stabilization construction at the San Jose Flats area of Mission Village is restricted to June 1 through September 30, because this area is closer to the Santa Clara River wetted channel and to preclude the construction work zone from being inundated by seasonal flood flows. Bank stabilization in locations susceptible to winter flood flows shall be conducted from May 1 through November 30, when winter flood flows typically do not occur on the Santa Clara River. Other bank stabilization areas not at-risk of winter flood flows may be constructed year-round.	CDFW; LA County Dept. of Regional Planning	**Sub-Notification review by CDFW:** Review of construction schedule. **Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure that such construction activities adhere to this Project Design Feature. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such bridge construction activities adhere to this Project Design Feature.	
PDF-3-10: During the concrete pour of the permanent bridge piles, displaced groundwater shall be contained within portable tanks located in the work zone for disposal at a legal disposal site in an upland area. No continuous dewatering or drawdown within the shaft shall occur. Casing water, if any,	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure that such construction activities adhere to this Project Design Feature.	

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shall be extracted and disposed at a legal disposal site in an upland location. No other construction dewatering associated with installation of the bridges, including temporary haul route bridges, shall occur within the project site.		**Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such bridge construction activities adhere to this Project Design Feature.	
PDF-3-11: All construction dewatering of seepage water, associated with bank stabilization shall be conducted in a manner that does not create a risk of fish stranding, either through draw down (zone of influence) or by flow discharge creating temporary habitat suitable for unarmored threespine stickleback.	CDFW; LA County Dept. of Regional Planning	**Sub-Notification review by CDFW:** Review of Construction Groundwater Dewatering Plan. **Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure that such construction activities adhere to this Project Design Feature. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such bridge construction activities adhere to this Project Design Feature.	
PDF-3-12: All long-term maintenance of project facilities on the Santa Clara River shall adhere to timing and work zone restrictions, specifically: (1) maintenance activities shall not take place in the wetted channel of the Santa Clara River; (2) maintenance, repair or replacement of bridge structures requiring access to the riverbed shall be restricted to the period from June 1 to September 30; (3) any dewatering necessary during any maintenance activities shall not create a risk of fish stranding, either through draw	CDFW; LA County Dept. of Public Works	**Field Verification:** Qualified biologist(s) shall be present during bridge maintenance activities to ensure that such maintenance activities adhere to this Project Design Feature. **Reporting:** Applicant/LA County Dept. of Public Works shall prepare and submit maintenance activity reports to CDFW confirming that such bridge maintenance activities adhere to this Project Design Feature.	

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	down (zone of influence) or by flow discharge creating temporary habitat suitable for unarmored threespine stickleback, nor shall it involve direct removal of surface water from, or discharge to, the wetted channel of the Santa Clara River.			
3-1:	The project applicant, or its designated general contractor, shall implement the following measures to avoid contact with the wetted channel, which would avoid affecting unarmored threespine stickleback.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bridge and bank stabilization construction activities to ensure that the PDFs and regulatory measures have been implemented as incorporated into the project's bridge and bank stabilization designs. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that the bridge and bank stabilization PDFs have been implemented per the proposed designs.	
3-1a:	The project applicant, or its designated general contractor, shall implement the PDFs and regulatory measures as incorporated into the project's bridge and bank stabilization designs.			
3-1b:	The mandated Worker Environmental Awareness Program (Mitigation Measure BIO-52 from the 2010 Final EIR) shall include a discussion regarding restriction of access to the wetted channel of the Santa Clara River and repercussions if encroachment occurs.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bridge and bank stabilization construction activities to ensure that all workers receive instruction regarding restricted access to the wetted channel of the Santa Clara River and the repercussions if encroachment occurs.	

Mitigation Measure		Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
			Reporting: Applicant shall prepare and submit reports to the County demonstrating that all workers involved in bridge construction and/or bank stabilization installation have received instruction and warnings as required by this mitigation measure.	
3-1c:	Prior to the commencement of construction activities, a qualified biologist shall survey the proposed work locations to confirm that the construction zone is outside the wetted channel of the river and that no work takes place where fish may be affected.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present at bridge and bank stabilization construction zones to ensure that such zones are outside the wetted channel of the River and that no work takes place where fish may be affected. **Reporting:** Applicant shall prepare and submit reports to CDFW and the County demonstrating that all conditions of this mitigation measure have been met satisfactorily.	
3-1d:	During permanent bridge construction, a qualified biologist shall monitor all activities that are a threat to adjacent natural habitats or nearby species and prevent equipment, personnel, or debris from entering or making contact with the wetted channel of the river.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present at bridge construction zones to ensure no equipment, personnel or debris enter or makes contact with the wetted channel of the River. **Reporting:** Applicant shall prepare and submit reports to CDFW and the County demonstrating that all conditions of this mitigation measure have been met satisfactorily.	
3-1e:	A clear weather window, defined for this project as a ~~less than~~ 40 percent chance or	CDFW; LA County	**Field Verification:** Qualified biologist(s) shall obtain and consult daily weather	

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	less of 0.10 inches or greater of precipitation in the next 48 hours as forecasted by NOAA, shall be required for the scheduling of any bridge or bank stabilization-related concrete pours. If a bridge or bank stabilization-related concrete pour is in progress, and an un-forecasted rain event occurs, bridge or bank stabilization-related concrete pours shall be suspended.	Dept. of Regional Planning	forecasts and verify a 72-hour clear weather window for all construction activities. During a defined storm event, the qualified biologist shall confirm that no bridge or bank stabilization-related concrete pours are being installed. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County demonstrating that no bridge pier installation took place during defined storm events.	
3-1f:	During all storm events (including summer rains), a monitor shall inspect work sites to make sure that site is secure and that flooding does not cause tarps to break or diversion drains to become plugged, potentially allowing construction materials and debris to flow into the river.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** During all storm events, a monitor shall inspect work sites to ensure flooding does not cause tarps to break or diversion drains to become plugged, potentially allowing construction materials and debris to flow into the River. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that such site inspections took place during storm events and that no construction material or debris entered the River.	
3-1g:	Precautionary spill containment devices shall be deployed and maintained during any pouring of concrete related to the bridge structure where released materials or storm water runoff that may have come in contact with uncured concrete could be released to the wetted channel of the Santa Clara River. Containment may be integrated into	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during any construction activity that takes place in the dry riverbed of the River to ensure that spill containment devices have been deployed and that no uncured concrete or other	

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	the K-rail barrier along the perimeter of the Work Zone or may be underslung or integrated into the bridge structure itself (such as storm drain system for the roadway that is directed to a water quality treatment facility within the development areas north or south of the bridge crossing).		materials are discharged or released into the wetted channel of the River. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County demonstrating that spill containment devices have been deployed and that no uncured concrete or other materials have been discharged or released to the wetted channel of the River.	
3-1h:	A K-rail construction barrier shall be deployed between the bridge construction work zone and the wetted channel of the Santa Clara River. A discussion of access restrictions shall be included in the required Worker Environmental Awareness Program training (Mitigation Measure BIO-52 from the 2010 Final EIR).	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bridge construction activity to ensure that K-rail construction barrier is deployed as required by this mitigation measure. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County demonstrating that K-rail barriers have been deployed as required by this mitigation measure.	
3-1i:	Spill containment shall be deployed and maintained during CIDH pile construction, bridge column construction, cast-in-place girder construction, bridge deck pours, and any other pouring of concrete related to the bridge structure where released materials or storm water runoff that may have come in contact with uncured concrete could be released to the wetted channel of the Santa Clara River. Containment shall be integrated into the K-rail barrier along the	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure spill containment as required in this mitigation measure. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that during bridge construction activities the spill containment requirements set forth in this mitigation measure have been fulfilled.	

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	perimeter of the work zone or underslung tarp or integrated into the bridge structure itself (such as storm drain system for the roadway that is directed to a water quality treatment facility within the development areas north or south of the bridge crossing).			
3-1j:	To prevent construction debris from falling into the Santa Clara River during installation of bridge decks, the deck areas shall be fitted with an under-slung debris tarp, debris platform, or equivalent protection, extending at least 50 feet beyond the width of the wetted channel. The project applicant or its designee shall perform periodic maintenance and inspection to confirm that the debris catchment system is performing correctly.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bridge construction activities to ensure construction debris prevention has been implemented as required by this mitigation measure. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that during bridge construction activities the construction debris prevention requirements of this mitigation measure have been fulfilled.	
3-1k:	To ascertain that water quality is not being affected by bridge and bank stabilization-related concrete pouring activities, the project applicant or its designee shall monitor the water quality at points, upstream, downstream, and immediately adjacent to the ~~bridge~~ construction work zone daily during concrete pouring operations and report the results monthly, or	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified water quality technician(s) shall be present during bridge construction activities to ensure water quality monitoring as required by this mitigation measure. In addition, if the monitoring data show that pH levels have changed more than 0.5 units from the naturally occurring variation or have fallen outside the range of 6.5 to 8.5,[1] the applicant shall immediately cease	

[1] These thresholds are derived from the Los Angeles Regional Water Quality Control Board's Basin Plan.

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	as directed, to CDFW. Key parameters to be monitored include pH and turbidity.		concrete-related construction work on the proposed bridge and within 24 hours inform CDFW and the County. Concrete-related construction work shall not resume until conditions return to the ranges indicated above or until CDFW determines such work may recommence without adversely affecting fish or other biological resources. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that during bridge construction activities the water quality monitoring requirements of this mitigation measure have been fulfilled.	
3-1l:	All bridge maintenance and repair activities, as described in the RMDP Maintenance Manual, that have the potential to affect the wetted channel of the Santa Clara River shall adhere to the dry season window, as defined for this project, as June 1 through September 30, and shall completely avoid the Santa Clara River wetted channel when performing maintenance activities. All measures implemented during original bridge construction shall also be implemented to avoid accidental contact, spills, or falling debris into the wetted channel. In the future, if the wetted portion of the Santa Clara River shifts in location (for example, in response to a flood event	CDFW; LA County Dept. of Public Works	**Field Verification:** Qualified biologist(s) shall be present during bridge maintenance and repair activities to ensure that (i) such activities take place only during the dry season window as defined in this mitigation measure, and (ii) all required measures to prevent accidental contact, spills or falling debris into the wetted channel have been implemented. **Reporting:** Applicant/LA County Dept. of Public Works shall prepare and submit maintenance activity reports to CDFW confirming bridge maintenance and repair	

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	that alters the ~~geomorphology of the channel~~ wetted channel alignment), all maintenance and repair activities shall also be required occur outside of the wetted channel.		activities comply with the conditions of the mitigation measure.	
3-2:	The project applicant, or its designated general contractor, shall implement the following measures to avoid unarmored threespine stickleback.	See above.	See respective entries above for enumerated mitigation measures.	
3-2a:	Implement Mitigation Measure 3-1a, 3-1b, ~~3-1e,~~ and 3-1f.			
3-2b:	Prior to the commencement of construction activities, a qualified biologist shall survey the proposed work locations to confirm that the construction zone is outside the wetted channel of the river, that the proposed vibratory pile installation locations are at least 10 feet away from the wetted channel, and that no work takes place where unarmored threespine stickleback may be affected.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during temporary bridge construction to ensure that proposed work locations are outside the wetted channel of the River, that the proposed vibratory pile installation locations are at least 10 feet from the wetted channel, and that no work takes where unarmored threespine stickleback may be affected. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that temporary bridge construction activities comply with the conditions of the mitigation measure.	
3-2c:	Vibratory piles for the temporary haul route bridges shall be installed no closer than 10 feet to the wetted channel of the Santa Clara River, as determined by survey at the	CDFW; LA County Dept. of	**Field Verification:** Qualified biologist(s) shall be present during temporary bridge construction to ensure that the proposed vibratory piles are installed and removed	

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	time piles are to be installed, and shall only be removed by vibratory methods if the wetted channel is at least 10 feet away.	Regional Planning	only during times when the wetted channel is at least 10 feet away. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that temporary bridge construction activities comply with the conditions of the mitigation measure.	
3-2d:	No construction activities or personnel shall occur near the edge of the wetted channel that would have potential to destabilize low flow channel bank. A set-back from the edge of the top of bank for a horizontal distance that is twice the bank height (2 horizontal: 1 vertical) shall be maintained to prevent collapsing the bank of the low flow channel.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during temporary bridge construction activities to ensure that such activities do not destabilize the low flow channel bank and that the setback required by this mitigation measure is maintained. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that temporary bridge construction activities comply with the conditions of the mitigation measure.	

Mitigation Measure		Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
3-2e:	During temporary haul route bridge construction and demobilization, a qualified biologist shall monitor all activities that are a threat to adjacent natural habitats or nearby species and prevent equipment, personnel, or debris from entering or making contact with the wetted channel of the river.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during temporary bridge construction activities to ensure that no equipment, personnel or debris enter or makes contact with the wetted channel of the River. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that temporary bridge construction activities comply with the conditions of the mitigation measure.	
3-3:	The project applicant or its designated contractor shall implement the following measures:	See above.	See respective entries above for enumerated mitigation measures.	
3-3a:	Implement Mitigation Measure 3-1a, 3-1b, 3-1e, ~~and~~ 3-1f, and 3-1k.			
3-3b:	Prior to the commencement of bank stabilization construction activities, a qualified biologist shall survey the proposed work locations to confirm that the construction zone is outside the wetted channel of the river, that construction BMPs are installed prior to construction, and that no work takes place where fish may be affected.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bank stabilization construction activities to ensure that (i) the construction zones are outside the wetted channel of the River, (ii) construction BMPs have been installed prior to construction, and (iii) no work takes place where fish may be affected. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that bank stabilization construction activities	

	Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
			comply with the conditions of this mitigation measure.	
3-3c:	Bank stabilization construction at the San Jose Flats area of Mission Village is restricted to the dry season, as defined as between June 1 and September 30 to preclude the construction work zone from being inundated by seasonal flood flows.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bank stabilization construction activities at the San Jose Flats area to ensure that such activities take place only during the dry season as defined in this mitigation measure. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that bank stabilization construction activities comply with the conditions of this mitigation measure.	
3-3d:	Bank stabilization construction locations susceptible to winter flood flows shall be conducted from May 1 through November 30, when winter flood flows do not occur on the Santa Clara River. Other bank stabilization areas not at risk of flood flows shall be constructed year-round.	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bank stabilization construction activities to ensure that such activities take place only during the period set forth in this mitigation measure. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that bank stabilization construction activities comply with the conditions of this mitigation measure.	
3-3e:	Although a late-spring or early fall flood event is not expected to occur, the project applicant or its designated contractor shall implement Perimeter Best Management Practices, as required under the Environmental Protection Agency's	CDFW; LA County Dept. of Regional Planning	**Field Verification:** Qualified biologist(s) shall be present during bank stabilization construction activities to ensure that the applicant or its designee implements the Perimeter Best Management Practices as described in this mitigation measure.	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
Construction National Pollutant Discharge Elimination System permit, which would deflect minor flows (less than 12 inches deep, and less than ~~15~~ 8 fps velocities) from entering bank protection construction work zones.		**Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that the applicant or its designee implements the Perimeter Best Management Practices as described in this mitigation measure.	
3-3f: The project applicant or its designee shall develop a Construction Groundwater Dewatering Plan for those areas (i.e., bank stabilization areas) in close proximity to stream flow and submit to CDFW for approval. The plan shall include the following measures and be conducted during construction groundwater dewatering activities: ◢ Operational restriction on dewatering addressed in the 2010 Final EIR require that any dewatering be conducted in a manner that does not affect river flow, and these same restrictions shall be observed going forward. Bank stabilization dewatering shall be implemented in a manner that (1) does not create temporary wetted channel habitat suitable for stickleback; (2) does not diminish existing river flow, and therefore does not result in stranding of unarmored threespine stickleback or other fish; and (3) does not introduce pollutants to surface waters. ◢ Dewatering activities shall not involve direct removal of surface water from, or discharge to the Santa Clara River. Nor shall such	CDFW; LA County Dept. of Regional Planning	**Sub-Notification review by CDFW:** Review of Construction Groundwater Dewatering Plan. **Field Verification:** Qualified biologist(s) shall monitor the construction dewatering requirements of this mitigation measure. **Reporting:** Applicant shall prepare and submit mitigation monitoring reports to CDFW and the County confirming that the construction dewatering requirements of this mitigation measure have been fulfilled.	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
activities result in any draw-down of the river's flow such that fish may become stranded. Any groundwater discharges shall be directed to an appropriate and legal disposal site in an upland area that will not affect the surface elevation of the wetted channel of the Santa Clara River. ◢ The project applicant or its designee shall assess local stream and groundwater conditions, including flow depths, groundwater elevations, and anticipated dewatering cone of influence (radius of draw down). ◢ The project applicant or its designee shall monitor daily surface water elevations upstream, adjacent to, and downstream of the extraction points, to assess any critical flow regimes susceptible to excessive draw down before, during, and after groundwater dewatering activities. The designated monitor shall have the authority to halt dewatering activities if water levels decrease in the wetted portion of the Santa Clara River where unarmored threespine stickleback are present. In the event the designated monitor observes an effect on the wetted channel that necessitates halting of dewatering operations, the applicant will be required to consult with CDFW, revise the Construction Groundwater Dewatering Plan as appropriate, and implement whatever additional restrictions may be			

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
necessary to preclude impact to the wetted channel (such as limiting the extent of excavation dewatering, implementing other construction methods acceptable to the Los Angeles County Department of Public Works such as launch stone, or suspending construction until such time as regional groundwater conditions are more favorable for the construction to proceed). ◢ The project applicant or its designee shall monitor surface water elevations downstream of the project location to assess any flow regimes and overbank areas that may be susceptible to flooding. ◢ The project applicant or its designee shall monitor upland discharge locations for potential channel erosion from dewatering discharge, and appropriate BMPs must be implemented to prevent excessive erosion or turbidity in the discharge. ◢ Monitoring reports shall be summarized and provided to CDFW upon completion of construction activities that required dewatering.			
~~**BIO-44:** Temporary bridges, culvert crossings, or other feasible methods of providing access across the river shall be constructed outside of the winter season and not during periods when spawning is occurring. Prior to the construction of any temporary or permanent crossing of the Santa Clara~~	~~CDFW~~	~~**Plan Requirements:** A Stream Crossing and Diversion Plan that complies with requirements specified by this measure shall be prepared and submitted to USFWS and CDFG. Required follow-up procedures to be conducted prior to construction period.~~	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
~~River, the applicant shall develop a Stream Crossing and Diversion Plan. The plan shall include the following elements: the timing and methods for pre-construction aquatic species surveys; a detailed description of the diversion methods (*e.g.*, berms shall be constructed of on-site alluvium materials of low silt content, inflatable dams, sand bags, or other approved materials); special-status species relocation; fish exclusion techniques, including the use of block netting and fish relocation; methods to maintain fish passage during construction; channel habitat enhancement, including the placement of vegetation, rocks, and boulders to produce riffle habitat; fish stranding surveys; and the techniques for the removal of crossings prior to winter storm flows. The Plan shall be submitted to the USFWS and CDFG for approval at least 30 days prior to implementation.~~ ~~If adult special-status fishes are present and spawning has not occurred, they shall be relocated prior to the diversion or crossing. Block nets of 1/8-inch woven mesh will be set upstream and downstream. On days with possible high temperature or low humidity (temperatures in excess of 80° F), work will be done in the early morning hours, as soon as sufficient light is available, to avoid~~		~~**Reporting:** Submit Stream Crossing and Diversion Plan to CDFG at least 30 days prior to implementation.~~	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
~~exposing fishes to high temperatures and/or low humidity. If high temperatures are present, the fishes will be herded to downstream areas past the block net. Once the fishes have been excluded by herding, a USFWS staff member or his or her agents shall inspect the site for remaining or stranded fish. A USFWS staff member or his or her agents shall relocate the fish to suitable habitat outside the Project area (including those areas potentially subject to high turbidity). During the diversion/relocation of fishes, the USFWS or his or her agents shall be present at all times.~~			
~~**BIO-46:** During any stream diversion or culvert installation activity, a qualified biologist(s) shall be present and shall patrol the areas within, upstream, and downstream of the work area. The biologists shall inspect the diversion and inspect for stranded fish or other aquatic organisms. Under no circumstances shall the unarmored threespine stickleback be collected or relocated, unless USFWS personnel or their agents implement this measure. Any event involving stranded fish shall be recorded and reported to CDFG and USFWS within 24 hours.~~	~~CDFG~~	~~**Measure Implementation:** Specified monitoring activities to be conducted during stream diversion and culvert installation. Required follow-up procedures to be conducted throughout construction period.~~ ~~**Reporting:** Submit reports annually (by April 1) to CDFG until success criteria are met. Report to CDFG within 24 hours of finding stranded fish.~~	

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The following mitigation measures replace and supersede in full mitigation measures GCC-1 through GCC-7 located on pages 134 through 136 of the December 2010 MMRP, and are consistent with the South Coast Air Quality Management District's locational preferences for GHG mitigation by securing emissions reductions on the Project site, within the Santa Clarita Valley and County of Los Angeles, and within and outside of the State of California.			
2-1: Prior to the issuance of residential building permits for the project or a portion of the project, the project applicant or its designee shall submit one or more ~~a~~ Zero Net Energy Confirmation (ZNE) Reports (ZNE Report) prepared by a qualified building energy efficiency and design consultant to Los Angeles County for review and ~~approval~~ confirmation that the residential development covered by the ZNE Report achieves the ZNE standard specified in this mitigation measure. Specifically, a ~~The~~ ZNE Report shall demonstrate that the residential development within the RMDP/SCP project site subject to application of Title 24, Part 6, of the California Code of Regulations has been designed and shall be constructed to achieve ZNE, as defined by CEC in its 2015 Integrated Energy Policy Report, which requires the value of the net energy produced by project renewable energy resources to equal the value of the energy consumed annually by the project using the CEC's Time Dependent Valuation metric ~~or otherwise achieve an equivalent level of energy efficiency, renewable energy generation, or greenhouse gas emissions savings~~. A ZNE Report shall provide, at a minimum, the following information ~~may, but is not required to~~:	LA County Dept. of Public Works and Dept. of Regional Planning	**Measure Implementation:** Submit ZNE Report for County review and confirmation prior to issuance of residential building permits. An energy efficiency and design consultant is qualified to prepare a ZNE Report if the consultant is a Certified Energy Analyst, as established by the California Association of Building Energy Consultants, or, alternatively, has similar qualifications as confirmed by staff for the County of Los Angeles.	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
◢ Confirmation that the residential development shall comply with Title 24, Part 6 building standards that are operative at the time of building permit application. ◢ Identification of additional measures or building performance standards that shall be relied upon to achieve the ZNE standard (as defined above), assuming ZNE is not already achieved by meeting the operative Title 24, Part 6 building standards. In demonstrating that the residential development achieves the ZNE standard, the ZNE Report may: ◢ Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the residential and ~~commercial~~ non-residential buildings within a neighborhood/community, or a subset thereof, including an individual building. ◢ Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve ZNE. For example, shortfalls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings~~, or off-site renewable energy generation~~. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-			

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
based strategies even if the building on its own may not be designed to achieve ZNE. ◢ Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings. ◢ <u>If interconnection of the project's renewable generation is not sufficient to allow compliance with the ZNE standard for the project, or a portion of the project, then Los Angeles County shall allow the project applicant or its designee to achieve an equivalent level of GHG emissions reductions to mitigate such shortfall by providing 5.1 MT CO_2e of GHG reductions for every megawatt-hour of renewable energy generation that would have been needed to achieve the ZNE standard for the project, or a portion of the project, as demonstrated in the ZNE Report.</u>			
2-2: Prior to the issuance of building permits for commercial development and private recreation centers, and prior to the commencement of construction for the public facilities, respectively, <u>for the project or a portion of the project</u> the project applicant or its designee shall submit <u>one or more</u> ~~a~~ Zero Net Energy Confirmation Report<u>s</u> (ZNE Report) prepared by a qualified building energy efficiency and design consultant to Los Angeles County for review and <u>confirmation that the commercial development, private recreation centers, and/or</u>	LA County Dept. of Public Works and Dept. of Regional Planning	**Measure Implementation:** Submit ZNE Report for County review and confirmation prior to issuance of building permits for commercial development and private recreation centers, and prior to the commencement of construction for the public facilities. An energy efficiency and design consultant is qualified to prepare a ZNE Report if the consultant is a Certified	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
public facilities covered by the ZNE Report achieve the ZNE standard specified in this mitigation measure ~~approval~~. Specifically, a ~~The~~ ZNE Report shall demonstrate that the commercial development, private recreation centers, and public facilities within the RMDP/SCP project site subject to application of Title 24, Part 6, of the California Code of Regulations have been designed and shall be constructed to achieve ZNE, as defined by CEC in its 2015 Integrated Energy Policy Report, which requires the value of the net energy produced by project renewable energy resources to equal the value of the energy consumed annually by the project using the CEC's Time Dependent Valuation metric ~~or otherwise achieve an equivalent level of energy efficiency, renewable energy generation, or GHG gas emissions savings~~. ("Commercial development" includes retail, light industrial, office, hotel, and mixed-use buildings. "Public facilities" are fire stations, libraries, and elementary, middle/junior high and high schools.) A ZNE Report shall provide, at a minimum, the following information ~~may, but is not required to~~: ◢ Confirmation that the commercial development, private recreation centers, and/or public facilities shall comply with Title 24, Part 6 building standards that are		Energy Analyst, as established by the California Association of Building Energy Consultants, or, alternatively, has similar qualifications as confirmed by staff for the County of Los Angeles.	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
operative at the time of building permit application. ◢ Identification of additional measures or building performance standards that shall be relied upon to achieve the ZNE standard (as defined above), assuming ZNE is not already achieved by meeting the operative Title 24, Part 6 building standards. In demonstrating that the commercial development, private recreation centers, and/or public facilities achieves the ZNE standard, the ZNE Report may: ◢ Evaluate multiple buildings and/or land use types. For example, a ZNE Report may cover all of the residential and non-residential buildings within a neighborhood/community, or a subset thereof, including an individual building. ◢ Rely upon aggregated or community-based strategies to support its determination that the subject buildings are designed to achieve ZNE. For example, short falls in renewable energy generation for one or more buildings may be offset with excess renewable generation from one or more other buildings~~, or off-site renewable energy generation~~. As such, a ZNE Report could determine a building is designed to achieve ZNE based on aggregated or community-			

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
based strategies even if the building on its own may not be designed to achieve ZNE. ◢ Make reasonable assumptions about the estimated electricity and natural gas loads and energy efficiencies of the subject buildings. ◢ <u>If interconnection of the project's renewable generation is not sufficient to allow compliance with the ZNE standard for the project, or a portion of the project, then Los Angeles County shall allow the project applicant or its designee to achieve an equivalent level of GHG emissions reductions to mitigate such shortfall by providing 5.1 MT CO_2e of GHG reductions for every megawatt-hour of renewable energy generation that would have been needed to achieve the ZNE standard for the project, or a portion of the project, as demonstrated in the ZNE Report.</u>			
2-3: Prior to the issuance of private recreation center building permits, the project applicant or its designee shall submit swimming pool heating design plans to Los Angeles County for review and approval. The design plans shall demonstrate that all swimming pools located at private recreation centers on the RMDP/SCP project site have been designed and shall be constructed to use solar water heating or other technology with an equivalent level of energy efficiency.	LA County Dept. of Public Works	**Measure Implementation:** Submit swimming pool heating design plans for County review and approval prior to issuance of building permit for private recreation center.	

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2-4: Prior to the issuance of residential building permits, the project applicant or its designee shall submit building design plans, to Los Angeles County for review and approval, which demonstrate that each residence within the RMDP/SCP project site subject to application of Title 24, Part 6, of the California Code of Regulations shall be equipped with a minimum of one single-port electric vehicle (EV) charging station. Each charging station shall achieve a similar or better functionality as a Level 2 charging station. Additionally, prior to the issuance of the first building permit for the RMDP/SCP project site, the project applicant or its designee shall establish and fund a dedicated account for the provision of subsidies for the purchase of ZEVs, as defined by ARB. The project applicant or its designee shall provide proof of the account's establishment and funding to Los Angeles County. The dedicated account shall be incrementally funded, for each village-level project, in an amount that equals the provision of a $1,000 subsidy per residence – on a first-come, first-served basis – for 65 ~~50~~ percent of the village's total residences subject to application of Title 24, Part 6, of the California Code of Regulations.	LA County Dept. of Public Works and Dept. of Regional Planning	**Measure Implementation:** As to the charging stations, submit building design plan for review and approval prior to issuance of residential building permits. As to the subsidies, the Project applicant or its designee shall submit proof of the establishment and funding of a dedicated account for the administration of the subsidies to the County prior to the issuance of the first building permit for the RMDP/SCP Project site. The dedicated account shall be funded incrementally, prior to the issuance of residential building permits for each village-level project in an amount that equals the provision of subsidies for 65 percent of the village's total residences; e.g., for a village with 1,444 residential dwelling units, the Project applicant or its designee would have a $938,600 funding obligation [(1,444 units x 0.65) x ($1,000)], which equates to a $650 per dwelling unit funding obligation. Specifically, prior to the issuance of residential building permits, the Project applicant or its designee shall provide proof of payment in an amount that directly relates to the number of residential units being permitted at that time. The dedicated account shall be administered by the Project's	

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		Transportation Management Organization (see Mitigation Measure 2-6), which shall be responsible for marketing and promoting the availability of the purchase subsidies to each village's residences, and tracking the uptake (i.e., utilization) of the subsidies. In the event that the account is not depleted after occupancy of the final residential dwelling unit, the Project applicant or its designee, which may include the Transportation Management Organization or its equivalent management entity, shall coordinate with the Los Angeles County Planning Director and secure the Planning Director's approval of one or more strategies that secure an equivalent level of GHG emissions reductions. For purposes of calculating the greenhouse gas emissions reductions required to demonstrate equivalency, each un-used subsidy shall equal 3.89 MT CO_2e reductions per year. The Project applicant or its designee shall be permitted to utilize any unused subsidy funding for purposes of achieving this equivalency requirement.	
2-5: Prior to the issuance of commercial building permits, the project applicant or its designee shall submit building design plans, to Los Angeles County, which demonstrate that the parking areas for commercial buildings on the RMDP/SCP project site shall be equipped with	LA County Dept. of Public Works and Dept. of	**Measure Implementation:** Submit building design plan for County review and approval prior to issuance of commercial building permits.	

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EV charging stations that provide charging opportunities to 7.5 percent of the total number of required parking spaces. ("Commercial buildings" include retail, light industrial, office, hotel, and mixed-use buildings.) The EV charging stations shall achieve a similar or better functionality as a Level 2 charging station. In the event that the installed charging stations use ~~more superior~~ functionality/technology <u>other</u> than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by EV charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour. For purposes of this equivalency demonstration, Level 2 charging stations shall be assumed to provide charging capabilities of 25 range miles per hour.	Regional Planning		
2-6: The project applicant-submitted Newhall Ranch Transportation Demand Management Plan (TDM Plan), located in ~~Technical Report~~ <u>Final AEA Appendix 7</u> ~~contained in AEA Appendix 1~~, shall be implemented to reduce VMT resulting from project build out with oversight from Los Angeles County. The TDM Plan is designed to influence the transportation choices of residents, students, employees, and visitors, and serves to enhance the use of alternative	LA County Dept. of Public Works and Dept. of Regional Planning	**Measure Implementation:** A copy of the Newhall Ranch TDM Plan is contained within Final AEA Appendices 7 and 8. Implementation of the TDM Plan shall proceed in accordance with the provisions outlined in the plan, and shall be required by the County's condition of approval that itself requires implementation of this MMRP. Additionally, monitoring and	

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transportation modes both on and off the project site through the provision of incentives and subsidies, expanded transit opportunities, bikeshare and carshare programs, technology-based programs, and other innovative means. Village-level implementation ~~Implementation~~ of relevant elements of the TDM Plan ~~will be included as a condition of approval~~ shall proceed in accordance with village-level applicability supplements prepared by a qualified transportation engineer that are reviewed and considered by Los Angeles County when approving tentative subdivision maps for land developments that are part of the project. Accordingly, the TDM Plan identifies key implementation actions that are critical to the effectiveness of the VMT-reducing strategies, as well as timeline and phasing requirements, monitoring standards, and performance metrics and targets tailored to each of the strategies. In accordance with the TDM Plan, a non-profit Transportation Management Organization (TMO) or equivalent management entity shall be established to provide the services required, as applicable.		implementation of the Newhall Ranch TDM Plan shall proceed in accordance with village-level applicability supplements to the TDM Plan, which shall be prepared and presented to the County in conjunction with the development of village-level CEQA documentation. The Newhall Ranch TDM Plan includes the provision of subsidies for the purchase of neighborhood electric vehicles (NEVs) and electric bikes (E-Bikes). The Newhall Ranch Transportation Management Organization or equivalent management entity shall be responsible for marketing and promoting the availability of the NEV and E-Bike purchase subsidies to each village's residences, and tracking the uptake (i.e., utilization) of the subsidies. In the event that the NEV and E-Bike subsidies are not fully utilized after occupancy of the final residential dwelling unit, the Project applicant or its designee, which may include the Transportation Management Organization or its equivalent entity, shall coordinate with the Los Angeles County Planning Director and secure the Planning Director's approval of one or more strategies that secure an equivalent level of GHG emission reductions. For purposes of calculating the greenhouse gas emissions reductions required to demonstrate equivalency, each	

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		un-used NEV purchase subsidy shall equal 2.7 MT CO_2e reductions per year and each un-used E-Bike purchase subsidy shall equal 0.9 MT CO_2e reductions per year. The Project applicant or its designee shall be permitted to utilize any unused subsidy funding for purposes of achieving this equivalency requirement.	
2-7: Prior to the issuance of traffic signal permits, the project applicant or its designee shall work with Los Angeles County and the California Department of Transportation (Caltrans), as applicable, to facilitate traffic signal coordination along: ◢ State Route 126 from the Los Angeles County line to the Interstate 5 north-bound ramps; ◢ Chiquito Canyon Road, Long Canyon Road, and Valencia Boulevard within the RMDP/SCP project site; ◢ Magic Mountain Parkway from Long Canyon Road to the Interstate 5 north-bound ramps; and ◢ Commerce Center Drive from Franklin Parkway to Magic Mountain Parkway. To effectuate the signal synchronization and specifically the operational and timing adjustments needed at affected traffic signals, the project applicant or its designee shall submit	LA County Dept. of Public Works/Cal. Dept. of Trans.	**Measure Implementation:** The Project applicant or its designee shall submit traffic signal plan(s) for County or Caltrans review and approval, as applicable, and/or pay applicable fees as needed for signal operations and timing adjustments to affected traffic signals prior to traffic signal permit issuance.	

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traffic signal plans for review and approval, and/or pay needed fees as determined by Los Angeles County or Caltrans, as applicable. A majority of the signals that will be synchronized will be new signals constructed/installed by the project. Thus, for these signals, the project will provide the necessary equipment at the signal controller cabinet, as well as within the new roadways themselves, to enable and facilitate synchronization. The project is responsible for paying 100 percent of the applicable fee amount for the signal synchronization work, with assurance that the necessary funding will be available to fully implement this measure.			
2-8: Consistent with the parameters of the Newhall Ranch TDM Plan, the project applicant or its designee shall provide Los Angeles County with proof that funding has been provided for the purchase, operation and maintenance of ~~electric~~ zero emission school buses in furtherance of the school bus program identified in the project's TDM Plan. The proof of funding shall be demonstrated incrementally as the school bus program is paced to village-level occupancy and student enrollment levels.	LA County Dept. of Regional Planning	**Measure Implementation:** See Mitigation Measure 2-6, above. Provide the County with proof of payment per the standards established in the TDM Plan for the administration of the school bus program; the funding shall be made available incrementally as the school bus program is paced to village-level occupancy and student enrollment levels.	
2-9: Prior to the issuance of the first 2,000th residential building permit within the RMDP/SCP project site and every 2,000th residential building permit thereafter, the project	LA County Dept. of Regional Planning	**Measure Implementation:** Prior to the issuance of the first 2,000th residential building permit within the RMDP/SCP project site and every 2,000th residential	

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applicant or its designee shall provide Los Angeles County with proof that it has provided a subsidy of $100,000 per bus for the replacement of up to 10 diesel or compressed natural gas transit buses with ~~electric~~ zero emission buses to the identified transit provider(s).		building permit thereafter, provide the County with proof of establishment of an escrow account in the amount of $100,000, representing a subsidy for one zero emission transit bus for the benefit of the identified transit provider(s). The escrow instructions shall document that the subsidies only can be used by the transit provider(s) exclusively for the purpose specified herein (i.e., the purchase of zero emission transit buses). The Project applicant or its designee, which may include the Transportation Management Organization or its equivalent management entity, shall monitor the transit provider(s)'s utilization of the subsidies. In the event that one or more subsidies are not utilized for the purchase of any zero emission transit bus after occupancy of the final residential dwelling unit within the RMDP/SCP project area, the Project applicant or its designee, which may include the Transportation Management Organization or its equivalent management entity, shall coordinate with the Los Angeles County Planning Director and secure the Planning Director's approval of one or more strategies that secure an equivalent level of GHG emissions reductions. For purposes of calculating the greenhouse gas emissions reductions required to demonstrate	

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		equivalency, each un-used zero emission transit bus subsidy shall equal 61.9 MT CO_2e reductions per year. The Project applicant or its designee shall be permitted to utilize any unused subsidy funding for purposes of achieving this equivalency requirement.	
2-10: Prior to issuing grading permits for village-level development within the RMDP/SCP project site, Los Angeles County shall confirm that the project applicant or its designee shall fully mitigate the ~~related~~ construction and vegetation change GHG emissions <u>associated with each such grading permit</u> (the "Incremental Construction GHG Emissions") by relying upon one of the following compliance options, or a combination thereof, in accordance with the project applicant-submitted Newhall Ranch GHG Reduction Plan (GHG Reduction Plan; see ~~Technical Report~~ <u>Final AEA</u> Appendix <u>6</u> ~~F contained in AEA Appendix 1~~): ◢ Directly undertake or fund activities that reduce or sequester GHG emissions <u>("Direct Reduction Activities")</u> and retire the associated <u>"</u>GHG <u>Mitigation</u> ~~reduction~~ <u>Credits</u> ~~credits~~<u>"</u> in a quantity equal to the Incremental Construction GHG Emissions<u>. A "GHG Mitigation Credit" shall mean an instrument issued by an Approved Registry that satisfies the performance standards set forth in the GHG Reduction Plan and shall represent the estimated reduction or sequestration of one metric tonne of carbon</u>	LA County Dept. of Regional Planning	**Measure Implementation:** A copy of the Newhall Ranch GHG Reduction Plan is located within Final AEA Appendix 6. Prior to obtaining grading permits for development within the Project site, the incremental GHG emissions associated with such construction and vegetation change-related activities shall be offset. Compliance with this measure shall be demonstrated as provided for in Section VIII of the GHG Reduction Plan. In the event that multiple village-level projects have shared improvements, as defined to include any type of utility, roadway and/or infrastructure improvement identified for the implementation of each project, the construction-related emissions for the shared improvements only shall be offset once and shall be the responsibility of the village-level project that occurs first in time from a grading permit issuance perspective.	

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dioxide equivalent that will be achieved by a Direct Reduction Activity that is not otherwise required (CEQA Guidelines Section 15126.4(c)(3)). An "Approved Registry" is an accredited carbon registry as defined by the GHG Reduction Plan; or ◢ Obtain and retire "Carbon Offsets" ~~carbon credits that have been issued by a recognized and reputable carbon registry, as described in the GHG Reduction Plan,~~ in a quantity equal to the Incremental Construction GHG Emissions. "Carbon Offset" shall mean an instrument issued by an Approved Registry that satisfies the performance standards set forth in the GHG Reduction Plan and shall represent the past reduction or sequestration of one metric tonne of carbon dioxide equivalent achieved by a Direct Reduction Activity or any other GHG emission reduction project or activity that is not otherwise required (CEQA Guidelines Section 15126.4(c)(3)).			
2-11: Prior to the issuance of building permits for ~~every 100 residential units or 100,000 square feet of commercial development for each village-level project~~ development within the RMDP/SCP project site, the project applicant or its designee shall ~~provide proof of funding of~~ undertake or fund Direct Reduction Activities pursuant to the Building Retrofit Program ("Retrofit Program"), as included in Final AEA Appendix 13, to improve the energy efficiency of existing buildings located primarily in	LA County Dept. of Regional Planning	**Measure Implementation:** A copy of the Newhall Ranch Building Retrofit Program is located within Final AEA Appendix 13. Prior to the issuance of building permits for development within the RMDP/SCP project site, the Project Applicant or its designee shall provide the County with an attestation from an Approved Registry that the Project Applicant has retired a sufficient quantity of GHG Mitigation	

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disadvantaged communities (as defined in the Retrofit Program). The project applicant or its designee shall retire GHG Mitigation Credits or Carbon Offsets issued by an Approved Registry based on such Direct Reduction Activities in a quantity equal to the ~~proportional percentage~~ sum of the ~~Building Retrofit Program (Retrofit Program),~~ following (together, the "Retrofit Reduction Requirement") as included in ~~Technical Report~~ Final AEA Appendix 13 ~~G contained in Appendix 1, to Los Angeles County:~~. • For the residential portion of a building permit application, the product of the planned number of residential units for the village-level project multiplied by 0.0377 $MTCO_2e$; • For the commercial portion of a building permit application, the product of the planned commercial development per thousand commercial square feet multiplied by 0.0215 MTCO2e. ~~(~~"Commercial development" includes retail, light industrial, office, hotel and mixed-use buildings.~~)~~ Building retrofits covered by the Retrofit Program can include, but are not limited to: cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting (including, but not limited to, light bulb replacement), energy efficient appliances, energy efficient windows,		Credits or Carbon Offsets associated with Direct Reduction Activities to undertake or fund Building Retrofits in a quantity equal to the Retrofit Reduction Requirement.	

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pool covers, insulation, and water conservation measures. The Retrofit Program shall be implemented within the geographic area defined to include Los Angeles County and primarily within disadvantaged communities, as defined by the Retrofit Program, or in other areas accepted by the Los Angeles County Planning Director. ~~Funding shall be applied to implement retrofits strategies identified in the Retrofit Program or other comparable strategies accepted by the Los Angeles County Planning Director.~~			
2-12: Prior to the issuance of the first building permit for the RMDP/SCP project site, the project applicant or its designee shall provide Los Angeles County with proof of installation of EV charging stations capable of serving 20 off-site parking spaces. Thereafter, the project applicant or its designee shall provide Los Angeles County proof of installation of EV charging stations prior to the issuance of residential and commercial building permits per the following ratios: one (1) off-site parking space shall be served by an electric vehicle charging station for every 30 dwelling units, and one (1) off-site parking space shall be served by an electric vehicle charging station for every 7,000 square feet of commercial development. ("Commercial development" includes retail, light industrial, office, hotel and mixed-use buildings.) Off-site EV charging stations capable of servicing 2,036 parking spaces would be	LA County Dept. of Regional Planning	**Measure Implementation:** Provide the County with proof (e.g., illustrative photos) of installation of electric vehicle charging stations capable of servicing 20 off-site parking spaces prior to the issuance of the first building permit for the RMDP/SCP project site. Prior to issuance of the 30th residential building permit and each 30th residential building permit thereafter, provide evidence (e.g., illustrative photos) of installation of one off-site parking space being equipped with an electric vehicle charging station. Prior to the issuance of a commercial building permit for 7,000 square feet and each additional 7,000 square feet thereafter, provide evidence (e.g.,	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
required if the maximum allowable development facilitated by the RMDP/SCP project occurs; fewer EV charging stations would be required if maximum build-out under the RMDP/SCP project does not occur. The EV charging stations shall achieve a similar or better functionality as a Level 2 charging station and may service one or more parking spaces. In the event that the installed charging stations use ~~more superior~~ functionality/technology other than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by EV charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour. For purposes of this equivalency demonstration, Level 2 charging stations shall be assumed to provide charging capabilities of 25 range miles per hour. The EV charging stations shall be located within the geographic area defined to include Los Angeles County.~~,~~ ~~and~~ The EV charging stations shall be in areas that are generally accessible to the public.~~ For example, the charging stations may be located in~~ such as areas that include, but are not limited to, retail centers, employment centers and office complexes, recreational facilities, schools, and other categories of public facilities.		illustrative photos) of installation of one off-site parking space being equipped with an electric vehicle charging station.	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
2-13: In addition to Mitigation Measures 2-1 through 2-12, the project applicant or its designee shall offset GHG emissions to zero by funding or undertaking Direct Reduction Activities ~~activities that directly reduce or sequester GHG emissions~~ or, if necessary, obtaining Carbon Offsets ~~carbon credits~~ through the Newhall Ranch GHG Reduction Plan. The project applicant-submitted Newhall Ranch GHG Reduction Plan focuses on achieving GHG reductions or sequestration through the Direct Reduction Activities ~~direct investment in specific programs or projects~~ in coordination with an Approved Registry ~~accredited carbon registry~~, such as the Climate Action Reserve. If these Direct Reduction Activities ~~direct investment efforts~~ do not achieve the necessary ~~an adequate~~ amount of GHG reductions, the project applicant or its designee can obtain Carbon Offsets issued by an Approved Registry ~~carbon credits from accredited carbon registries~~. ~~The South Coast Air Quality Management District recommends that mitigation be considered in the following prioritized manner: (1) project design feature/on-site reduction measures; (2) off-site within neighborhood; (3) off-site within district; (4) off-site within state; and (5) off-site out of state.~~ Prior to issuing building permits for development within the RMDP/SCP project site, Los Angeles County shall confirm that the project applicant or its designee shall fully offset the project's remaining (i.e., post implementation of	LA County Dept. of Regional Planning	**Measure Implementation:** A copy of the Newhall Ranch GHG Reduction Plan is located within Final AEA Appendix 6. Prior to obtaining building permits for an incremental level of development within the RMDP/SCP project site, the incremental operational GHG emissions over the 30-year Project life associated with such building permits that must be offset (the "Incremental Operational GHG Emissions") will be equal to the sum of: (1) the number of proposed residential units covered by the applicable building permit multiplied by 108.89 MT CO_2e; and (2) every thousand square feet (TSF) of proposed commercial development covered by the applicable building permit multiplied by 506.86 MT CO_2e. For example, to obtain a building permit for 75 residential units and 40,000 square feet of commercial development, the Incremental Operational GHG Emissions would be: 75 units x 108.89 MT CO_2e/unit + 40 TSF x 506.86 MT CO_2e/sq. ft. = 28,441 MT CO_2e. (Note that the multiplier for residential or commercial development may vary for a village-level project, as estimated in the CEQA document for the village-level project, provided that, in all cases, the	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
Mitigation Measures 2-1 through 2-12) operational GHG emissions over the 30-year project life associated with <u>each</u> such building <u>permit</u> ~~permits~~ (<u>the</u> "Incremental Operational GHG Emissions") by relying upon one of the following compliance options, or a combination thereof, in accordance with the Newhall Ranch GHG Reduction Plan: ◢ <u>Undertake or fund Direct Reduction Activities</u> ~~Demonstrate that the project applicant has directly undertaken or funded activities that reduce or sequester GHG emissions ("Direct Reduction Activities")~~ that are estimated to result in GHG <u>Mitigation Credits</u> ~~reduction credits~~, as described in the GHG Reduction Plan, and retire such GHG <u>Mitigation Credits</u> ~~reduction credits~~ in a quantity equal to the Incremental Operational GHG <u>Emissions</u> ~~emissions~~; ◢ ~~Provide a guarantee that it shall retire carbon credits issued in connection with Direct Reduction Activities in a quantity equal to the Incremental Operational GHG emissions;~~ ◢ Undertake or fund Direct Reduction Activities and retire the associated <u>Carbon Offsets</u> ~~carbon credits~~ in a quantity equal to the Incremental Operational GHG Emissions; or ◢ If <u>necessary, as determined by the Los Angeles County Planning Director in</u>		remaining GHG emissions will be offset fully.) Compliance with this measure shall be demonstrated as provided for in Section VIII of the GHG Reduction Plan.	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
accordance with the GHG Reduction Plan, ~~it is impracticable~~ to fully offset Incremental Operational GHG Emissions ~~through the Direct Reduction Activities~~, the project applicant or its designee may purchase and retire Carbon Offsets ~~carbon credits~~ that have been issued by an Approved Registry ~~a recognized and reputable, accredited carbon registry~~ in a quantity equal to the Incremental Operational GHG Emissions. Compliance with MM 2-13 shall be demonstrated incrementally prior to obtaining building permits~~, and shall follow the preferred geographic hierarchy recommended by SCAQMD, discussed above~~. The Incremental Operational GHG Emissions ~~emissions~~ shall be equal to the sum of (1) the number of proposed residential units covered by the applicable building permit multiplied by a "GHG Residential Ratio" ~~108.89 MT CO_2e~~ and (2) every thousand square feet of proposed commercial development covered by the applicable building permit multiplied by a "GHG Commercial Ratio." ("Commercial development" includes retail, light industrial, office, hotel, and mixed-use buildings.) GHG Residential Ratio and GHG Commercial Ratio shall mean the emissions ratios in $MTCO_2e$ set forth in the applicable CEQA analysis completed by the County of Los Angeles for a specific village-level project to ensure that the			

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
related GHG emissions are reduced to zero ~~506.86 MT CO_2e~~.			
Project Applicant-Proposed Supplemental Commitment In addition to the installation of EV charging stations required by Mitigation Measures 2-5 and 2-12, and although not required for the project to achieve net zero GHG emissions, the project applicant or its designee shall provide Los Angeles County with proof of installation of EV charging stations prior to the issuance of residential and commercial building permits per the following ratios: one (1) parking space shall be served by an electric vehicle charging station for every 50 dwelling units, and one (1) parking space shall be served by an electric vehicle charging station for every 15,900 square feet of commercial development. ("Commercial development" includes retail, light industrial, office, hotel and mixed-use buildings.) EV charging stations capable of servicing 1,010 parking spaces would be required if the maximum allowable development facilitated by the RMDP/SCP project occurs; fewer EV charging stations would be required if maximum build-out under the RMDP/SCP project does not occur. The EV charging stations shall achieve a similar or better functionality as a Level 2 charging station and may service one or more parking spaces. In the event that the installed charging stations use functionality/technology	LA County Dept. of Regional Planning	**Measure Implementation:** Prior to issuance of the 50th residential building permit and each 50th residential building permit thereafter, provide evidence (e.g., illustrative photos) of installation of one on- or off-site parking space being equipped with an electric vehicle charging station. Prior to the issuance of a commercial building permit for 15,900 square feet and each additional 15,900 square feet thereafter, provide evidence (e.g., illustrative photos) of installation of one on- or off-site parking space being equipped with an electric vehicle charging station. If installed on the RMDP/SCP project site, the parking spaces equipped with an electric vehicle charging station must be in addition to the parking spaces otherwise required to have such infrastructure by Mitigation Measure 2-5. If installed off of the RMDP/SCP project site, the parking spaces equipped with an electric vehicle charging station must be in addition to the parking spaces otherwise	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
other than Level 2 charging stations, the parameters of the mitigation obligation (i.e., number of parking spaces served by EV charging stations) shall reflect the comparative equivalency of Level 2 charging stations to the installed charging stations on the basis of average charge rate per hour. For purposes of this equivalency demonstration, Level 2 charging stations shall be assumed to provide charging capabilities of 25 range miles per hour. The EV charging stations shall be located either on the project site or within the jurisdictional area of the Southern California Association of Governments. The EV charging stations shall be in areas that are generally accessible to the public, such as areas that include, but are not limited to, retail centers, employment centers and office complexes, recreational facilities, schools, and other categories of public facilities.		required to have such infrastructure by Mitigation Measure 2-12. Because the parking spaces serviced by the electric vehicle charging stations provided by this measure are in addition to those required by Mitigation Measures 2-5 and 2-12, a tracking matrix shall be maintained to ensure that this measure's benefits are additive and that the requirements of each measure are independently satisfied.	
~~**GCC-1.** All residential buildings on the Project applicant's land holdings that are facilitated by approval of the proposed Project shall be designed to provide improved insulation and ducting, low E glass, high efficiency air conditioning units, and radiant barriers in attic spaces, as needed, or equivalent to ensure that all residential buildings operate at levels fifteen percent (15%) better than the standards required by the 2008 version Title 24. Notwithstanding this measure, all residential buildings shall be designed to comply with the then-operative Title 24 standards applicable at~~	~~LA County Dept. of Regional Planning~~	~~**Measure Implementation:** Comply with specified requirements prior to issuance of building permits.~~	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
~~the time building permit applications are filed. For example, if new standards are adopted that supersede the 2008 Title 24 standards, the residential buildings shall be designed to comply with those newer standards and, if necessary, exceed those standards by an increment that is equivalent to a 15 percent exceedance of the 2008 Title 24 standards.~~			
~~**GCC-2.** All commercial and public buildings on the Proposed applicant's land holdings that are facilitated by approval of the proposed Project shall be designed to provide improved insulation and ducting, low E glass, high efficiency HVAC equipment, and energy efficient lighting design with occupancy sensors or equivalent to ensure that all commercial and public buildings operate at levels fifteen percent (15%) better than the standards required by the 2008 version of Title 24. Notwithstanding this measure, all nonesidential buildings shall be designed to comply with the then-operative Title 24 standards applicable at the time building permit applications are tiled. For example, if new standards are adopted that supersede the 2008 Title 24 standards the nonresidential buildings shall be designed to comply with those newer standards and, if necessary, exceed those standards by an increment that is equivalent to a 15 percent exceedance of the 2008 Title 24 standards.~~	~~LA County Dept. of Regional Planning~~	~~**Measure Implementation:** Comply with specified requirements prior to issuance of building permits.~~	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
~~GCC-3.~~ ~~The Project applicant or designee shall produce or cause to be produced renewable electricity, or secure greenhouse gas offsets or credits from a public agency (e.g., CARB; SCAQMD) endorsed market equivalent to the installation of one photovoltaic *(i.e.,* solar) power system no smaller than 2.0 kilowatts, when undertaking the design and construction of each single-family detached residential unit on the Project site.~~	~~LA County Dept. of Regional Planning~~	**~~Measure Implementation:~~** ~~Demonstrate compliance with specified requirements prior to issuance of building permits.~~	
~~GCC-4.~~ ~~The Project applicant or designee shall produce or cause to be produced renewable electricity, or secure greenhouse gas offsets or credits from a public agency (e.g., CARB; SCAQMD) endorsed market equivalent to the installation of one photovoltaic system no smaller than 2.0 kilowatts, on each 1,600 square feet of nonresidential roof area provided on the Project site.~~	~~LA County Dept. of Regional Planning~~	**~~Measure Implementation:~~** ~~Demonstrate compliance with specified requirements prior to issuance of building permits.~~	
~~GCC-5.~~ ~~Consistent with the Governor's Million Solar Roofs Plan, the Project applicant or designee, acting as the seller of any single-family residence constructed as part of the development of at least 50 homes that are intended or offered for sale, shall offer a solar energy system option to all customers that enter negotiations to purchase a new production home constructed on land for which an application for a tentative subdivision map has been deemed complete. The seller shall disclose the total installed cost of the solar~~	~~LA County Dept. of Regional Planning~~	**~~Measure Implementation:~~** ~~Demonstrate methods to be implemented to comply with specified requirements prior to issuance of building permits.~~	

Mitigation Measure	Monitoring Agency	Mitigation Measure Monitoring Requirements	Approval/ Acceptance Dates
~~energy system option, and the estimated cost savings.~~			
~~**GCC-6.** The Project applicant or designee shall use solar water heating for each of the pools located at the recreation centers that would by facilitated by approval of the proposed Project *(i.e.*, the pools that would be located at the forty recreation centers within the Specific Plan area, and the two recreation centers within the Entrada planning area).~~	~~LA County Dept. of Regional Planning~~	~~**Measure Implementation:** Demonstrate compliance with specified requirements prior to Issuance of building permits.~~	
~~**GCC-7.** The Project applicant or designee, in accordance with Los Angeles County requirements, will design and construct all municipal facilities *(i.e.*, fire stations) facilitated by approval of the proposed Project so as to achieve LEED silver certification.~~	~~LA County Dept. of Regional Planning~~	~~**Measure Implementation:** Demonstrate methods to be implemented to comply with specified requirements prior to issuance of building permits.~~	

Note: A "village-level project" as described in this MMRP is a project within the RMDP/SCP project site that is associated with a specific tract map; for example, the Mission Village and Landmark Village projects are each a "village-level project."

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Appendix 3

MM 2-4 VMT Conversion Memo, Ramboll Environ, May 2017

MM 2-4 VMT CONVERSION MEMO

Date **05/2017**

This memorandum provides additional background on the calculated greenhouse gas (GHG) emissions reductions for Mitigation Measure 2-4 in the Additional Environmental Analysis (AEA) for the Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP, or "Project"). The complete description of the GHG reduction calculations for Mitigation Measure 2-4 is included in Sections 4.2.4, 4.2.5 and 4.2.12 in Draft AEA Appendix 1 (GHG Emissions Technical Report), as well as Appendix H (Forecasting Electric Vehicle Purchases in the Newhall Ranch Community) therein. The additional information provided here focuses on the calculations of the percentage of residential vehicle miles travelled (VMT) converted from internal combustion engine vehicles (ICEVs) to zero emissions vehicles (ZEVs) as a result of Mitigation Measure 2-4.

The percentage of residential VMT converted from ICEV to ZEVs is based on the forecasted increase in ZEVs and the usage of each ZEV per dwelling unit. The analyses and data included in the Draft AEA illustrate why the calculations are reasonable and substantiated. **Table 1, Calculating VMT Conversion to ZEV-Driven Miles** below illustrates the data and calculation for the range of VMT conversion. The calculation is based on the number of dwelling units (i.e., households) and the total number of ZEVs that are forecasted to result from the Project's commitments, notably Mitigation Measure 2-4. Based on the Project's land uses, the VMT for the residential component of the Project, and the anticipated usage of each ZEV, **Table 1** demonstrates how it was calculated that 50% of the Project's residential VMT would be converted from ICEVs to ZEVs, and also why that calculation is conservative. This is further explained below.

The forecast model, included as Appendix H (Forecasting Electric Vehicle Purchases in The Newhall Ranch Community) of Draft AEA Appendix 1, analyzes the likely increase in ZEV purchases that will result from Mitigation Measure 2-4 in combination with the suite of mitigation measures described in the AEA designed to encourage ZEV use within the Project site. As

explained in Appendix H, research shows that a driver's decision to convert from an ICEV to a ZEV is influenced by a number of factors, including factors such as, but not limited to, cost of ownership and operation, battery ranges, and concerns about access to charging infrastructure, environmental awareness, and social perceptions. Appendix H describes how incentives, including financial purchase subsidies and charging infrastructure, are expected to accelerate the adoption of ZEVs by Project residents. Specifically, after accounting for the percentage of EVs in the 2030 vehicle fleet prior to application of the Project's mitigation commitments, the Appendix H forecast model (see Draft AEA Appendix 1) incorporates the Project's mitigation commitments to identify Project-specific adoption rates for EVs.[1] The forecast model demonstrates (i) Mitigation Measure 2-4's ZEV purchase subsidies will be used and (ii) the likely EV adoption rate will exceed even the number of subsidies available. As a result, the forecast model determines that the Project's likely EV adoption rate, with implementation of the related mitigation commitments, is an average of 1.17 EVs per household (see Table 4 in Appendix H of Draft AEA Appendix 1).[2] Further, through the synergistic benefit of the Project's suite of mitigation measures supporting EV use, EV purchase and usage will be a core component of the Project:

- Mitigation Measure 2-4 requires the Applicant to equip each residence within the Project with a minimum of one single-port EV charging station, and to establish and fund a dedicated account for the provision of subsidies for the purchase of ZEVs, as defined by ARB, in an amount that equals $1,000 per residence for 65 percent of each Project village's total residences.
- Mitigation Measure 2-5 obligates the Applicant to provide EV charging stations for 7.5 percent of the total number of required parking spaces for commercial (retail, light industrial, office, hotel and mixed-use) buildings within the Project.

[1] Appendix H conservatively does not assume that residential ZEV users will need to use the EV chargers associated with the installation of additional EV charging stations beyond that required by Mitigation Measures 2-4, 2-5 and 2-12.

[2] Appendix H also considered four alternative forecasts, which identified an average of 0.71 to 1.32 ZEVs per household (see Table 5 in Appendix H of Draft AEA Appendix 1). However, the result reported above – an average of 1.17 ZEVs per household – was determined to be the best estimate, and the one more accurately informed by available data, published literature and other information sources at the time the appendix was prepared.

- Mitigation Measure 2-12 requires the Applicant to install 20 off-site EV charging stations for parking spaces within Los Angeles County prior to the issuance of a building permit for the Project, and then to install an additional EV charging station at off-site parking spaces for every 30 dwelling units and for every 7,000 square feet of commercial development within the Project. When the Project is fully built out, Mitigation Measure 2-12 will result in the installation of 2,036 off-site EV charging stations at parking spaces in Los Angeles County.
- Mitigation Measure 2-6 mandates the implementation of the Newhall Ranch Traffic Demand Management Plan to reduce vehicle trips and encourage alternative modes of transportation.
- Mitigation Measure 2-8 requires the Project Applicant to provide funding for a zero emission school bus program.
- Mitigation Measure 2-9 requires the Project Applicant to provide funding for a zero emission transit bus program.

These measures and the other GHG mitigation measures will establish Newhall Ranch as an innovative and forward-looking community, which supports the Project's suite of mitigation measures designed to enhance EV use.

The Project's suite of mitigation commitments is expected to make the Project a "beachhead" community for EV ownership and increase the EV adoption rate. This concept of a "beachhead" community is articulated by the National Research Council, which describes a beachhead community as one where the "momentum has already been established; infrastructure is more readily available; and word-of-mouth between neighbors, friends, and co-workers can occur more readily."[3] In short, a "beachhead" community has a comprehensive foundation of EV-related technology that expedites the diffusion of the EV technology and further stimulates EV adoption. The faster and slower rates of EV adoption for various cities in California, and the relationship between adoption and charging infrastructure was studied for the year 2015, and

[3] See National Research Council, Board on Energy and Environmental Systems, Division on Engineering and Physical Sciences, and Transportation Research Board, "Overcoming Barriers to Deployment of Plug-in Electric Vehicles" (2015), pg. 42. Available at: https://www.nap.edu/download/21725#. Accessed: February 17, 2017.

documented by the International Council for Clean Transportation.[4] Based on that research, there is clear evidence that beachhead communities can achieve EV adoption rates that are much greater than regional statewide estimates.

Accordingly, the forecast model demonstrates that the vehicle purchase subsidies offered by Mitigation Measure 2-4 will be utilized by residents of the Project, which substantiates that, at a minimum, at least 50% of the households (10,621 households) will have a ZEV. The Appendix H forecast model further demonstrates that up to 14,793 ZEVs may be purchased by Project residents based on Mitigation Measure 2-4 and the suite of mitigation measures described in the AEA designed to encourage ZEV use within the Project site.

As discussed in Appendix H of the AEA, the decision to purchase an electric vehicle is based on many factors. The combined effect of the Project's ZEV-related mitigation commitments (notably, Mitigation Measures 2-4, 2-5 and 2-12) positively influence the primary factors that affect purchasing behavior.

- **Cost**: Mitigation Measure 2-4 provides a $1,000 purchase subsidy and pays for the in-home ZEV charging station to help make the cost of the ZEV more competitive relative to conventional internal combustion engine vehicles (ICEVs) (Section 2.3 of Appendix H discusses the positive correlation between incentives and ZEV conversion that is documented in the published literature cited therein);
- **Charging Access**: Mitigation Measure 2-4 provides in-home charging infrastructure, and Mitigation Measures 2-5 and 2-12 provide charging infrastructure in publicly-accessible, non-residential areas both on the Project site and within the County of Los Angeles;
- **Driving Range**: While driving range is primarily addressed through technology innovation by car manufacturers, implementation of Mitigation Measures M 2-5 and 2-12, in combination with current efforts of the State, regional agencies (such as SCAG and SCAQMD) and SCE to expand ZEV charging infrastructure also help address greater range flexibility;

[4] Searle, Stephanie, N. Pavlenko, and N. Lutsey, 2016. "Leading Edge of Electric Vehicle Market Development in the United States: An Analysis of California Cities." International Council for Clean Transportation, White Paper, September. Available at: http://www.theicct.org/sites/default/files/publications/ICCT_EV_Calif_Cities_201609.pdf. Accessed: February 17, 2017.

- **Social Factors**: Mitigation Measures 2-4, 2-5, and 2-12 create a large-scale presence for ZEVs, contributing to a community where owning a ZEV will be the "norm" rather than the exception. Indeed, the overall focus and branding of the Project is intended to enhance the environmental consciousness of the community. Geographies that will have such early adoption of ZEVs may be described as "beachhead" communities.[5]

The Project's extensive mitigation commitments and the continued engagement of state and local entities (e.g., the County of Los Angeles, SCAQMD and SCAG), as well as the continued technology advancements being realized by auto manufacturers, all suggest that EV adoption rates will continue to rise. Thus, the Appendix H forecast evaluation is considered a reasonable representation for the EV adoption rate.

The two scenarios presented in **Table 1** represent a plausible outcome and a more optimistic outcome regarding the ZEV conversion rate, consistent with the forecast model results in Appendix H of Draft AEA Appendix 1. Row 1 identifies the Project's total number of households is 21,242.

- In Scenario 1, the number of households with a ZEV (Row 2) is 10,621 (50% of the households), using the subsidy commitment identified in the Draft AEA, coupled with an additional 1,879 ZEVs that will be purchased beyond the available subsidies due to the "neighborhood effects" discussed in Appendix H of Draft AEA Appendix 1.
- In Scenario 2, the number of households with a ZEV (Row 2) is based on the Rapid Technology Diffusion scenario discussed in Appendix H of Draft AEA Appendix 1, which represents a more optimistic scenario on the rate of technology diffusion. As discussed in Draft AEA Appendix 1, the state's efforts to further incentivize the adoption of EVs and the rapid improvement of EV technology makes this scenario within the accepted range of possibility for California's future when considered in combination with the Project's commitments.

[5] National Research Council, Board on Energy and Environmental Systems, Division on Engineering and Physical Sciences, and Transportation Research Board, Overcoming Barriers to Deployment of Plug-in Electric Vehicles (2015), p. 42. Available at: https://www.nap.edu/download/21725#. Accessed: February 17, 2017.

Based on Table 4-3 of Draft AEA Appendix 1, the Project's residential VMT is 380,582,786 miles per year (Row 3). This represents the residential VMT after achievement of the VMT reductions attributable to the Newhall Ranch Transportation Demand Management Plan (TDM Plan), the implementation of which is required by Mitigation Measure 2-6. This sequenced accounting of VMT reductions ensures that the Mitigation Measure 2-4 calculations do not double count the benefits of Mitigation Measure 2-6.

The VMT associated with the households that are forecasted to adopt or convert to a ZEV is calculated as follows:

- The percentage of households with ZEVs due to the Project's mitigation commitments (Row 4) was calculated for both scenarios: 58.8% (12,500 homes/21,242 homes) and 69.6% (14,793 homes/21,242 homes) for Scenarios 1 and 2, respectively.
- The total residential VMT for households with ZEVs (Row 5) was calculated by multiplying the total residential VMT by the households (Row 3) with the ZEVs percentage (Row 4).

The calculation of the VMT converted from ICEV to ZEVs is also based on studies that describe how ZEVs are used in households with more than one vehicle. Studies have shown that ZEVs are preferentially used within a household that has more than one car. As discussed in Section 4.2.4 of the Draft AEA Appendix 1, the California Center for Sustainable Energy has found that households with ZEVs preferentially use the ZEVs for work, shopping and personal errands for 89%, 95%, and 87% of the time, respectively.[6] This is consistent with survey data that showed that 90 percent of ZEV owners said that the ZEV "Completely" or "To a High Degree" replaced the ICEV, with 66 percent of the survey respondents living in multi-vehicle households.[7] This is also consistent with preliminary data from Ford, which suggests that with time – six months – the frequency of ZEV use increases, and the ICEV use decreases.[8] As also discussed in Section 4.2.4 of Draft AEA Appendix 1, ZEV technology is reasonably expected to continue to improve

[6] California Center for Sustainable Energy, California Plug-in Electric Vehicle Owner Survey (2012), p. 4. Available at: https://energycenter.org/sites/default/files/docs/nav/policy/research-and-reports/California%20Plug-in%20Electric%20Vehicle%20Owner%20Survey%20Report-July%202012.pdf. Accessed: February 17, 2017.

[7] Haugneland, Petter and Hans Havard Kvisle, "Norwegian Electric Car User Experiences" (November 2013), paper presented at the World Electric Vehicle Symposium and Exhibition series (EVS27), Barcelona, Spain.

[8] Castrucci Alexandria, Mike, "Good Habits Pay Dividends for Electric Car Drivers" (October 7, 2013). Available at: http://www.mikecastruccialexandria.com/blog/electric-car-driving-habits/. Accessed: February 17, 2017.

with time, which likely will serve to enhance further the preferential use of such vehicles. (See also Section 2.1.2 of Appendix H in Draft AEA Appendix 1.) The residential VMT per household that was converted from ICEV to ZEV (Row 7) was calculated by multiplying the total residential VMT for households with ZEVs (Row 5) by an 85% ZEV utilization rate (Row 6).[9] The residential VMT from Project households with ZEVs (Row 7) was then divided by the total residential VMT (row 3) to yield percentages of residential VMT conversions from ICEV to ZEV for both scenarios (Row 8).

[9] As discussed in Section 4.2.4 of Draft AEA Appendix 1, the California Center for Sustainable Energy has found that households with ZEVs preferentially use the ZEV for work, shopping and personal errands for 89%, 95%, and 87% of the time, respectively. This is consistent with survey data that showed that 90 percent of ZEV owners said that the ZEV "Completely" or "To a High Degree" replaced the ICEV, with 66 percent of the survey respondents living in multi-vehicle households. This is also consistent with preliminary data from Ford, which also suggests that with time – six months – the frequency of ZEV use increases, and the ICEV use decreases. As discussed in Section 4.2.4 of Draft AEA Appendix 1, ZEV technology is reasonably expected to continue to improve with time, which likely will serve to enhance further the preferential use of such vehicles. (See also Section 2.1.2 of Appendix H of Draft AEA Appendix 1.)

Table 1: Calculating VMT Conversion to ZEV-Driven Miles				
		Potential ZEV Adoption Scenarios Evaluated in Ramboll Environ Technical Report (% of Households with ZEV due to MM)		
Row	Variable	Scenario 1	Scenario 2	Units
1	# of total households	21,242	21,242	homes
2	# of total households with ZEVs due to MM	12,500	14,793	homes
3	Total residential VMT (after TDM Plan reduction)	380,582,786	380,582,786	miles/year
4	% of household with ZEVs due to MMs	58.8%	69.6%	
5	Residential VMT for households with ZEVs	223,956,540	265,039,128	miles/year
6	% of VMT driven by ZEV per household	**85%**	**85%**	
7	Residential VMT from households with ZEVs	190,363,059	225,283,259	miles/year
8	% conversion of residential VMT to ZEV-driven	**50.0%**	**59.2%**	

Although Draft AEA Appendix 1, including Appendix H therein, supports the analysis presented in the Draft AEA, Mitigation Measure 2-4 conservatively has been revised to increase the number of available ZEV purchase subsidies from 50% (10,621) to 65% (13,807) of the Project's households.

Table 2, Calculating VMT Conversion with the Increased ZEV Purchase Subsidies shows the residential VMT conversion from ICEV to ZEV with the increased number of available ZEV purchase subsidies. The two scenarios presented in **Table 2** represent plausible outcomes consistent with the forecast model results in Appendix H of Draft AEA Appendix 1. Row 1 identifies the Project's total number of households is 21,242. In both scenarios, the number of

households with a ZEV (Row 2) is based on 13,807 homes (65% of the households, per the expanded ZEV purchase subsidy commitment). Based on Table 4-3 of Draft AEA Appendix 1, the Project's residential VMT is 380,582,786 miles per year (Row 3). Row 4 reflects the increased subsidy commitment and conservatively represents no further ZEVs being purchased (see Note 1 in **Table 2** below); it is equal to the total number of households with an ZEV (Row 2) divided by the total number of households (Row 1). The total residential VMT for households with ZEVs (Row 5) was calculated by multiplying the total residential VMT (Row 3) by the percent of households with ZEVs (Row 4).

The two scenarios illustrated in **Table 2** reflect the potential difference in VMT converted from ICEV to ZEV, depending on the ZEV utilization rate (Row 6) for the increased subsidy commitment. The ZEV utilization rates was assumed to be 85% for Scenario A consistent with the discussion above, and conservatively assumed to be 77% for Scenario B to demonstrate how a 50% VMT conversion would still be achieved. With the increased subsidy commitment, the Scenario A calculation presented in **Table 2** shows that the percent of residential VMT converted to ZEV could be as high as 55.3%.

Table 2: Calculating VMT Conversion with the Increased ZEV Purchase Subsidies

Row	Variable	Potential ZEV Adoption Scenarios (% of Households with ZEVs due to MM)		Units
		Scenario A	Scenario B	
1	# of total households	21,242	21,242	homes
2	# of total households with ZEVs due to MM[1]	13,807	13,807	homes
3	Total residential VMT (after TDM Reduction)	380,582,786	380,582,786	miles/year
4	% of households with ZEVs due to MMs	65.0%	65.0%	
5	Residential VMT for households with ZEVs	247,378,811	247,378,811	miles/year
6	% of VMT driven by ZEV per household	**85%**	**77%**	
7	Residential VMT from households with ZEVs	210,271,989	190,481,684	miles/year
8	% conversion of residential VMT to ZEV-driven	**55.3%**	**50.1%**	

Note 1: Based on increased commitment to provide ZEV purchase subsidies to 65% of the Project's residences. Additional ZEVs likely will be purchased due to the "neighborhood effect," as discussed in Appendix H of Draft AEA Appendix 1.

Appendix 4

EV Charger
GHG Emissions Reduction Memo,
Ramboll Environ, May 2017

EV CHARGER GHG EMISSIONS REDUCTION MEMO

Date **05/2017**

This memorandum provides additional background on the calculated reductions in greenhouse gas (GHG) emissions resulting from implementation of Mitigation Measures 2-5 and 2-12. Other relevant information regarding the GHG reduction calculations for Mitigation Measures 2-5 and 2-12 is included in Sections 4.2.5 and 4.2.12 in Appendix 1 (GHG Emissions Technical Report) of the Draft Additional Environmental Analysis (AEA).

To begin, the GHG reduction attributable to the installation of electric vehicle (EV) charging stations is based on the amount of electricity that an EV charging station can provide. **Table 1** below illustrates the data and calculation for the GHG reduction from the installation of EV charging stations similar to Table 4-4 in Draft AEA Appendix 1. Scenario A represents the same calculation included in Table 4-4, and Scenario B is a parallel calculation that highlights why the Draft AEA calculation represented by Scenario A is conservative. The conservativeness of the Draft AEA is attributable to the Scenario A input assumption that each EV has an energy consumption rate of 0.25 kWh/mile. As shown in **Table 1**'s Scenario B calculation, by 2030, it is estimated that the energy consumption rate will be reduced to 0.20 kWh/mile.[1] The calculations are described in more detail below to illustrate the comparison of these two scenarios.
The calculation steps of **Table 1** are described herein.

Row 1 is Southern California Edison's (SCE) electricity emission factor converted from pounds per MWh into metric tons per MWh for this calculation. The calculation of that factor is illustrated in Table 2-12 of Draft AEA Appendix 1, and is based on the assumption that the State achieves the 2030 Renewable Portfolio Standard target of 50 percent established by Senate Bill 350. The conversion is explained as: 374.54 lbs CO_2e/MWh ÷ 2,204.62 lbs/MT = 0.17 MT CO_2e/MWh.

[1] M.J. Bradley & Associates LLC. "Consumer Acceptance of Advanced Electric Vehicles" (2012). Available at: https://www.epa.gov/sites/production/files/2014-09/documents/balon.pdf. Accessed: February 2017.

In Scenario A, the EV's fuel economy (**Row 2**) is based on data from the U.S. Department of Energy's Alternative Fuels Data Center for some of the efficient EVs available today, which equates to an energy consumption rate of 0.25 kWh/mile.[2] In Scenario B, the EV's energy consumption rate (**Row 2**) is based on work of the U.S. Environmental Protection Agency's Mobile Sources Technical Review Subcommittee (MSTRS),[3] which anticipates that the energy consumption rate could be as low 0.20 kWh/mile. This represents a more fuel-efficient vehicle, because it consumes less electricity per mile of driving. The CO_2e emissions rate for a gasoline or diesel car (**Row 3**) is the same for both scenarios and is used to calculate the amount of CO_2e emissions that would be generated if EVs were not used.

For Scenario A, the annual vehicle miles travelled (VMT) reduction per parking space (**Row 4**) is calculated based on an estimate of ten hours of charge time for a Level 2 charging station that provides a charge rate of 25 range miles per hour.[4] The annual VMT reduction per parking space for Scenario A is 91,250 miles/charger/year (**Row 4**; 10 hours/day x 25 miles driving range/hour x 365 days/year). For Scenario B, the VMT reduction per parking space is calculated at a rate of 31.25 miles of driving range per hour (25 range miles per hour x (0.25 kwh/miles ÷ 0.20 kWh/mile)). Thus, the annual VMT reduction per parking space for Scenario B is 114,063 miles/charger/year (**Row 4;** 10 hours/day x 31.25 miles driving range/hour x 365 days/year). Based on the requirement of Mitigation Measure 2-5 to provide EV charging to 7.5 percent of required commercial parking spaces, the calculation assumes 2,000 on-site parking spaces will have access to an EV charging station (**Row 5**) assuming complete buildout of the entire Project. Under Scenario A, the annual VMT reduction from all on-site charging stations required by Mitigation Measure 2-5 is 182,500,000 miles per year (**Row 6**); this is calculated by multiplying the annual VMT reduction per parking space (**Row 4**) with the number of on-site commercial

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[2] U.S. Department of Energy, 2013. Benefits and Considerations of Electricity as a Vehicle Fuel. Available at: http://www.afdc.energy.gov/fuels/electricity_benefits.html. Accessed: September 2016.

[3] M.J. Bradley & Associates LLC. "Consumer Acceptance of Advanced Electric Vehicles" (2012). Mobile Sources Technical Review Subcommittee Meeting, December 13, 2012. Available at: https://www.epa.gov/sites/production/files/2014-09/documents/balon.pdf. Accessed: February 2017.

[4] ChargePoint. "Defining RPH: Miles of Range Per Hour an EV Charging Station Delivers." Available at: https://www.chargepoint.com/about/news/defining-rph-miles-range-hour-ev-charging-station-delivers/. Accessed: April 2017.

parking spaces (**Row 5**) (Scenario A: 91,250 miles/charger/year x 2,000 charger). Scenario B results in 228,125,000 miles per year (114,063 miles/charger/year x 2,000 chargers).
The GHG reduction is calculated assuming that the electrically-charged vehicle is replacing the travel that would have otherwise been completed using an internal combustion engine vehicle (ICEV). The emissions of the ICEV for the miles being replaced by an EV (**Row 7**) are calculated by multiplying the emissions factor from California Air Resources Board's (CARB) EMFAC2014 (**Row 3**)[5] by the annual VMT reduction from all charging stations (**Row 6**). GHG emissions from the ICEV are 46,875 and 58,594 MT CO_2e/year for Scenario A and Scenario B, respectively (**Row 7**).

Similarly, the GHG emissions from EVs (**Row 8**) are calculated by multiplying the SCE electricity emission factor (**Row 1**), energy consumption rate (**Row 2**), and total annual VMT reduction for the EV charging stations. The GHG emissions from EVs are 7,766 MT CO_2e/year for both scenarios (**Row 8**), because the same amount of electricity is being used for charging for both scenarios and thus the related emissions from charging the EV does not change.
The GHG reductions (**Row 8**) are then divided by the number of parking spaces provided with charging stations (**Row 5**) to yield GHG emissions reduction per parking space with chargers (**Row 9**).

To calculate the GHG reduction due to implementation of Mitigation Measure 2-12, 2,036 off-site parking spaces are assumed to have access to a charging station (**Row 10**), based on a ratio of one parking space serviced by an EV charging station per 30 residential dwelling units and one parking space serviced by an EV charging station per 7,000 commercial square feet. By multiplying the number of off-site parking spaces with access to charging stations (**Row 10**) by the GHG reduction per parking space with charging (**Row 9**), the GHG reduction from off-site parking spaces with access to EV charging stations due to Mitigation Measure 2-12 is 39,813 and 51,743 MT CO_2e/year for Scenario A and Scenario B, respectively (**Row 12**).

[5] CARB, 2015. EMFAC2014, running exhaust emission rate for CO_2 and CH_4 for light duty gasoline- and diesel-powered vehicles in Los Angeles, aggregated for all models and speeds, averaged over all seasons for 2030. Emission rate includes reductions for Advanced Clean Cars (ACC) and Pavley. Available at: http://www.arb.ca.gov/emfac/. Accessed: September 2016.

As can be seen by comparing Scenario A and Scenario B, the energy consumption rate currently utilized in the calculations may be conservative by a factor of 20 percent; therefore, the same chargers installed in accordance with Mitigation Measures 2-5 and 2-12 could potentially be used for under eight hours per 24 hour period and achieve the same GHG emission reductions that are currently included in the AEA.

Table 1 illustrates how the Draft AEA's analysis is conservative relative to the emissions reduction that could have been claimed. As shown, the existing GHG calculations result in 78,922 MT of CO_2e reductions; however, with incorporation of potential energy consumption rate improvements, 102,571 MT of CO_2e reductions would be realized. Therefore, the existing calculations rely on conservative inputs that potentially underestimate the emissions reductions attributable to Mitigation Measures 2-5 and 2-12 by more than 20% ([102,571 – 78,922 = 23,649 MT of extra CO_2e reductions]; [23,649 ÷ 102,571 = 23%]).

Table 1: Comparison of Fuel Economies and Corresponding GHG Emission Reductions				
Row	Emissions Calculation Variable	Scenario A Published AEA Fuel Economy	Scenario B 2030 Potential Fuel Economy	Units
	Estimating GHG Emissions Reduction from Replacement of Gasoline Vehicles with Electric Vehicles			
1	SCE Electricity Emission Factor	0.17		MT CO_2e/MWh
2	Fuel Economy of Electric Vehicle	0.25	0.20	kWh/mile
3	Gasoline/Diesel CO_2e Emission while Running	257		gms/mile
4	Annual VMT Reduction per Parking Space	91,250	114,063	miles/charging station/year
5	Number of On-Site Commercial Parking Spaces Provided Chargers	2,000		parking spaces
6	Annual VMT Reduction All Stations (Based on Charge)	182,500,000	228,125,000	miles/year
	Estimated Benefit from Installing Electric Vehicle Charging Stations in Commercial Development Areas			
7	GHG Emissions of Gasoline/Diesel Vehicle	46,875	58,594	MT CO_2e/year
8	GHG Emissions of Electric Vehicle	7,766	7,766	MT CO_2e/year
9	GHG Reduction per Parking Space with Charging per Year	20	25	MT CO_2e/year
10	Number of Off-Site Parking Spaces Provided Chargers	2,036		parking spaces
11	GHG Emissions Reduction from On-Site Parking Spaces (MM 2-5)	39,109	50,828	MT CO_2e/year
12	GHG Emissions Reduction from Off-Site Parking Spaces (MM 2-12)	39,813	51,743	MT CO_2e/year

Notwithstanding the substantial evidence supporting the 10 hours per day (24-hour period) utilization rate included in Draft AEA Appendix 1, the Project Applicant voluntarily has proposed to install additional EV charging stations, as the continued deployment of such infrastructure is a well-recognized and validated strategy to facilitate fleet turnover. Therefore, the Project will

provide an additional 1,010 parking spaces with access to Level 2 charging equipment. This additional commitment equates to approximately 8% of the overall mitigated Project emissions (pre-application of Mitigation Measures 2-10 and 2-13) and 25% of the emission reductions from Mitigation Measure 2-5 and 2-12, as illustrated in **Table 2** below. Accordingly, the daily utilization rate could be as low as 8 hours per day (24-hour period) without resulting in any net decrease in the level of GHG emissions reduction as compared to what was analyzed in the Draft AEA.

Table 2 presents emissions calculation following the same methodology in **Table 1**. The SCE electricity emission factor (**Row 1**), EV fuel economy (**Row 2**), ICEV emission factor (**Row 3**), and annual VMT reduction per parking space with EV charging station (**Row 4**) are the same as Scenario A in **Table 1**. The number of additional parking spaces with access to EV charging stations due to the new additional commitment is 1,010 spaces (**Row 5**). The number of parking spaces with access to EV charging stations due to Mitigation Measures 2-5 and 2-12 is 4,036 spaces (**Row 11**). Following the same calculation methodology in **Table 1** (**Rows 6 – 13**), the GHG reduction will be increased by 25% due to the Mitigation Measures 2-5 and 2-12 and the new additional commitment (**Row 14**: 19,750 ÷ [39,109 + 39,813] = 25%).

Table 2: Estimation of GHG Emission Reductions from New Additional Commitment				
Row	**Estimating GHG Emissions Reduction from Replacement of Gasoline Vehicles with Electric Vehicles**			
1	SCE Electricity Emission Factor	0.17		MT CO_2e/MWh
2	Fuel Economy of Electric Vehicle	0.25		kWh/mile
3	Gasoline/Diesel CO_2e Emission while Running	257		gms/mile
4	Annual VMT Reduction per Parking Space	91,250		miles/charging station/year
5	Number of Additional Parking Spaces Provided Chargers due to the Additional Commitment	1,010		parking spaces
6	Annual VMT Reduction from Additional Stations (Based on Charge)	92,162,500		miles/year
	Estimated Benefit from Installing Electric Vehicle Charging Stations in Commercial Development Areas			
7	GHG Emissions of Gasoline/Diesel Vehicle	23,672		MT CO_2e/year
8	GHG Emissions of Electric Vehicle	3,922		MT CO_2e/year
9	GHG Emissions Reduction	19,750		MT CO_2e/year
10	GHG Reduction per Parking Space with Charging per Year	20		MT CO_2e/year
11	Number of Parking Spaces Provided Chargers Due to MM 2-5 and MM 2-12	4,036		parking spaces
12	GHG Emissions Reduction (MM 2-5 and MM 2-12)	78,922		MT CO_2e/year
13	GHG Emissions Reduction from Off-Site Parking Spaces (MM 2-12)	39,813	59,543	MT CO_2e/year
14	Increase in GHG Emissions Reduction from 1,010 Additional Parking Spaces from Additional Commitment	19,750		MT CO_2e/year
		25%		percent increase

Appendix 5

RMDP/SCP

Traffic Impact Analysis Review Memo,

Stantec, March 30, 2017

Stantec

Memo

To:	Corey Harpole FivePoint	From:	Daryl Zerfass Stantec
File:	2073010090	Date:	March 30, 2017

Reference: RMDP/SCP Traffic Impact Analysis Review

The analysis of traffic impacts presented in Section 4.8, Traffic, of the RMDP/SCP Final EIS/EIR (June 2010) is based on the *Newhall Ranch RMDP and SCP EIR/EIS Traffic Analysis* (December 2008), a traffic study I prepared while working as a traffic engineer with Austin-Foust Associates, Inc. My qualifications as a traffic engineer are outlined in the attached Resume.

I have reviewed the comments submitted on the RMDP/SCP Additional Environmental Analysis that requested the EIR traffic analysis be updated on the basis that the information presented in the analysis is outdated and, as a result, no longer accurate. In response to the comments, I reviewed the EIR traffic analysis, and, consistent with the statements contained in the Topical Response 4: Traffic Impact Analysis, I have determined that the RMDP/SCP traffic analysis does not require updating and that the travel demand forecasting models used to conduct the analysis remain valid and consistent with the EIR analysis.

The 2010 EIR's traffic analysis includes a long-term, year-2030 cumulative scenario that accounted for future increases in traffic volumes on study area roadways (2010 Final EIR, p. 4.8-7—4.8-12); and, thus, the "date" of the EIR or its traffic analysis is not germane to the future year setting that was the basis for determining project impacts. For the analysis within the County's unincorporated area, we utilized the Santa Clarita Valley Consolidated Traffic Model (SCVCTM), which is a long-range travel demand forecasting model that includes the cumulative land uses that make up the long-range Los Angeles County Santa Clarita Valley Areawide Plan and the General Plans for both the County and the City of Santa Clarita. That is, background traffic volumes included within the analysis were derived based on the cumulative increase of land uses included within this long-range plan.

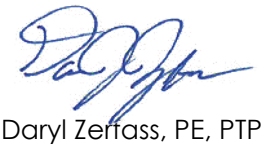
The 2010 EIR also included analysis of potential impacts associated with buildout of the Project within Ventura County, including areas of Santa Paula, the city of Ventura, Moorpark, the community of Piru, and the city of Fillmore. For this part of the analysis, I used the Ventura County Traffic Model, which is maintained by the Ventura County Transportation Commission. The Ventura County traffic modeling assumed build-out of the Ventura County General Plan, as well as the general plan for the nearby cities of Fillmore, Ventura, and Moorpark. As was the case within Los Angeles County, the background traffic volumes accounted for future traffic increases through buildout of these general plans.

In response to the comments, I also reviewed past and current traffic volumes within the study area with regard to: (i) SR-126 in Los Angeles and Ventura counties, (ii) Interstate-5, I-405, and State Route-14, (iii) the arterial roadways in the city of Santa Clarita and unincorporated county areas, and (iv) the arterial roadways in Ventura County. Based on that review, I found that since preparation of the Project's traffic analysis, the subsequent increase in traffic volumes on these highways and roadways, if any, is comparable to or below the growth accounted for in the 2010 Final EIR traffic analysis.

Reference: RMDP/SCP Traffic Impact Analysis Review

Thus, the 2010 Final EIR's traffic analysis accounts for projected future increases in traffic volumes on the study area roadways and the actual increases in volume that have occurred since that time are consistent with those forecasted volumes. Additionally, since completion of the Final EIR in 2010, I am not aware of any substantial changes requiring major revisions to the previously completed traffic analysis; and, thus, no update is required with regard to the 2010 Final EIR's traffic analysis or mitigation.

STANTEC CONSULTING SERVICES INC.



Daryl Zerfass, PE, PTP
Principal, Transportation Planning & Traffic Engineering
Phone: (949) 923-6058
Daryl.Zerfass@stantec.com

Attachment: Resume – Daryl Zerfass, PE, PTP

c. 27T

Daryl Zerfass PE, PTP

Principal, Transportation Planning & Traffic Engineering

Daryl is a California registered traffic engineer and a certified professional transportation planner with more than 25 years of experience in multiple aspects of traffic engineering and transportation planning. He has a proven record of managing large-scale traffic studies efficiently and effectively. His projects include traffic impact studies for large-scale development projects, transportation studies for Specific Plans and General Plan updates, large-area transportation studies, freeway facility and interchange studies for PSRs and PRs, corridor studies, transportation nexus fee studies, traffic model development, and land-use related circulation studies.

EDUCATION

BS, Civil Engineering, University of California, Irvine, California, 1990

REGISTRATIONS

Professional Engineer #TR1824 (Traffic), State of California

Professional Transportation Planner #454, Transportation Professional Certification Board Inc.

MEMBERSHIPS

Member, Institute of Transportation Engineers

Member, Orange County Traffic Engineers Council

Associate Member, American Society of Civil Engineers

PROJECT EXPERIENCE

Traffic Impact Studies

Planning Area 39 - Los Olivos Village II, Irvine, California (Project Manager)

Daryl managed the traffic impact study for the Los Olivos Village PA 39 VTTM 17759 project, a proposed development of 1,950 apartment homes, an elementary school, a day care facility and a community facility, in the southern half of the City of Irvine's Planning Area 39. As part of this work effort, we utilized ITAM Version 12.4 to prepare traffic forecasts for Interim Year 2017 conditions, 2035 conditions, and Post-2035 conditions, with and without the proposed development project. The traffic model forecasts provide the basis for a comprehensive traffic impact analysis developed in accordance with the City's guidelines. The traffic study was used by the City to evaluate the impacts of the proposed project and for site specific analysis data for the proposed VTTM.

Anaheim Rapid Connection (ARC), Anaheim, California (Traffic Task Manager)

As the traffic task lead, Daryl prepared the traffic analysis for the ARC streetcar project. The streetcar is proposed to provide service to a 3.2-mile-long corridor within the Anaheim Resort, Convention Center, and Platinum Triangle areas, and will connect with regional rail systems such as Metrolink, Amtrak, and future High Speed Rail at the Anaheim Regional Transportation Intermodal Center (ARTIC). The project's traffic analysis provides the resource material needed for the project's EIR and NEPA documentation by addressing traffic performance changes to the local street system as a result of traffic lanes and intersections being shared with the ARC fixed rail vehicles. The traffic study includes operational analysis for the roadways and intersections along the streetcar route, an assessment of construction related impacts, and a special events analysis due to the area's unique characteristics as a resort and sporting event destination.

Mission Village EIR Traffic Impact Analysis*, Los Angeles, California (Project Manager)

As project manager, Daryl was responsible for the preparation of the traffic impact analysis that evaluated the Mission Village (VTTM 61105) project located in an incorporated portion of the Santa Clarita Valley. A project consisting of over 4,400 residential units and over 1.5 million square feet of commercial uses, the study provided the traffic and circulation material for the project's EIR. The EIR traffic study included the evaluation of multiple project phases, incorporated a master roadway infrastructure phasing plan, and included a detailed design evaluation for the on-site roadway system.

Planning Area 1 - Orchard Hills, Irvine, California (Project Manager)

Daryl managed the Orchard Hills Neighborhood 3 VTTM 16530 project, a North Irvine Transportation Mitigation (NITM) Program tract map traffic study conducted for 626 single family homes and 374 condominiums in the eastern portion of the City's Planning Area 1 (Orchard Hills). For this analysis, we utilized ITAM Version 12.4 to prepare traffic

forecasts for Interim Year 2017 conditions, with and without the proposed development project. The traffic model forecasts provide the basis for a comprehensive impact analysis developed in accordance with the requirements of the NITM Program Implementing Agreement. The traffic study was also used by the City for determining the priority of implementation for the various NITM improvements and for assessing the proposed project site access improvements.

Henry Mayo Newhall Memorial Hospital Master Plan EIR Traffic Impact Analysis*, Santa Clarita, California (Project Manager)

Daryl was project manager for the preparation of the traffic impact analysis that evaluated the Henry Mayo Newhall Memorial Hospital Master Plan project located in the City of Santa Clarita. The study proved the traffic and circulation material for the project's EIR. The Master Plan was prepared to guide future development of inpatient hospital facilities, outpatient medical office buildings, and administrative medical facilities at the hospital campus. The EIR traffic study included the evaluation of multiple project phases, development of a phased mitigation plan, modified site access, as well as special analysis of the unique trip generation characteristics of the hospital campus.

Newhall Ranch RMDP and SCP EIS/EIR Traffic Analysis*, Los Angeles County, California (Project Manager)

Daryl was project manager for the preparation of the traffic impact analysis that evaluated and compared multiple development scenarios for the Newhall Ranch Resource Management and Development Plan (RMDP) area and the Spineflower Conservation Plan (SCP) area. The traffic study served as a technical resource for the EIS/EIR prepared by the California Department of Fish and Wildlife. The RMDP and SCP project area encompasses approximately 12,000 acres and the traffic analysis evaluated seven unique alternatives. The project build alternatives included development ranging from approximately 17,000 dwelling units up to over 22,000 dwelling units, and generated daily traffic volumes ranging between 266,000 ADT to 409,000 ADT.

University Hills Area 11, Irvine, California (Project Manager)

Daryl was the project manager for the preparation of the traffic impact analysis that evaluated the development of 181 single family homes, 140 multi-family units, and neighborhood support uses such as a potential child care facility. The study was prepared for the University Campus Housing Authority, a public benefit non-profit charged with building the housing program at UC Irvine. The study effort provided the impact analysis used for the project's EIR.

Planning Area 40 East-East, Irvine, California (Project Manager)

Daryl managed the Planning Area 40 VTTM 17761 project, a North Irvine Transportation Mitigation (NITM) Program tract map traffic study conducted for 546 apartment homes, 100 affordable housing apartments, 288 condominium homes and a 4-acre public park. As part of this work effort, we utilized ITAM Version 12.4 to prepare traffic forecasts for Interim Year 2017 and Post-2035 conditions, with and without the proposed development project. The traffic model forecasts provide the basis for a comprehensive impact analysis developed in accordance with the requirements of the NITM Program Implementing Agreement. The City also used the traffic study to determine the priority of implementation for the various NITM improvements and to assess the proposed project site access improvements.

Northlake Traffic Impact Study, Castaic, California (Project Manager)

Daryl is project manager for the preparation of a traffic studies in support of this project site in the Castaic area north of the City of Santa Clarita. A Specific Plan allowing for the development of 3,600 homes was approved in 1992. In the subsequent years, the project has changed ownership multiple times and Daryl has provided assistance in due diligence efforts, alternatives analysis, and is working with the current owners with the preparation of a traffic impact analysis in support of the project's supplemental environmental impact report and first vesting tentative tract map.

Skyline Ranch Traffic Impact Study*, Santa Clarita, California (Project Manager)

Daryl was project manager for the preparation of the traffic impact analysis that evaluated the development of approximately 1,200 single family homes and an elementary school site just northeast of the City of Santa Clarita. The study effort facilitated a modification to the County's Highway Plan to replace a planned highway with an alternative alignment in a less environmentally sensitive location. The traffic study provided the impact analysis used for the project's EIR.

Daryl Zerfass PE, PTP

Principal, Transportation Planning & Traffic Engineering

Planning Area 40 Age Qualified Housing, Irvine, California (Project Manager)

Daryl managed the Planning Area 40 East-East age qualified housing project, a part of VTTM 17996. This tract map traffic study evaluated 243 condominium homes and a 1.5-acre private park. As part of this work effort, we utilized ITAM Version 12.4 to prepare traffic forecasts for Interim Year 2017 and conditions, with and without the proposed development project. The traffic model forecasts provide the basis for a comprehensive impact analysis developed in accordance with the requirements of the NITM Program Implementing Agreement. The City also used the traffic study to determine the priority of implementation for the various NITM improvements and to assess the proposed project site access improvements.

The Keystone Traffic Impact Study, Santa Clarita, California (Project Manager)

Daryl is project manager for the preparation of traffic studies in support of this development of 979 single family homes and a YMCA and school site in the City of Santa Clarita. A comprehensive traffic impact analysis was prepared for use in the project's EIR, and supplemental traffic studies and traffic design efforts have been prepared in support of the project development.

Rye Canyon Business Park Traffic Impact Study*, Santa Clarita, California (Project Manager)

Daryl was project manager for the preparation of the traffic impact analysis that evaluated the development of a four million square foot business park in the northwest portion of the City of Santa Clarita. The study provided the impact analysis used for the project's EIR.

Valencia Town Center Mall Expansion Traffic Impact Study*, Santa Clarita, California (Project Manager)

Daryl was project manager for the preparation of the traffic impact analysis that evaluated the expansion of the Valencia Town Center Mall from approximately 722 thousand square feet to over 1.2 million square feet. The study provided the impact analysis used for the project's EIR.

Via Princessa Extension Traffic Study*, Santa Clarita, California (Project Manager)

Daryl was project manager for this project effort that included the circulation system analysis and the traffic impact analysis for the proposed extension of Via Princessa in the City of Santa Clarita. The study included the development of travel demand model forecasts and an operational analysis of the planned configuration. A key link in the City's roadway network, the Via Princessa extension will provide an important east/west connection between the eastern portion of the City and Golden Valley Road. The effect of the new roadway segment on adjacent and parallel facilities was evaluated and provided the traffic and circulation material for the project's environmental document.

John Wayne Airport EIR Traffic Impact Analysis*, Orange County, California (Project Engineer)

Daryl was the lead project engineer for the preparation of the EIR traffic impact analysis that evaluated the extension and modification of the settlement agreement pertaining to operations of John Wayne Airport (JWA) in Orange County, CA. Three project scenarios, plus two project alternatives were evaluated as part of the study. Each had different implications with respect to air passenger volumes at JWA, with passenger volumes ranging from 8.4 MAP to 13.9 MAP, and the resulting vehicular traffic impacts on the surrounding circulation system were evaluated. The study included a validation of JWA's vehicular trip generation rates by collecting multi-day traffic counts at each of the airports access locations.

Castaic High School Traffic Impact Study*, Castaic, California (Project Manager)

Daryl was project manager for the preparation of the traffic impact analysis that evaluated the development of a High School in the Castaic area north of the City of Santa Clarita. The study effort included analysis of three potential sites and facilitated the selection of a preferred site location. The traffic study provided the impact analysis used for the project's environmental document.

Tesoro Del Valle Areas B & C Redesign Traffic Impact Study*, Santa Clarita, California (Project Manager)

Daryl was project manager for the preparation of traffic studies in support of the development of 714 single family homes in the area just north of the City of Santa Clarita. Daryl prepared the traffic impact analysis in support of the project's EIR, and is currently assisting the developer of the site with ongoing analysis work related to site specific items.

Gates/King Industrial Park Traffic Studies, Santa Clarita, California (Project Manager)

Daryl is the project manager for the preparation of a traffic studies in support of this 4.4 million square foot industrial and

business park development in the southwest portion of the City of Santa Clarita. Daryl prepared the original traffic impact analysis that was used for the project's EIR, and is currently assisting the City and the master developer with supplemental analysis addressing site access and the phasing of off-site improvements.

The Masters College Master Plan Traffic Studies, Santa Clarita, California (Project Manager)
Daryl is the project manager for the preparation of a traffic impact analysis for the proposed revision to the Master Plan for The Masters College. Daryl prepared the traffic study for the Master Plan in 2008, with is used to guide future development of college facilities. The traffic study also addressed supplemental issues such as the Dockweiler Drive extension. For the current analysis, various circulation system and site access alternatives are being evaluated.

Transportation Planning

University of California, Irvine Campus, Irvine, California (Project Manager)
Daryl is the project manager for an on-call contract with UC Irvine to provide Transportation Planning and Engineering Consulting services. As part of this ongoing contract, we have prepared traffic impact studies in support of multiple projects on campus, such as the East Campus Student Housing Phase 4 dormitory, which will add an additional 2,300 student beds, a community center, and a 480 space parking structure. We also prepared traffic analyses for the 1,000 space Bison parking lot, a 75,000 square foot classroom and office building, a 500 bed dormitory in Mesa Court, the 70,000 square foot University Extension (UNEX) building, the 15,000 square foot Center of Living Peace (CLP) building, and two 7-story residential towers in Middle Earth adding 500 additional student beds, a 40,000 square foot dining facility, and 26,000 square feet of community and ancillary space.

One Valley One Vision General Plan Traffic Study*, County of Los Angeles, California (Project Manager)
Daryl was project manager for the comprehensive traffic analysis used in the preparation of the One Valley One Vision (OVOV) County Area Plan and City of Santa Clarita General Plan update. The OVOV effort was undertaken by the County and the City to create a single vision and guidelines for the future growth of the Santa Clarita Valley and the preservation of natural resources. Together, these plans allow for a 93% increase in housing units and a 130% increase in jobs, substantially improving the area's jobs/housing balance. The strategy of each plan focuses growth in areas near existing job centers, transit and infrastructure. The study effort included an update to the joint County/City traffic demand model, which was used to determine modifications to the Highway Plan based on new trip patterns resulting from the more compact OVOV land use plan. The traffic study served as a resource document for the project's environmental documentation as well as the new County and City Circulation Elements. The OVOV project was awarded SCAG's 2013 Compass Blueprint Excellence Award for Visionary Planning for Sustainability.

City of Costa Mesa General Plan Traffic Study, Costa Mesa, California (Project Manager)
Daryl was responsible for the traffic analysis prepared as part of the City of Costa Mesa's 2004 and 2016 General Plan updates. These projects included close coordination between the project team to implement a coordinated land use and transportation planning effort. The traffic studies serve as a resource document for the project's environmental documentation as well as the new General Plan Circulation Element.

Westside Santa Clarita Valley Roadway Phasing Analysis – 2015 Update, Los Angeles County, California (Project Manager)
Daryl was project manager for this update to the County of Los Angeles' roadway phasing plan for the westerly unincorporated areas of the Santa Clarita Valley. The phasing analysis addresses the planned development of over 21,000 new residential homes and over 11.5 million square feet of commercial office and retail uses. Traffic forecasts for multiple horizon years were prepared using a travel demand model and a phased implementation plan was developed for the major roadway infrastructure within the planned development area. Off-site infrastructure improvements to the surrounding communities were also developed and phased based on the proposed development plan.

University of California, Irvine Medical Center, Orange, California (Project Manager)
Daryl was the project manager for an on-call contract with the UC Irvine Medical Center to provide Traffic Engineering consulting services. As the only university-based care provider in Orange County, the medical center is home to the UC Irvine School of Medicine and a top ranked hospital. We prepared traffic impact studies in support of multiple projects on campus, such the 500 space Orangewood parking lot project, the Ambulatory Care Center, a Facilities Services Building, the Administrative Office Building, and the Chiller Plant.

Daryl Zerfass PE, PTP

Principal, Transportation Planning & Traffic Engineering

City of Lake Forest Portola Parkway Gap Closure, Lake Forest, California (Project Manager)

Daryl was project manager for an evaluation of the proposed Master Plan of Arterial Highways segment of Portola Parkway that would connect the Cities of Irvine and Lake Forest, California. The City's long-range traffic model was utilized to evaluate scenarios with and without the gap closure, and a City-wide level of service analysis of roadway links and intersection volumes was prepared to determine the need for the extension.

City of Lake Forest Transportation Mitigation Program - 2014 Update, Lake Forest, California (Project Manager)

Daryl was project manager for this update to the City of Lake Forest's traffic fee program. The Lake Forest Transportation Mitigation (LFTM) program is utilized to fund roadway improvements throughout the City with costs allocated to development projects. For this update, the City's travel demand model was updated based on current development proposals, and an updated improvement program was developed based on the new traffic forecasts. Cost estimates for the identified improvements were utilized to develop traffic impact fees for various types of land development projects.

Bridge and Major Thoroughfare Construction Fee District Traffic Volume Forecasts*, Los Angeles County, California (Task Manager)

Daryl was responsible for updating the joint County/City travel demand model and for preparing traffic forecasts to be used for the development of traffic impact fees for multiple districts in unincorporated Los Angeles County and in the City of Santa Clarita. The Bridge and Major Thoroughfare Construction Fee Districts provide an equitable financing mechanism by which new development within an identified area will share the costs of providing full mitigation improvements. Daryl prepared long-range traffic forecasts based on the planned land development projects and determined roadway and intersection improvements that accommodate the significant amount of future traffic in this fast growing area of Los Angeles County.

Costa Mesa SOBECA/Westside General Plan Amendment*, Costa Mesa, California (Task Manager)

Daryl prepared the transportation analysis for two urban plan areas that were the subject of a General Plan Amendment by the City of Costa Mesa. The South on Bristol Entertainment Culture Arts (SOBECA) District and the Westside Plan Area were developed to provide for mixed-use zoning opportunities to supplement and enhance existing development. The SOBECA District represents 39 acres and has evolved into a vibrant community for arts and cultural events. The Westside Plan Area covers approximately 1,788 acres and encourages the creation of mixed-use urban villages, live-work housing developments, and new owner-occupied housing. Our role on the project was to coordinate with City staff and the multi-discipline project team and prepare a traffic analysis in support of the City's General Plan Amendment.

Newhall Ranch Master-Planned Community*, Santa Clarita Valley, California (Transportation Planner/Project Manager)

As the traffic engineer responsible for the planning of the transportation system of this master-planned community in Los Angeles County, California, Daryl has completed numerous studies in support of the development. In total, the Newhall Ranch Specific Plan area and the adjacent planned communities consisted of over 27,000 residential dwelling units and over eight million square feet of commercial development. Various types of analysis have been prepared in support of the planning and entitlement process. These include the development of an overall phasing plan for on-site roadways, large scale impact studies that satisfy CEQA and NEPA requirements, traffic impact studies of individual development area, operational analysis of local circulation, and the development of fair-share nexus calculations for off-site impacts.

Centennial Master-Planned Community, Northern Los Angeles County, CA (Project Manager)

As project manager, Daryl was responsible for the planning of the transportation system of this master-planned community for northern Los Angeles County, California. Centennial, a balanced community founded on smart-growth principals, has been designed with the proper mix of housing, jobs, retail, medical facilities, educational institutions, and recreational services to minimize the need to travel by car for this new town planned for over 60,000 residents. Multiple transportation studies were prepared to develop the local circulation system and in support of the project's environmental documentation.

Daryl Zerfass PE, PTP

Principal, Transportation Planning & Traffic Engineering

Traffic Operations

Interstate 5/Rye Canyon Interchange Reconstruction Traffic Study, Los Angeles County, California (Project Manager)

Daryl is project manager for a traffic study being prepared in support of the Project Engineering Evaluation Report (PEER) for the southbound I-5 hook-ramps at Rye Canyon Road in Los Angeles County. Relocation of the ramps to improve safety and increase capacity is addressed by the study, which evaluates freeway mainline performance, ramp queueing, and intersection operations.

State Route 126 Project Study Report (PSR) Traffic Study, Los Angeles County, California (Project Manager)

Daryl is project manager for the PSR traffic study evaluating the SR-126 corridor between Commerce Center Drive and the Ventura County line in the north Los Angeles County area. Improvements such as the addition of additional mainline lanes, a new grade separated interchange, intersection enhancements at existing at-grade crossings, and the installation of traffic signals, are being evaluated.

Eastern and San Joaquin Hills Transportation Corridors Average Vehicle Occupancy Survey, Orange County, California (Project Engineer)

Daryl is project manager for the annual monitoring study of average vehicle occupancies for the Transportation Corridor Agencies' Eastern and San Joaquin Hills toll roads. Each year traffic counts measuring average vehicle occupancies are collected on the toll roads and on the parallel freeway facility for comparison. The results of the survey are documented in a report that is submitted to the Southern California Association of Governments (SCAG) for compliance with the agency's monitoring requirements.

State Route 241 Tesoro Extension Regional Benefits and Independent Utility Analysis, Orange County, California (Project Manager)

Daryl was project manager for this traffic study to demonstrate the regional benefits and the independent utility of the proposed SR-241 Tesoro Extension (toll road) project. The Orange County Transportation Analysis Model (OCTAM) and a specially prepared focused sub-area model were used to forecast travel time and mileage information. VHT and VMT comparisons were utilized to show the benefits of the project.

Interstate 5/El Toro Road Interchange (PSR) Traffic Study, Orange County, California (Traffic Task Manager)

Daryl was the traffic engineering manager for the PSR traffic studies and the Traffic Engineering Performance Assessment (TEPA) prepared for the proposed reconstruction of the I-5/El Toro Road interchange. The study effort included the development of multiple interchange concepts that were evaluated using a microsimulation model. Design year traffic forecasts were derived using the Orange County Transportation Analysis Model (OCTAM) and the local sub-area models of the Cities of Lake Forest and Laguna Hills.

Interstate 5 HOV Lane Access Conversion Project from State Route 57 to State Route 39 (PSR/PR) Traffic Study, Orange County, California (Project Manager)

Daryl is project manager for the PSR (PR) traffic study that address the design of a "continuous access" feature that will convert the existing buffer separated and limited access HOV facilities to provide continuous access for I-5 between SR-57 and SR-39 (Beach Boulevard). The work effort includes the development of design year traffic forecasts, operational analysis of the continuous access configuration, and review of accident data within the project limits.

State Route 126 Feasibility Study Traffic Study, Los Angeles County (Project Manager)

Daryl was project manager for the traffic study that addressed the feasibility of enhancing the SR-126 corridor between Commerce Center Drive and the Ventura County line in the north Los Angeles County area. Improvements such as the addition of intersection turn pockets, installation of traffic signals, and adding additional travel lanes where needed were evaluated and a recommended corridor plan was developed. The enhancements will occur over time based on traffic capacity needs and a phasing plan for the improvements was determined based on land use growth projections. The study involved traffic operations analysis of the highway, signalized and unsignalized cross-street intersections, and the preparation of comprehensive traffic study reports.

I-5/Valencia Boulevard Interchange Traffic Study (PSR)*, Los Angeles County, California (Project Engineer)

Daryl was a project engineer for the traffic studies utilized for the PSR that addressed the reconstruction of the I-5/Valencia Boulevard interchange.

** denotes projects completed with other firms*

Daryl Zerfass PE, PTP

Principal, Transportation Planning & Traffic Engineering

I-5/Magic Mountain Parkway Interchange Traffic Study (PSR)*, Los Angeles County, California (Project Engineer)
Daryl was a project engineer for the traffic studies utilized for the PSR that addressed the reconstruction of the I-5/Magic Mountain Parkway interchange.

Golden Valley Road Traffic Signal and Striping Plans, Santa Clarita, California (Project Manager)
Daryl is serving as project manager for the preparation of traffic signal plans and roadway striping plans for a new roadway connection in the City of Santa Clarita, California. The construction of this segment of Golden Valley Road will close a current gap in the roadway and will result in a continuous north-south highway through the center of the Santa Clarita Valley. In addition to the gains in regional mobility, the roadway will also provide access to new residential development along the corridor. The traffic signal plans and the striping plans being prepared by Stantec will facilitate the access of residents to their growing community.

Interstate 5/Hasley Canyon Road Interchange Traffic Study (PSR and PR)*, Los Angeles County, California (Project Engineer)
Daryl was a project engineer for the traffic studies utilized for the PSR and PR that addressed the reconstruction of the I-5/Hasley Canyon Road interchange. This project represented the first use of modern roundabouts for an interchange project in Los Angeles County.

Interstate 405/Susan Street Off-Ramp Traffic Study (PSR)*, Costa Mesa, California (Project Manager)
Daryl was project manager for the PSR traffic study that addressed the addition of a Susan Street off-ramp to the section of I-405 in the city of Costa Mesa.

Interstate 5/Parker Road Interchange Traffic Study (PSR)*, Los Angeles County, California (Project Manager)
Daryl was project manager for the PSR traffic study that addressed the reconstruction of the I-5/Parker Road interchange in Los Angeles County.

San Joaquin Hills Transportation Corridor (Toll Road) North Segment*, Orange County, California (Project Engineer)
As lead project engineer responsible for the preparation of channelization plans and stage construction/traffic handling plans for the SR-73 north segment, Daryl has experience specifically related to the requirements of design-build projects. This project, which included multiple highway segments, interchanges with local roadways, and a connection to an existing state highway, was designed, built, and opened to traffic ahead of schedule.

State Route 138 Traffic Study (PSR)*, Los Angeles County, California (Project Manager)
Daryl was project manager for the PSR traffic study that addressed the widening of SR-138 between I-5 and SR-14 in north Los Angeles County. The project includes the reconstruction of the existing two-lane roadway to multi-lane highway and expressway standards. A special version of the East Antelope Valley Traffic Analysis Model was developed to enhance the model's forecasting ability within the corridor area. The study involved traffic operations analysis of the highway, signalized and unsignalized cross-street intersections, alternatives analysis, and the preparation of comprehensive traffic study reports. The project effort included close coordination between the County, Caltrans, and the project team.

Interstate 5 HOV and Truck Lanes from State Route 14 to Parker Road (PA/ED) Traffic Study*, Los Angeles County, California (Project Manager)
Daryl was project manager for the PA/ED traffic study that addressed the addition of HOV lanes to the section of I-5 between the SR-14 interchange and the Parker Road interchange, which was prepared with the oversight of Caltrans.. The project also includes the addition of truck climbing lanes between the SR-14 interchange and Pico Canyon Road/Lyons Avenue. A phased implementation of the project was developed, and the implication of the phasing was addressed by the traffic analysis. This study involved traffic operations analysis of the freeway mainline, interchanges, ramps and adjacent surface streets, alternatives analysis, and the preparation of comprehensive traffic study reports. The first stage of construction is currently underway.

Daryl Zerfass PE, PTP

Principal, Transportation Planning & Traffic Engineering

Interstate 5 Freeway HOV Lane Extension from Avenida Pico to San Juan Creek Road Area (PA/ED) Traffic Study*, Orange County, California (Project Manager)

Daryl was project manager for the PA/ED traffic study that addressed the addition of HOV lanes to the section of I-5 between the Avenida Pico and San Juan Creek Road area, as well as multiple design options for the Avenida Pico interchange.. This study involved traffic operations analysis of the freeway mainline, interchanges, ramps and adjacent surface streets, alternatives analysis, and the preparation of comprehensive traffic study reports. Close coordination between the project team, Caltrans, the City of San Clemente, and the OCTA was maintained throughout the project effort.

Interstate 5 Widening from State Route 55 to El Toro "Y" Area (PSR/PDS) Traffic Study*, Orange County, California (Project Manager)

Daryl was project manager for the PSR (PDS) traffic study that addressed the addition of additional general purpose lanes to the section of I-5 between SR-55 and the El Toro "Y" area. Close coordination between the project team, Caltrans, and the OCTA was maintained throughout the project effort. This study involved traffic operations analysis of the freeway mainline, interchanges, ramps and adjacent surface streets, alternatives analysis, and the preparation of comprehensive traffic study reports. The study evaluated three alternatives as well as multiple design options for a complex freeway to freeway interchange area.

Interstate 5 Widening from El Toro Road Area to State Route 73 (PSR/PDS and PA/ED) Traffic Studies, Orange County, California (Project Manager)

Daryl was project manager for both the PSR (PDS) traffic study and the PA/ED traffic study that addresses the addition of HOV and general purpose lanes to the section of I-5 between the El Toro Road area and SR-73. These studies involve traffic operations analysis of the freeway mainline, interchanges, ramps and adjacent surface streets, alternatives analysis, and the preparation of comprehensive traffic study reports. Close coordination between the project team, Caltrans, and the OCTA was maintained throughout the project effort.

Traffic and Signal Progression Analysis*, Various Locations, California (Project Engineer)

Daryl was the project engineer for multiple projects that involve the use of advanced traffic simulation and modeling applications for the purpose of developing coordinated traffic signal systems. Examples of these projects include: Main Street Signal Coordination, Irvine, CA (City of Irvine, 1999); Santa Clarita Mall Signal System, Santa Clarita, CA (City of Santa Clarita, 1993); 6th Street Progression and Signal Timing, Corona, CA (City of Corona, 1995).

Channelization/Stage Construction/Traffic Handling/Signal Plans*, Various Locations, California (Project Engineer)

As traffic engineer responsible for the preparation of design plans and specifications for freeway, state highway, and toll road projects, Daryl has experience with the development of stage construction and traffic handling plans, roadway channelization plans, traffic signal plans, and the preparation of specifications. Projects include: I-710/Firestone Blvd. Interchange Reconstruction, South Gate, CA (City of South Gate, 1998); SR-55/SR-22 Interchange Expansion, Orange, CA (OCTA, 1999); Traffic Signal and Channelization plans, Orange/Riverside, CA (various clients and dates).

Freeway Interchange Studies*, Various Locations, California (Project Engineer)

Daryl served as project engineer for a number of freeway interchange studies throughout southern California. These studies included the traffic forecasting and operational analyses for the interchange and adjoining freeway sections. Examples of these projects are: I-5/Avenida Pico, San Clemente, CA (OCTA, 2010); I-5/Hasley Canyon Road, Santa Clarita, CA (Newhall Land, 2002); I-5/SR-126, Santa Clarita, CA (Newhall Land, 1998); I-5/Magic Mountain Parkway, Santa Clarita, CA (Newhall Land, 2001); I-5/Valencia Boulevard, Santa Clarita, CA (Newhall Land, 1998); I-5/The Old Road (at Rye Canyon Road), Santa Clarita, CA (Newhall Land, 2006); I-5/Parker Road, Castaic, CA (SunCal, 2004); I-405/Susan Street, Costa Mesa, CA (City of Costa Mesa, 2000); SR-126/Commerce Center Drive, Santa Clarita, CA (Newhall Land, 2003); US-101/Kanan Road, Agoura Hills, CA (City of Agoura Hills, 1999); US-101/Lost Hills Road, Calabasas, CA (City of Calabasas, 2002).

Appendix 6

Newhall Ranch
Greenhouse Gas Reduction Plan,
Revised Appendix F of Draft AEA
Appendix 1, June 1, 2017

Newhall Ranch
Greenhouse Gas Reduction Plan

I. OVERVIEW AND SUMMARY

The purpose of this Greenhouse Gas ("GHG") Reduction Plan is to clarify and further specify performance standards governing the implementation of Mitigation Measure ("MM") 2-10 (Construction and Vegetation Change Emissions) and MM 2-13 (Operational Emissions), as identified in the California Department of Fish and Wildlife Additional Environmental Analysis ("AEA") and County of Los Angeles Village-Level California Environmental Quality Act ("CEQA") Documentation.

This GHG Reduction Plan is organized as follows:

- Section II defines terms used throughout this GHG Reduction Plan.
- Section III summarizes the process by which the project applicant will seek to undertake or fund Direct Reduction Activities.
- Section IV describes certain Direct Reduction Activities that the project applicant is evaluating as of the publication date of this GHG Reduction Plan and may undertake in connection with the implementation of this GHG Reduction Plan.[1]
- Section V describes the phases of project development (i.e., construction and vegetation change; operational) for which this GHG Reduction Plan is designed to mitigate emissions.
- Sections VI and VII outline the Compliance Options available to the project applicant when implementing this GHG Reduction Plan.
- Section VIII describes the compliance demonstration process for this GHG Reduction Plan.
- Section IX sets forth performance standards applicable to GHG Mitigation Credits and Carbon Offsets used for the implementation of this GHG Reduction Plan.
- Section X establishes the locational performance standards applicable to this GHG Reduction Plan.

The mitigation measures (MM 2-1 through MM 2-13) applicable to the project, including those requiring the implementation of this GHG Reduction Plan (MM 2-10 and MM 2-13), shall reduce the Overall Project Emissions to net zero GHG emissions, as identified in the AEA and Village-Level CEQA Documentation. The reduction of Overall Project Emissions will be achieved through the implementation of various project site-specific measures as set forth in MM 2-1 through MM 2-9, as well as the implementation of certain local off-site measures set forth in MM 2-11 and MM 2-12. In addition, the project shall mitigate construction and vegetation change emissions through implementation of MM 2-10 and mitigate the operational emissions not already mitigated by the other Mitigation Measures through the implementation of MM 2-13 at the local/regional level and within the State of California, as well as within the United States and internationally.

[1] At this time, the project applicant has not selected any specific Direct Reduction Activities for implementation pursuant to this GHG Reduction Plan, except for a clean cook stove installation pilot program in Zambia in 2017.

Consistent with the policy of the State of California, the majority of the GHG reductions (MM 2-1 through MM 2-13) and the substantial majority of the investment associated with such GHG reductions will occur within Los Angeles County and the State of California.

Because the project will facilitate the phased development of a planned community to be built over many years, and because the regulatory and technological frameworks for GHG emissions are rapidly evolving and are expected to continue to do so over the ensuing years during the development of the project, minor modifications to this GHG Reduction Plan may be made by the project applicant upon receipt of a written consistency determination from the Los Angeles County Planning Director provided that such modifications are environmentally equivalent to this GHG Reduction Plan and MM 2-10 and MM 2-13.

The Planning Director shall determine the adequacy of any minor modifications by evaluating whether the project applicant's proposed minor modifications result in equivalent or more beneficial GHG reductions and environmental effects, as compared to the original provisions of this GHG Reduction Plan. The minor modifications cannot result in the creation of new or substantially more severe significant environmental effects and must be consistent with the GHG Reduction Plan and MM 2-10 and MM 2-13. The Planning Director shall make a consistency determination that the proposed minor modifications are environmentally equivalent, based on supporting materials submitted by the project applicant.

II. DEFINED TERMS

The following definitions apply to this GHG Reduction Plan.

"ACR" shall mean the American Carbon Registry.

"AEA" shall mean the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan Additional Environmental Analysis (SCH No. 2000011025).

"Approved Registry" shall mean any of the following: (i) the Climate Action Reserve, the American Carbon Registry and the Verified Carbon Standard; (ii) any entity approved at any time by CARB to act as an "offset project registry" under the state's cap-and-trade program; and if no Approved Registry is in existence as identified by the preceding options (i) or (ii), then (iii) any other entity that issues Carbon Offsets satisfying the performance standards set forth in Section IX.B.

"**CAR**" shall mean the Climate Action Reserve.

"**CARB**" shall mean the California Air Resources Board.

"**Carbon Offset**" shall mean an instrument issued by an Approved Registry that shall satisfy the performance standards set forth in Section IX.B and represent the past reduction or sequestration of one metric tonne of carbon dioxide equivalent achieved by a Direct Reduction Activity or any other GHG emission reduction activity that is not otherwise required (CEQA Guidelines § 15126.4(c)(3)).

"**Compliance Option**" shall mean any of the two compliance options (Compliance Options No. VI-1 and VI-2) defined in Section VI of this GHG Reduction Plan or the three compliance options (Compliance Options No. VII-1 through VII-3) defined in Section VII of this GHG Reduction Plan.

"**Direct Reduction Activity**" shall mean the direct undertaking or funding by the project applicant of an activity or activities that reduce or sequester GHG emissions at a location other than the project site, in compliance with the performance standards set forth in Section IX.A.

"**GHG**" shall mean greenhouse gas.

"**GHG Mitigation Credit**" shall mean an instrument issued by an Approved Registry that satisfies the performance standards set forth in Section IX.A and shall represent the estimated reduction or sequestration of one metric tonne of carbon dioxide equivalent that will be achieved by a Direct Reduction Activity that is not otherwise required (CEQA Guidelines § 15126.4(c)(3)).

"**GHG Reduction Plan**" shall mean this GHG Reduction Plan.

"**GHG Residential Ratio**" and "**GHG Commercial Ratio**" shall mean the GHG emissions ratios expressed in MTCO2e established in the applicable Village-Level CEQA Documentation for a specific Village-Level project to ensure that the related GHG emissions are reduced to net zero as identified in the AEA. For example, the GHG Residential Ratio would be 108.89 MTCO2e per residential unit and the GHG Commercial Ratio would be 506.86 MTCO2e per thousand square feet of commercial development if the maximum allowable development facilitated by the project occurs.

"**Incremental Construction GHG Emissions**" shall mean the GHG emissions associated with a specific grading permit application for the Village-Level Project or a portion of the Village-Level Project relating to construction and vegetation change GHG emissions, as calculated in accordance with the applicable Village-Level CEQA Documentation.

"**Incremental Operational GHG Emissions**" shall mean the GHG emissions associated with a specific residential or commercial building permit application for the Village-Level Project or a portion of the Village-Level Project relating to operational emissions (i.e., non-construction and vegetation change emissions), as calculated based on the applicable GHG Residential Ratio or GHG Commercial Ratio set forth in the applicable Village-Level CEQA Documentation.

"**ISO**" shall mean the International Organization for Standardization.

"**MM**" shall mean Mitigation Measure, as identified in the AEA and/or Village-Level CEQA Documentation.

"**MTCO2e**" shall mean a metric tonne of carbon dioxide equivalent.

"**Overall Project Emissions**" shall mean "Total Annual Emissions" that are "Unmitigated" from the project as set forth in Table 2.3-3 of the AEA.

"**project**" shall mean the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan.

"**project applicant**" shall mean The Newhall Land and Farming Company, LLC or its designee.

"**TSF**" shall mean thousand square feet.

"**VCS**" shall mean the Verified Carbon Standard.

"**Village-Level CEQA Documentation**" shall mean the environmental analysis completed for a Village-Level Project within the project area as required by the California Environmental Quality Act.

"**Village-Level Project**" shall mean any village-level project within the project area, including the Mission Village and Landmark Village projects.

"**WRI/WBCSD**" shall mean the World Resources Institute/World Business Council for Sustainable Development.

III. DIRECT REDUCTION ACTIVITIES

A. Description

Under CEQA Guidelines Section 15126.4, subdivisions (c)(3) and (c)(4), respectively, a project's GHG emissions can be reduced by "[o]ff-site measures, including offsets that are not otherwise required" and "[m]easures that sequester greenhouse gases."

Therefore, the project applicant will work directly with third parties, including not-for-profits, non-governmental organizations, and others, to achieve GHG emissions reduction or sequestration through Direct Reduction Activities. All Direct Reduction Activities will be undertaken for the specific purpose of reducing the Overall Project Emissions, and all Direct Reduction Activities will be confirmed or verified by an independent, qualified third-party using methodologies approved by Approved Registries.

While the focus of the GHG Reduction Plan is on Direct Reduction Activities, if it is necessary to fully offset the Overall Project Emissions, the project applicant may obtain and retire Carbon Offsets that have been issued by an Approved Registry, as provided for in Sections VI and VII, below.

B. Performance Standards

All GHG emission reductions used for compliance with this GHG Reduction Plan will comply with performance standards established in this GHG Reduction Plan. The performance standards are set forth in Section IX and are based on established performance standards in established carbon offset programs and climate change regulations, including California's cap-and-trade program for GHG emissions. The performance standards include both environmental integrity criteria and procedural review requirements, and adherence to the performance standards will ensure that the implementation of the GHG Reduction Plan will satisfy CEQA.

C. Approved Registries

The GHG Reduction Plan is tiered off of established carbon offset programs implemented by Approved Registries. Three Approved Registries currently recognized by the State of California are:

Climate Action Reserve: The California Legislature established CAR in 2001 to encourage actions to reduce GHG emissions. CAR began as the California Climate Registry and developed protocols to track GHG emissions and reductions, and have those emissions verified and publicly reported. The California Climate Registry was renamed as CAR and expanded in 2008, and now plays a leading role in the carbon market. CAR has developed over 15 separate protocols for quantification and verification of GHG emissions reductions, and issued over 60 million carbon offset credits, known as "Climate Reserve Tonnes" or "CRTs." CAR is based in Los Angeles and has been approved by CARB as an official offset registry for the state's cap-and-trade program.

American Carbon Registry: ACR was founded in 1996 as a non-profit enterprise of Winrock International, a non-profit organization. ACR is a CARB-approved offset registry for the state's cap-and-trade program and has also developed its own carbon offset methodologies, such as methodologies for degraded wetlands and for avoided conversion of grasslands to crop production.

Verified Carbon Standard: VCS was founded in 2005 by the Climate Group, the International Emissions Trading Association and the World Economic Forum. Project developers are able to list GHG reduction activities on the VCS registry using a variety of protocols, including CAR protocols. VCS is a CARB-approved

offset registry for the state's cap-and-trade program and has also developed its own carbon offset quantification methodologies.

IV. OVERVIEW OF POTENTIAL DIRECT REDUCTION ACTIVITIES

The following Direct Reduction Activities are prototypical of the types of Direct Reduction Activities that the project applicant has identified on a preliminary basis for inclusion in the GHG Reduction Plan. The following Direct Reduction Activities are illustrative only and the exact portfolio composition of the Direct Reduction Activities may differ over time as new types may be added and certain opportunities identified below may not be realized.[2]

A. Forest Conservation in California and the United States

Working with a leading developer of forest carbon offset, the project applicant is exploring opportunities involving the conservation of forest land and forest stocks for the purpose of sequestering GHG emissions. The developer would identify suitable forest land and then assist the project applicant in its management of this land to maximize the forest and carbon stocks through afforestation, avoided conversion and improved management techniques. Under a typical contractual structure, the project applicant would purchase forest land from a forest owner to conserve or enhance forest stocks, but the project applicant might also pay the developer or another third party to sequester GHG emissions at a forest rather than taking ownership of the forest itself. In both instances, the developer would subsequently assist the project applicant in managing the forest land or assisting the forest owner so as to increase the forest and carbon stocks.

Loss of forests or unsustainable management of forests in California and the rest of the United States releases carbon emissions into the atmosphere that would otherwise have been sequestered in trees, soils and understory plants in forests, which naturally absorb carbon dioxide from the atmosphere and store the gas as carbon.

Through sustainable management and protection, avoided conversion of forests to other uses, and reforestation, forests can increase their carbon storage. The California Forestry Association recognizes that "healthy forests provide the state with clean water and air [and] thriving wildlife habitats."[3] The U.S. Forest Service recognizes the importance of forest restoration and protection through its "Integrated Resource Restoration" program, which aims to "re-establish a balance of nature needed for air, water, plants and animals to thrive" in the nation's forests through direct forest land management[4]. As evidenced by Governor Brown's central role in the creation of the Governors' Climate and Forests Task Force, a multi-national collaboration, which synchronizes efforts across jurisdictions to develop policies and programs that provide pathways to forest-maintaining rural development, California is making considerable efforts to broker the international accord to fight deforestation and resulting impacts on climate change.

The project applicant is actively considering Direct Reduction Activities involving the forestry sector where the project applicant could help conserve forest land or forest stocks for the purpose of sequestering GHG emissions[5]. The project applicant may pursue opportunities that involve three types of forestry sequestration activities:

[2] At this time, the project applicant has not selected any specific Direct Reduction Activities for implementation pursuant to this GHG Reduction Plan except for installing clean cook stoves in Zambia in 2017.

[3] California Forestry Association, "About Us," *available at* http://calforests.org/about/, accessed: March 2017.

[4] U.S. Forest Service, "Forests and Grasslands," *available at* http://www.fs.fed.us/managing- land/national-forests-grasslands, accessed: March 2017.

[5] *See, e.g.*, CAR, *Forest Project Protocol Version 3.3* (2012) (providing requirements and guidance for quantifying the net climate benefits of activities that sequester carbon on forestland); CARB, *Compliance Offset Protocol: U.S. Forest Projects* (2015) (the purpose of the protocol "is to quantify [GHG] emission reductions and [GHG] removal enhancements associated with the sequestration of carbon achieved by increasing and/or conserving forest carbon stocks").

- Avoided conversion of forests: this activity involves the avoided deforestation of forest land through a land purchase or, in California or elsewhere, the creation of a conservation easement or other legally binding agreement.

- Improved forestry management: this activity may include increasing rotation ages to increase the overall age of the forest, increasing the stocking of trees on understocked areas and increasing forest productivity by thinning diseased and suppressed trees.

- Reforestation: this activity involves the planting of new trees.

The applicable forestry sequestration protocols and methodologies provide strict criteria regulating the type of activities eligible to qualify as avoided conversion, improved forestry management or afforestation activities. For example, the use of non-native tree species in afforestation is restricted.

B. Clean Cook Stoves

The project applicant is installing cook stoves in Zambia by funding clean-burning cook stoves for underprivileged households. The clean cook stoves will reduce GHG emissions, as well as deliver many health-related co-benefits to their users. An expanded cook stove program is being explored by the project applicant.

More than three billion people globally depend on burning woody fuels in archaic, 3-stone fires for cooking[6]. Inefficient cook stoves are a significant contributor to GHG emissions and climate change. A single clean cook stove can save an average of two tonnes of carbon dioxide emissions per year or more.

In addition to saving an average of two tonnes of carbon dioxide emissions per year or more, a single clean cook stove can reduce household air pollution by 50% and reduce the time spent gathering resources by 75%. According to the World Health Organization, this primitive form of cooking results in over 4 million premature deaths worldwide every year[7].More than 50% of premature deaths due to pneumonia among children under the age of 5 are caused by the particulate matter (soot) inhaled from household air pollution[8]. Other adverse health effects associated with biomass smoke exposure include stroke, chronic obstructive pulmonary disease, cardiovascular disease and lung cancer[9]. In Africa, more people die from exposure to cook stove smoke than from malaria, tuberculosis and HIV/AIDS, combined.

In addition, the need to gather high volumes of firewood also contributes significantly to deforestation and, consequently, climate change. Moreover, women and children must spend hours a day walking long distances for wood gathering or to purchase bundled wood, and are often exposed to assaults and other dangers. The time spent gathering wood deprives young children of time needed for schooling and education.

If this program is ultimately pursued, the project applicant would provide additional funding to build, distribute and maintain cook stoves. An NGO would assist with installing the stoves by providing in-person training on the manufacturing, operation and maintenance of cooking stoves. The owner and the location of each stove would be tracked and recorded in the documentation for the Direct Reduction Activity[10].

[6] World Health Organization, "Household air pollution and health: Fact sheet N°292," (February 2016), *available at*: http://www.who.int/mediacentre/factsheets/fs292/en/, accessed: March 2017.
[7] *Id*.
[8] *Id.*
[9] *Id.*
[10] *See, e.g.*, ClimateCare, *Indicative Programme, Baseline, and Monitoring Methodology for Improved Cook-Stoves and Kitchen Regimes*, Gold Standard, *available at* http://www.goldstandard.org/sites/default/files/gs_methodology_cookstove.pdf, accessed: Mar. 2, 2017 ("All sales records should comprise [of] the following data . . . [l]ocation of sale . . . [and] [n]ame and telephone number[.]").

C. Methane Capture

The project applicant is exploring opportunities to reduce methane emissions from livestock in California and the United States. The project applicant would identify opportunities to fund the capture and destruction of methane emissions from livestock manure at suitable dairy farms, including in California.

Methane is the second most prevalent GHG emitted in the United States from human activities, and agriculture is the second largest source of methane emissions in the U.S. (after petroleum and natural gas systems)[11]. California has the most dairy cows in the country and the highest aggregated dairy methane emissions[12]. California also has established a goal of reducing methane emissions from dairy manure management by 40 percent in 2030 relative to 2013 levels[13].

The project applicant would provide the funding required to build and maintain methane capture and destruction equipment using established methodologies developed by CARB and/or CAR. The project applicant also would explore opportunities for the beneficial use of the captured methane, such as for renewable electricity or biofuel production.

V. PROJECT EMISSIONS

As described in the AEA and Village-Level CEQA Documentation, there are two general sources of GHG emissions that will result from the project: (i) the construction and vegetation change emissions, which include emissions associated with grading and all horizontal (e.g., infrastructure) and vertical (buildings) construction; and (ii) the operational emissions, which include the emissions associated with the use of the project, including emissions from vehicles, electricity use, building operations and other sources, estimated over a 30-year project life.

As described in the AEA and Village-Level CEQA Documentation, in order to reduce the Overall Project Emissions to net zero, the project applicant shall mitigate the operational emissions not already mitigated by the other Mitigation Measures prior to the issuance by Los Angeles County of the (i) grading permit (to cover construction and vegetation change emissions in MM 2-10) and (ii) the building permit (to cover operational emissions in MM 2-13), as follows:

- **Construction and Vegetation Change GHG Emissions** – Prior to obtaining a grading permit from Los Angeles County for each village or a portion of a village, the project applicant shall mitigate, through the GHG Reduction Plan, the Incremental Construction GHG Emissions, as required by MM 2-10. The project applicant shall provide documentation for the Incremental Construction GHG Emissions, based on the parameters set forth in the applicable Village-Level CEQA Documentation, which will identify the GHG reduction needed to ensure the Incremental Construction GHG Emissions will be reduced to net zero as identified in the AEA.

- **Operational GHG Emissions** – Prior to obtaining residential and/or commercial building permits from Los Angeles County for each village or a portion of a village, the project applicant shall mitigate, through the GHG Reduction Plan, the Incremental Operational GHG Emissions, as required by MM 2-13. The project applicant shall provide documentation for the Incremental Operational GHG Emissions, based on the parameters (including the GHG Residential Ratio and GHG Operational Ratio) set forth in the applicable Village-Level CEQA Documentation, which will identify the GHG reduction needed to ensure the Incremental Operational GHG Emissions will be reduced to net zero as identified in the AEA.

[11] U.S. Environmental Protection Agency, "Overview of Greenhouse Gases: Methane Emissions," *available at* https://www.epa.gov/ghgemissions/overview-greenhouse- gases#methane, accessed: March 2017.
[12] CARB, Revised Proposed Short-Lived Climate Pollutant Reduction Strategy (November 2016) at 63.
[13] *Id.*

By way of example, and assuming the maximum allowable development facilitated by the project occurs, the Incremental Operational GHG Emissions over the 30-year project life associated with such building permits that shall be reduced will be equal to the sum of: (1) the number of proposed residential units covered by the applicable building permit multiplied by 108.89 $MTCO_2e$; and (2) every TSF of proposed commercial development (including retail, light industrial, office, hotel and mixed-use buildings) covered by the applicable building permit multiplied by 506.86 $MTCO_2e$. As such, to obtain a building permit for 75 residential units and 40,000 square feet of commercial development, the Incremental Operational GHG Emissions requiring reduction would be: (75 units x 108.89 $MTCO_2e$/unit) + (40 TSF x 506.86 $MTCO_2e$/TSF) = 28,441 $MTCO_2e$.

As recognized above, the GHG Residential Ratio and GHG Commercial Ratio may vary for individual village-level development projects, as estimated in the Village-Level CEQA Documentation; in all cases, the Overall Project Emissions shall be reduced fully to net zero as identified in the AEA.

VI. COMPLIANCE OPTIONS – CONSTRUCTION AND VEGETATION CHANGE EMISSIONS

To satisfy MM 2-10 (Construction and Vegetation Change Emissions), prior to obtaining a grading permit from Los Angeles County for each village or a portion of a village, the project applicant shall mitigate the Incremental Construction GHG Emissions by relying upon one of the following two Compliance Options or a combination thereof.

Section VIII describes how the project applicant will verify completion of the Compliance Options. Section IX describes the performance standards that shall be achieved for GHG Mitigation Credits and Carbon Offsets prior to being issued and retired under such Approved Registry requirements.

Compliance Option VI-1 — **Undertake Direct Reduction Activities and Retire GHG Mitigation Credits**

Under Compliance Option VI-1, prior to issuance of a grading permit, the project applicant will undertake or fund certain Direct Reduction Activities that result in the issuance of GHG Mitigation Credits.

Compliance Option VI-2 — **Purchasing Carbon Offsets Issued by Approved Registries on the Market**

Under Compliance Option VI-2, prior to issuance of a grading permit, the project applicant will purchase and retire Carbon Offsets.

VII. COMPLIANCE OPTIONS – OPERATIONAL EMISSIONS

To satisfy MM 2-13 (Operational Emissions), prior to obtaining residential and/or commercial building permits from Los Angeles County, the project applicant shall mitigate the Incremental Operational GHG Emissions by relying upon one of the following three Compliance Options or a combination thereof.

Section VIII, below, describes how the project applicant will verify completion of the Compliance Options. Section IX below describes the performance standards that shall be achieved for GHG Mitigation Credits and Carbon Offsets prior to being issued and retired under such Approved Registry requirements.

Compliance Option No. VII-1 — **Undertake Direct Reduction Activities and Retire GHG Mitigation Credits**

Under Compliance Option No. VII-1, prior to obtaining a residential and/or commercial building permit, the project applicant will undertake or fund certain Direct Reduction Activities that result in the issuance of GHG Mitigation Credits.

Compliance Option No. VII-2 — **Undertake Direct Reduction Activities and Retire Carbon Offsets**

Under Compliance Option No. VII-2, prior to issuance of a residential and/or commercial building permit, the project applicant will undertake or fund certain Direct Reduction Activities that result in the issuance of Carbon Offsets.

Compliance Option No. VII-3 — **Purchasing Carbon Offsets Issued by Approved Registries on the Market**

Under Compliance Option No. VII-3, prior to issuance of a residential and/or commercial building permit, the project applicant will purchase and retire Carbon Offsets.

Consistent with MM 2-13, the project applicant may rely on Compliance Option No. VII-3, if necessary, as determined by the Los Angeles County Planning Director, if Compliance Options No. VII-1 and VII-2 are not reasonably available based on timing, availability, cost constraints or other relevant information, or to achieve compliance with the Locational Performance Standards set forth in Section X. The project applicant shall provide documentation to the Los Angeles County Planning Director that: (i) evidences the timing, availability or cost constraints that necessitate the use of Compliance Option No. VII-3; (ii) demonstrates that the timing issue, unavailability or cost constraints could not have been reasonably avoided; and (iii) demonstrates that the use of Compliance Option No. VII-3 is otherwise consistent with the requirements of this GHG Reduction Plan. Within 30 days of receipt of such documentation, the Planning Director shall make a determination. The Planning Director shall not impose additional conditions or mitigation measures on the project. If the Planning Director does not determine that reliance on Compliance Option No. VII-3 is necessary, the Planning Director shall inform the project applicant in reasonable detail of the basis of the Planning Director's finding. The project applicant may submit revised documentation to the Planning Director following such a determination by the Planning Director.

VIII. DEMONSTRATING COMPLIANCE WITH MM 2-10 AND MM 2-13

The project applicant shall demonstrate compliance with MM 2-10 (Construction and Vegetation Change Emissions) or MM 2-13 (Operational Emissions) in the manner described below.

Confirmation of Compliance Options No. VI-1 and VII-1

To demonstrate compliance with Compliance Options No. VI-1 and VII-1, the project applicant shall provide the following documentary evidence to Los Angeles County:

An attestation from an Approved Registry that the project applicant has retired a sufficient quantity of GHG Mitigation Credits to mitigate the Incremental Construction GHG Emissions or Incremental Operational GHG Emissions, as applicable, and that such GHG Mitigation Credits and the associated Direct Reduction Activities meet the performance standards set forth in Section IX of this GHG Reduction Plan.

Confirmation of Compliance Option No. VII-2

To demonstrate compliance with Compliance Option No. VII-2, the project applicant shall provide the following documentary evidence to Los Angeles County:

An attestation from an Approved Registry that the project applicant has retired a sufficient quantity of Carbon Offsets to mitigate the Incremental Operational GHG Emissions and that such Carbon Offsets and the associated Direct Reduction Activities meet the performance standards set forth in Section IX of this GHG Reduction Plan.

Confirmation of Compliance Options No. VI-2 and VII-3

To demonstrate compliance with Compliance Options No. VI-2 and VII-3, the project applicant shall provide the following documentary evidence to Los Angeles County:

An attestation from an Approved Registry that the project applicant has retired a sufficient quantity of Carbon Offsets to mitigate the Incremental Construction GHG Emissions or Incremental Operational GHG Emissions, as applicable, and that such Carbon Offsets meet the performance standards set forth in Section IX of this GHG Reduction Plan.

IX. PERFORMANCE STANDARDS FOR GHG MITIGATION CREDITS AND CARBON OFFSETS

A. GHG Mitigation Credits

GHG Mitigation Credits will be used to demonstrate compliance with MM 2-10 or MM 2-13 via Compliance Options No. VI-1 or VII-1, respectively. As further described below, each GHG Mitigation Credit shall be issued by an Approved Registry upon confirmation by an independent, accredited third party that the Direct Reduction Activities have been implemented, meet the Approved Registry's rules for issuing GHG Mitigation Credits, and are in accordance with the quantification methodology adopted by that Approved Registry for the applicable Direct Reduction Activity.

All GHG Mitigation Credits used by the project applicant to comply with MM 2-10 or MM 2-13 shall meet the performance standards identified in this Section.

1. ACCOUNTING, QUANTIFICATION AND REPORTING PERFORMANCE STANDARDS

Approved Registries, and the independent third parties acting under the oversight of Approved Registries, shall account for and quantify emission reductions and sequestration achieved by Direct Reduction Activities by drawing upon defined standards and incorporating principles of GHG emissions reduction accounting, including those set forth in the ISO 14064 and the WRI/WBCSD Greenhouse Gas Protocol for Project Accounting.[14]

Such standards, consistent with the ISO and WRI/WBCSD, are generally as follows[15]:

- **Transparency and Monitoring.** Approved Registries and independent third parties shall use clear information sufficient for reviewers to assess credibility of GHG emission reductions. Upon request by Los Angeles County, any governmental entity or any stakeholder, the Approved Registry shall provide the following information within a reasonable time period: the Direct Reduction Activities listed by the project applicant, the applicable quantification protocol, all third-party confirmation reports issued in connection

[14] ISO, ISO 14064, Part 2: *"Specification with guidance at the project level for quantification, monitoring, and reporting of greenhouse gas emission reductions or removal enhancements"* (2005); WRI/WBCSD, "*The GHG Protocol for Project Accounting*" (2005).
[15] See, e.g., WRI/WBCSD, "*The GHG Protocol for Project Accounting*" (2005) at 43-44.

with a Direct Reduction Activity and information about the issuance and retirement of GHG Mitigation Credits. Such information shall be sufficient to monitor compliance by the project applicant with this GHG Reduction Plan[16].

- **Relevance.** Approved Registries and independent third parties shall use data, methods, criteria and assumptions that are appropriate for the applicable Direct Reduction Activity.

- **Completeness.** Approved Registries and independent third parties shall consider all relevant information that may affect the accounting and quantification of GHG emission reductions.

- **Consistency.** Approved Registries and independent third parties shall use data, methods, criteria and assumptions that are applied in the same manner across different Direct Reduction Activities to allow meaningful and valid comparisons.

- **Accuracy.** Approved Registries and independent third parties shall reduce uncertainty as much as practicable, erring on the side of conservativeness.

- **Conservativeness.** Approved Registries and independent third parties shall use conservative assumptions, values and procedures to ensure that GHG reductions or sequestration are not over-estimated, especially when uncertainty is high.

The Approved Registries shall comply with these performance standards in connection with the issuance of GHG Mitigation Credits.

2. DIRECT REDUCTION ACTIVITY ELIGIBILITY PERFORMANCE STANDARDS

To ensure environmental integrity, a Direct Reduction Activity resulting in GHG Mitigation Credits shall meet the following eligibility standards:

- **Additionality.** In compliance with CEQA Guidelines Section 15126.4(c)(3), the Direct Reduction Activities shall not otherwise be required, as provided for in A and B below. For purposes of this GHG Reduction Plan, the Direct Reduction Activities shall meet the following two performance standards[17]:

  A. **Legal Requirement Test** – The Direct Reduction Activity shall not be required for GHG reduction by applicable law (i.e., statute, ordinance or regulation) in effect at the time of the initiation of such Direct Reduction Activity; and

  B. **Performance Test** – The Direct Reduction Activity shall reduce GHG emissions below the applicable common industry practice for GHG reductions as in effect at the time of the initiation of such Direct Reduction Activity. The performance test for a particular Direct Reduction Activity shall be set in a protocol by an Approved Registry through analysis of standard practices and technology deployment in the applicable industry sector.

- **No Double Counting.** The Direct Reduction Activity shall not be concurrently listed, registered or earning credits under any other GHG reduction scheme.

- **Enforceable.** The project applicant shall implement the Direct Reduction Activity and retire associated GHG Mitigation Credits before using the GHG Mitigation Credits to obtain a grading permit or building permit from Los Angeles County in conformance with MM 2-10 and MM 2-13 and the Mitigation

[16] Accreditation for independent third party reviewers will be consistent with existing recognized accreditation standards, as applied by an Approved Registry.

[17] This standard is functionally similar to the "additionality" test applied to Carbon Offsets; CEQA does not directly incorporate the AB 32 cap-and-trade requirements since CEQA otherwise provides standards for ensuring the environmental integrity of mitigation measures. *See* California Natural Resources Agency, Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97 (December 2009) at 50.

Monitoring and Reporting Program, as applicable, for an incremental level of development covered by the project.

3. PROCEDURAL PERFORMANCE STANDARDS

In order to ensure that GHG Mitigation Credits satisfy the Accounting, Quantification and Reporting Performance Standards and Eligibility Performance Standards set forth in 1 and 2 above, any Approved Registry approving GHG Mitigation Credits shall implement credit processing standards substantially similar or equivalent to those set forth below:

- **Registration, Submittal and Listing.** The project applicant shall be required to set up an account with the Approved Registry, list the proposed Direct Reduction Activity with the Approved Registry and provide a proposed quantification methodology to be used for quantification of emission reductions from the Direct Reduction Activity. During this step, the Approved Registry shall conduct a technical review of the proposed Direct Reduction Activity and quantification methodology to ensure that it satisfies the requirements of this GHG Reduction Plan.

- **Approved Registry Accepts Methodology for Quantifying GHG Emissions Reductions from Direct Reduction Activity.** The project applicant's proposed quantification methodology shall contain a detailed quantification methodology for both baseline and Direct Reduction Activity emissions in order to calculate the estimated emission reductions associated with the Direct Reduction Activity. The quantification methodology shall describe how the proposed approach is suitably conservative to estimate emission reductions. As a result, the methodology shall be conservative in terms of estimating total GHG reductions achieved. The Approved Registry shall review the proposed quantification methodology and related documentation. If necessary, the Approved Registry shall engage appropriate third party experts to assist in reviewing the methodology. The Approved Registry will approve the methodology only after it has determined that the methodology is statistically and environmentally sound and in compliance with this GHG Reduction Plan.

- **Direct Reduction Activity Implementation.** The project applicant shall implement the Direct Reduction Activity.

- **Independent, Qualified Third-Party Confirmation of Reduction or Sequestration.** Once the Direct Reduction Activity has been implemented, the Approved Registry will require the project applicant to retain an independent, accredited[18], third-party to confirm that the Direct Reduction Activity has been implemented and that the emission reductions have been quantified based on the approved methodology. The confirmation will take the form of a documentation review and a site visit assessment to confirm the implementation of the Direct Reduction Activity.

- **Issuance of GHG Mitigation Credits.** The Approved Registry shall review the third- party evaluation and data on implementation of the Direct Reduction Activity. If such evaluation and data complies with and confirms that the Direct Reduction Activity complies with this GHG Reduction Plan and the approved methodology, the Approved Registry shall issue a specific quantity of GHG Mitigation Credits into the project applicant's account. Each GHG Mitigation Credit shall be given a unique serial or tracking number to ensure there is no duplication or double-counting.

- **Retirement of GHG Mitigation Credits.** Upon request by the project applicant, the Approved Registry shall retire a specific quantity of GHG Mitigation Credits from the account of the project applicant. The Approved Registry shall provide documentation of such retirement in a form that can be provided by the project applicant to Los Angeles County so that the GHG Mitigation Credits can be used in connection with MM 2-10 and MM 2-13, including an attestation from the Approved Registry that the subject protocol used to implement the Direct Reduction Activity meets the performance standards identified in this Section IX. Once a GHG Mitigation Credit has been retired, the retirement is permanent and the GHG

[18] Accreditation for independent third party reviewers will rely on existing recognized accreditation standards: ISO 14065 and ISO 14064-3.

Mitigation Credit cannot be further used in any manner. Los Angeles County shall be authorized to confirm the retirement of GHG Mitigation Credits with the applicable Approved Registry.

4. EXAMPLE GHG MITIGATION CREDIT PROGRAM

As an example of how the project applicant would receive GHG Mitigation Credits by installing clean cook stoves (as described in Section IV.B above) as a Direct Reduction Activity, the project applicant has initiated funding a pilot program in Zambia for the installation of clean cook stoves.

The subject pilot program provides for the construction of 5,000 clean cook stoves in Africa. The quantification methodology approved by the Approved Registry will estimate the time period that each stove will remain operational in the field and the annual quantity of GHG emission reductions that will result from the installation of the stove, based on evidence from similarly situated past installations and other factors. An independent third party will confirm the installation of the stoves in villages in Africa. Upon receipt of the technical report from the third party, the Approved Registry will review the documentation and determine its compliance with the approved quantification methodology. If confirmed by the Approved Registry, the Approved Registry will confirm the issuance of the GHG Mitigation Credit. For example, if the quantification methodology estimates that the stoves will remain operational for seven years and will result in 2 $MTCO_2e$ per year, then the project applicant will receive 5,000 x 2 x 7 GHG Mitigation Credits (70,000 GHG Mitigation Credits) upon compliance with the Approved Registry requirements for issuance.

B. Carbon Offsets

To the extent that Compliance Options No. VI-2, VII-2, or VII-3 are utilized, to ensure the environmental integrity and transparency of the GHG Reduction Plan, the project applicant will be required to comply with the performance standards identified in this Section.

1. ACCOUNTING, QUANTIFICATION AND MONITORING PERFORMANCE STANDARDS

Carbon Offsets will be subject to the same Accounting, Quantification and Reporting Performance Standards as GHG Mitigation Credits, as set forth above in Section IX.A.1 above.

For the purposes of this GHG Reduction Plan, it has been determined that the existing program- level accounting and quantification standards adopted by the CAR, VCS, and ACR comply with these performance standards. These Approved Registries have incorporated the ISO Standards discussed above and/or the WRI/WBCSD Greenhouse Gas Protocol for Project Accounting into their existing carbon offset issuance programs[19].

2. ELIGIBILITY PERFORMANCE STANDARDS

All Carbon Offsets used by the project applicant to comply with Compliance Options No. VI-2, VII-2, or VII-3 shall represent the past reduction or sequestration of GHG emissions (measured in $MTCO_2e$) achieved by a Direct Reduction Activity or any other GHG emission reduction activity that is not otherwise required (CEQA Guidelines § 15126.4(c)(3)). In addition, Carbon Offsets shall be real, additional, quantifiable, permanent, verifiable and enforceable[20].

For the purposes of this GHG Reduction Plan, it has been determined that the existing program- level environmental integrity standards adopted by the CAR, VCS, and ACR comply with these performance standards.

[19] See, *e.g.*, Climate Action Reserve, *Program Manual* (2015) at 4-5; American Carbon Registry, "Carbon Accounting," *available at* http://americancarbonregistry.org/carbon-accounting/carbon- accounting, accessed: Mar. 1, 2017; Verified Carbon Standard, *VCS Program Guide version 3.6* (2016) at 8.

[20] Cal. Health & Safety Code Section 38562(d)(1).

3. PROCEDURAL PERFORMANCE STANDARDS

In order to ensure that Carbon Offsets satisfy the Accounting, Quantification and Reporting Performance Standards and Eligibility Performance Standards set forth above, the rules and protocols of an Approved Registry that issues Carbon Offsets shall require that a Carbon Offset program follows procedural steps substantially similar or equivalent to the following to offset GHG emissions in order to generate Carbon Offsets that meet the requirements of this GHG Reduction Plan:

- **Listing or Registration.** The project proponent shall apply to list or register the proposed GHG emission reduction program with the Approved Registry, and the Approved Registry shall review the application and accept it only if it complies with the applicable Approved Registry requirements.

- **Independent, Qualified Third-Party Verification of Reduction or Sequestration.** Once a GHG emission reduction program has begun, the Approved Registry shall require the proponent to retain an independent, qualified third party to verify the reduction or sequestration achieved by the program. Each Approved Registry shall adopt stringent requirements applicable to the accreditation of third parties and only such third parties shall be qualified to verify and audit GHG emission reductions under the applicable Approved Registry rules. This process will typically take place on an annual basis, depending on the specific type of program. Approved Registry rules and protocols shall require "boots on the ground" audits, except that in certain instances documentation reviews may be sufficient, depending on the specific type of program.

- **Issuance of Carbon Offsets.** Approved Registry rules and protocols shall require the proponent to apply for issuance and to provide the verification report prepared by the independent, qualified third-party. The Approved Registry shall review a verification report and, to the extent that the Approved Registry finds that the report complies with the applicable Approved Registry requirements, the Approved Registry shall issue the Carbon Offsets to the account of the recipient.

- **Carbon Offset Retirement.** Each Approved Registry shall adopt rules and procedures governing the retirement or cancellation of Carbon Offsets. These rules or procedures involve the transfer of the Carbon Offset serial numbers from an Approved Registry account and will ensure that once a Carbon Offset has been retired, the retirement is permanent and the Carbon Offset cannot be further used in any manner.

For the purposes of this GHG Reduction Plan, it has been determined that the existing program- level procedural standards adopted by the CAR, VCS, and ACR comply with these performance standards.

X. LOCATIONAL PERFORMANCE STANDARDS

This Section X discusses the location of the measures, activities, and projects that the project applicant will implement or undertake to reduce the Overall Project Emissions to net zero. Section X.A sets forth the Locational Performance Standards. Section X.B establishes a mechanism that requires the project applicant to demonstrate compliance with the Locational Performance Standards.

A. Locational Performance Standards

The AEA demonstrates that implementation of Mitigation Measures 2-1 through 2-13 will reduce the Overall Project Emissions to net zero. As shown in Table 2.3-3 of the AEA, the project's Overall Project Emissions are estimated to be 526,103 $MTCO_2e$/year. As shown in Table 2.3-4 of the AEA, Mitigation Measures 2-1 through 2-9, 2-11 and 2-12 (together, the "Local Measures") reduce the Overall Project Emissions by 53%, or 281,271 $MTCO_2e$/year. The remaining 244,832 $MTCO_2e$/year of GHG reductions (the remaining 47%) are achieved by Mitigation Measures 2-10 and 2-13, which are governed by this GHG Reduction Plan.

The project applicant shall implement this GHG Reduction Plan so that, in the aggregate and taking into account all onsite and offsite reductions of the Overall Project Emissions achieved by Mitigation Measures 2-1 through 2-13, along with the additional electric vehicle charging stations identified in the Final AEA ("Additional EV Charging Stations"), the project shall meet, at full buildout, the Locational Performance Standards set forth below.

The project applicant shall be deemed to achieve 53% of the Overall Project Emissions reduction by implementing the Local Measures[21] and shall be deemed to achieve the remaining 47% of the Overall Project Emissions reduction by implementing Mitigation Measures 2-10 and 2-13 per this GHG Reduction Plan. As stated above, taking into account the combination of all onsite and offsite reductions of the Overall Project Emissions achieved by Mitigation Measures 2-1 through 2-13, along with the Additional EV Charging Stations, the project, at full buildout, shall meet the following Location Performance Standards:

- **California Locational Performance Standard** – No less than 68% of the Overall Project Emissions reductions shall be achieved within the State of California through a combination of the Local Measures and implementation of Mitigation Measures 2-10, 2-13 and the Additional EV Charging Stations[22].

- **United States Locational Performance Standard** – No less than 80% of the Overall Project Emissions reductions shall be achieved within the United States through a combination of the Local Measures and implementation of Mitigation Measures 2-10, 2-13 and the Additional EV Charging Stations.

- **International Locational Performance Standard** – No more than 20% of the Overall Project Emissions reductions shall be achieved outside of the United States.

The Locational Performance Standards will apply at the project level, not to an individual Village-Level Project[23]. Compliance with the Locational Performance Standards shall be determined and enforced only as described in Section X.B.

Recognizing the International Locational Performance Standard as a point of emphasis for CDFW as lead agency, the project applicant will identify and implement comparable emissions reduction opportunities in California and the United States to reduce the use of international reductions below the 20% of the Overall Project Emissions reductions allowed by the International Locational Performance Standard, if such opportunities are reasonable after accounting for cost, availability, timing, and other relevant information. This determination shall be made by the project applicant, provided the reduction activities otherwise comply with the requirements of this GHG Reduction Plan.

B. Enforcement

Compliance with the Locational Performance Standards shall be determined and enforced only as described in Sections X.B.1 and X.B.2, below.

The project applicant shall provide GHG Mitigation Credits and/or Carbon Offsets to the Department of Regional Planning as provided by Mitigation Measures 2-10 and 2-13. (See Section VIII of the GHG Reduction Plan). The project applicant is not required to demonstrate compliance with the Locational Performance Standards to obtain grading or building permits, except as specifically stated below.

[21] Based on the analysis presented in the AEA, implementation of the Local Measures achieves 53% of the Overall Project Emissions reductions for the Project. (See Draft AEA, Table 2-4). Although individual Village-Level projects may achieve greater than or less than a 53% reduction from the Local Measures, the AEA demonstrates that implementing the Local Measures achieves 53% of the Overall Project Emissions reductions for the entire Project at full buildout.

[22] For purposes of determining the reduction value assigned to the Additional EV Charging Stations, each parking space that is served by an electric vehicle charging station shall be deemed to achieve 588 $MTCO_2e$ reductions over a 30-year period.

[23] Due to variations in land use development patterns, a Village-Level Project may achieve higher or lower percentages of reductions than identified by the Locational Performance Standards. Because compliance with the Locational Performance Standards is required only at the Project level, no demonstration of compliance is required for a Village-Level Project.

1. LOCAL MEASURES

The Department of Regional Planning shall be responsible for enforcing implementation of the Local Measures and the Additional EV Charging Stations, to the extent each measure is applicable to individual Village-Level Projects.

2. LOCATIONAL PERFORMANCE STANDARDS

The Department of Regional Planning shall be responsible for enforcing implementation of Mitigation Measures 2-10 and 2-13 and compliance with the Locational Performance Standards as provided for in this Section X.B.2.

a. Annual Report (Informational Only)

Concurrent with the filing of the annual Mitigation, Monitoring and Reporting Program report to Los Angeles County, the project applicant shall deliver to CDFW and the Department of Regional Planning an informational report with the following information with respect to the previous annual period: (i) rough or bulk grading permits (whichever occurs first in time) for village level grading for the project or a portion thereof, and commercial and residential building permits (excluding tenant improvement, MEP, HVAC and other miscellaneous permits) for the project or a portion thereof, within the annual period, as provided for by Mitigation Measures 2-10 (construction and vegetation change emissions) and 2-13 (operational emissions), respectively; (ii) the GHG emissions reductions required by Mitigation Measures 2-10 and 2-13; and (iii) the GHG Mitigation Credits and/or Carbon Offsets retired by the project applicant, as provided by Mitigation Measures 2-10 and 2-13. No determination as to compliance with the Locational Performance Standards shall be made at the time of submittal of the annual report.

b. Locational Compliance Reports at Major Project Milestones

Within 3 months following the issuance of building permits for every 7,000 residential units or every 3 million square feet of commercial development, the project applicant shall prepare and submit to CDFW and the Department of Regional Planning a "Locational Compliance Report" that shall provide the following information for the project: (i) rough or bulk grading permits (whichever occurs first in time) for village level grading for the project or a portion thereof, and commercial and residential building permits (excluding tenant improvement, MEP, HVAC and other miscellaneous permits) for the project or a portion thereof, as provided for by Mitigation Measures 2-10 (construction and vegetation change emissions) and 2-13 (operational emissions); (ii) the GHG emissions reductions required by Mitigation Measures 2-10 and 2-13; (iii) the GHG Mitigation Credits and/or Carbon Offsets retired by the project applicant, as provided by Mitigation Measures 2-10 and 2-13; and (iv) the locational distribution of retired GHG Mitigation Credits and/or Carbon Offsets for the portion of the project development covered by the Locational Compliance Report, with the distribution showing the total GHG reductions achieved within California, within the United States and internationally.

c. Consistency Determination

If the Department of Regional Planning determines within 90 days following submission of the Locational Compliance Report that the distribution of retired GHG Mitigation Credits and/or Carbon Offsets for the portion of the project development covered by the Locational Compliance Report are not consistent with the Locational Performance Standards identified above in Section X.A, the Department of Regional Planning shall issue a written notice of non-consistency to CDFW and the project applicant that the Locational Performance Standards as required by Section X.A. have not been met. CDFW may request additional information about the basis for any consistency determination. If the Department of Regional Planning does not issue a notice on non-consistency within the 90-day period, the project applicant shall be deemed to be in compliance with the Locational Performance Standards.

The review of the Locational Compliance Report by the Department of Regional Planning shall be limited to this consistency determination. The Department of Regional Planning shall not impose additional conditions or mitigation measures on the project in connection with the consistency review or determination. The notice

of non-consistency shall provide in reasonable written detail the basis of the finding of non-consistency. Upon a finding of non-consistency, the project applicant may submit a revised Locational Compliance Report to the Department of Regional Planning addressing the issues of non-consistency for additional review by the Department of Regional Planning. Upon a finding of non-consistency, no (i) rough or bulk grading permits (whichever occurs first in time) for village level grading for the project or a portion thereof, or (ii) commercial and residential building permits (excluding tenant improvement, MEP, HVAC and other miscellaneous permits) shall be issued until the Department of Regional Planning has issued a notice that the Locational Performance Standards have been met.

Appendix 7

Newhall Ranch
Transportation Demand
Management Plan,
UrbanTrans, September 2016

Newhall Ranch

Transportation Demand Management Plan

September 2016

Prepared by UrbanTrans North America

Table of Contents

Executive Summary

The Newhall Ranch Transportation Demand Management (TDM) Plan is a comprehensive plan designed to achieve reductions in vehicle miles traveled (VMT) and, in so doing, reduce greenhouse gas (GHG) emissions.[1] Accordingly, this TDM Plan provides a summary description of the existing and planned regional transportation network, a listing of each of the strategies that comprise this TDM Plan with corresponding information regarding application of the strategy, and a step-by-step plan of implementation.

The TDM Plan applies to new development located on the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas (the Project Site) that is facilitated by the Newhall Ranch Resource Management and Development Plan/Spineflower Conservation Plan (RMDP/SCP) Project. Specifically, the TDM Plan will serve planned development within the Project Site, which consists of up to approximately 21,242 residential units; about 9.3 million square feet of commercial uses; and, numerous public facilities, including schools, fire stations, a library, and recreational amenities. This TDM Plan will serve as an "umbrella plan," with appropriate and customized application to individual villages and land uses, as applicable, located within the three planning areas (i.e., the Newhall Ranch Specific Plan, Entrada and Valencia Commerce Center sites).

The core objectives of the TDM Plan are to reduce the number of single occupancy vehicle trips, through the utilization of alternative forms of motorized and non-motorized transport and related strategies, and thereby reduce total VMT and the corresponding GHG emissions. Therefore, as presented below, the TDM Plan includes a number of strategies that enable the Project Site's residents, employees, and visitors to utilize transit, ridesharing, walking, biking, telecommuting, and other transportation options. The TDM Plan relies, in part, on the design of the planned development and, in part, on innovative strategies developed by the transportation planning and engineering community to achieve its objectives, and provides the foundational elements necessary for the successful implementation of the TDM strategies outlined herein.

A non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to provide the services required by this TDM Plan, as applicable. The TMO and the long-term implementation of the TDM Plan will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required

[1] "Newhall Ranch" in this context refers to the development to be facilitated by the Newhall Ranch Resource Management Development Plan/Spineflower Conservation Plan, and includes the Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas.

to pay; this payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties.

This TDM Plan is based, in part, on information and analysis contained in a technical memorandum entitled *RMDP/SCP Project: Transportation Demand Management Plan Evaluation*, Fehr & Peers (September 2016). The memorandum analyzes each of the VMT reduction strategies presented in this Plan and, based primarily on guidance provided by the California Air Pollution Control Officers Association, calculates the VMT reduction expected to result with implementation of each strategy. The memorandum, including appendix and exhibits, provides technical support for the VMT reductions expected to be achieved with implementation of this Plan.

1.0 Background Information

1.1 Regional Setting

This section provides an overview of the existing and planned transportation network in the vicinity of the Project Site, including transit, roadways, bicycle/trails network, and the pedestrian environment.

The Project Site is located in the northern portion of unincorporated Los Angeles County in the Santa Clarita Valley. The Project Site area begins just west of Interstate 5 and continues to the boundary between Los Angeles and Ventura Counties, as shown in Figure 1. Traversing the Site is State Route (SR) 126, which functions as an east-west travel corridor between the Santa Clarita Valley and Ventura County. This section describes the transportation context to provide an understanding of the TDM needs and opportunities at the Project Site.

Figure 1: Project Site Vicinity Map

1.1.1 Transit Network

The Project Site is located within the City of Santa Clarita Transit service area. The agency operates nine local bus routes and four commuter routes that connect the City's neighborhoods with each other, as well as provide connections to regional transit via the following six transfer stations: the Santa Clarita, Newhall, Via Princessa, and Chatsworth Metrolink stations, the North Hollywood Red/Orange Line Station, and the McBean Regional Transit Center, which includes a park and ride lot. Commuter Express Service also is available during rush hours to Century City and downtown Los Angeles.

On average, service frequency for local bus routes ranges from 30 minutes to an hour during morning and evening peak hours. Most routes run between 5:00 A.M. and 10:00 P.M. on weekdays. Weekend service is less frequent, starts later in the morning, and ends earlier in the evening. Commuter train service into downtown Los Angeles is provided via the Metrolink Antelope Valley

Line, which takes less than an hour to reach Union Station and runs 15 times a day between 5:00 A.M. and 7:30 P.M. From the North Hollywood Metro Station, the Red Line runs every ten minutes through Hollywood to Union Station, a ride that takes approximately 30 minutes. The Orange Line serves points west and terminates in Chatsworth. Figure 2 shows a map with regional connections. Figure 3 illustrates the existing local Santa Clarita Transit Network.

Figure 2: City of Santa Clarita Transit Regional Transit Connections

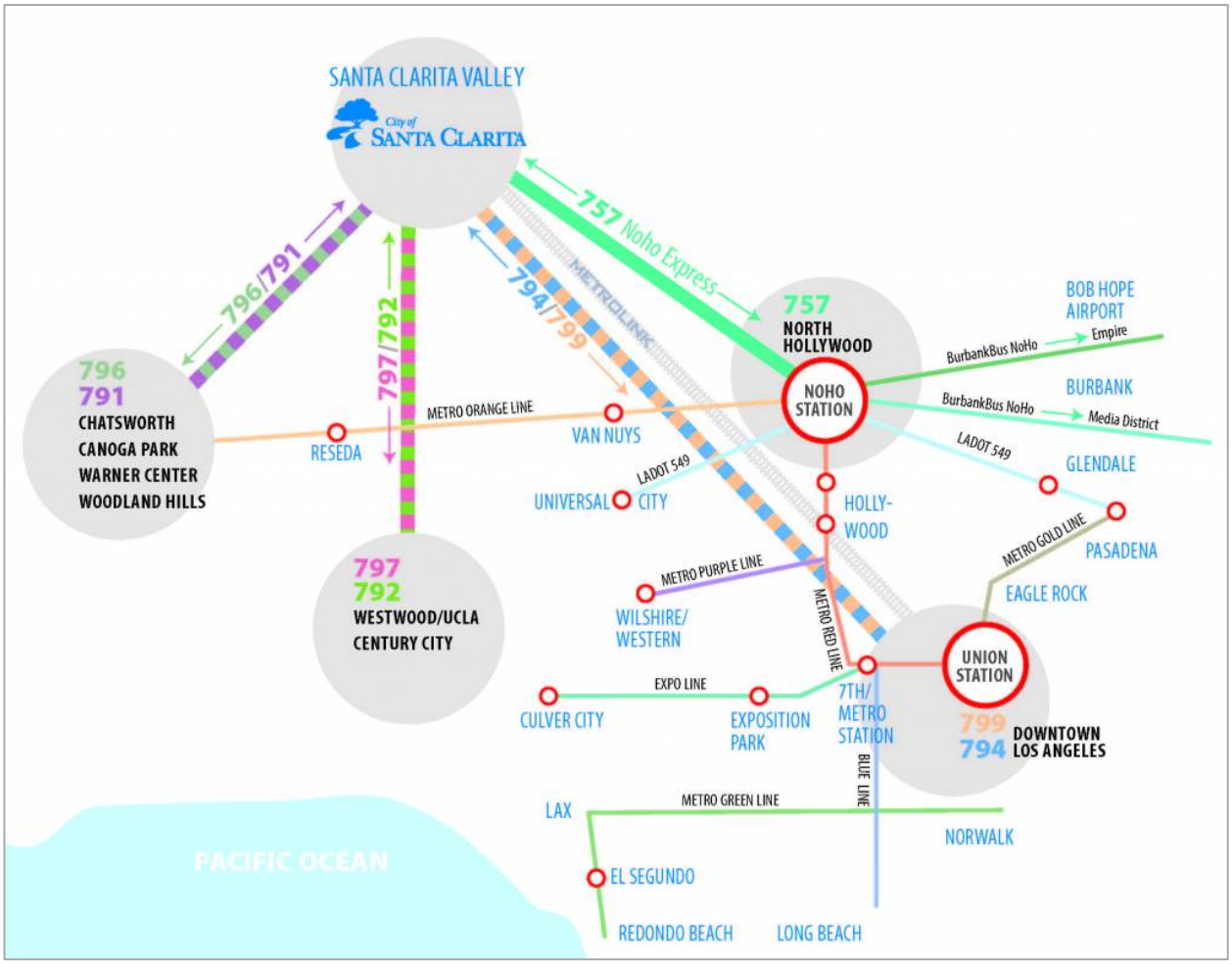
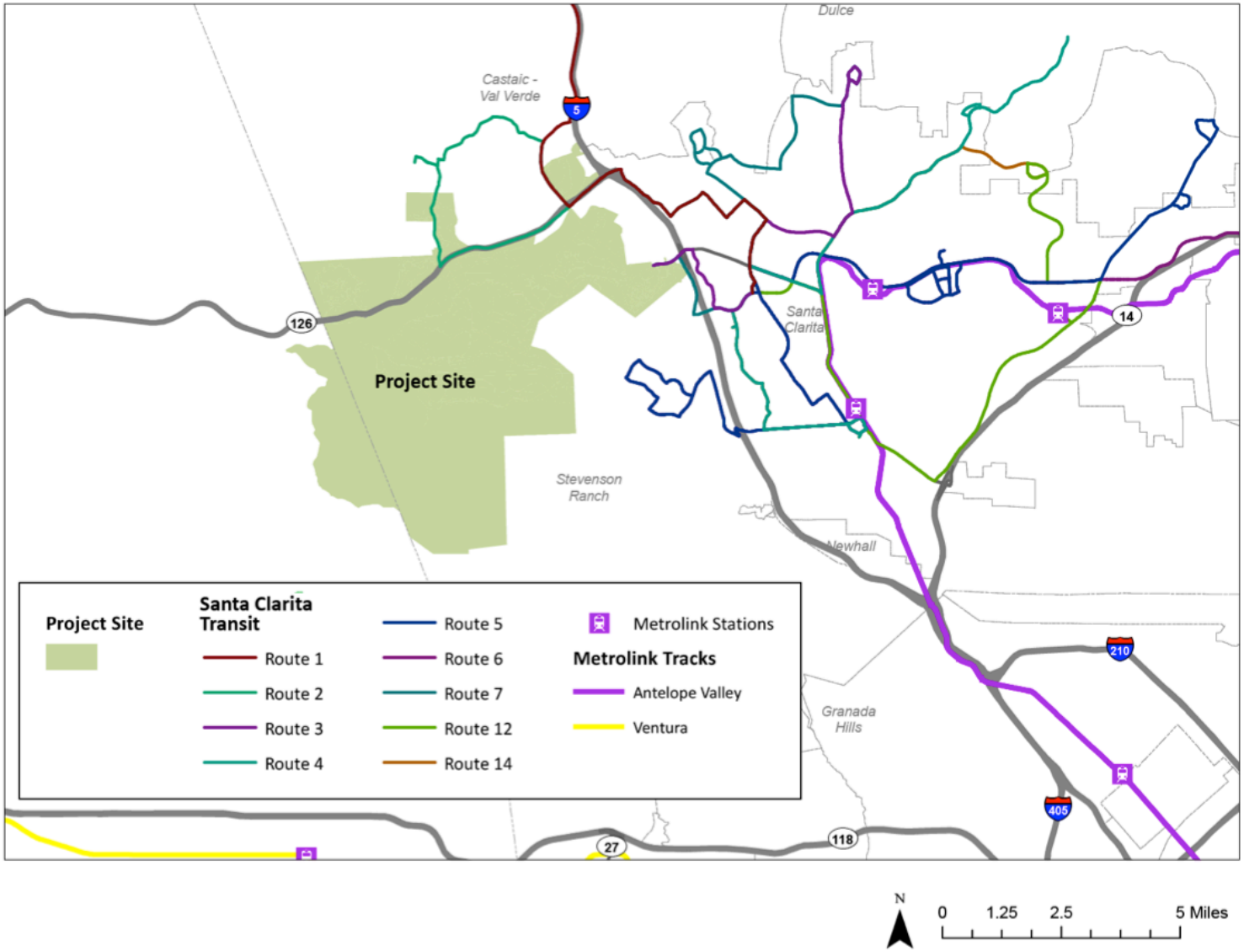


Figure 3: City of Santa Clarita Transit Local Service



1.1.2 Major Roadways

The Project Site is easily accessible from Interstate 5, which runs north-south and connects to downtown Los Angeles, and from Highway 126, which runs east-west between I-5 and the City of Ventura. A northward expansion of existing high occupancy vehicle (HOV) lanes from Highway 14 to north of Highway 126 is planned and scheduled to be completed in 2023. Within the Project Site area, an extension of Magic Mountain Parkway will run through the center of the site and connect with Long Canyon Road, an extension of the existing Valencia Boulevard. North-south connections will be provided by the extension of Commerce Center Drive, which will connect across Highway 126 to the Valencia Commerce Center, and by Long Canyon Road, which will connect to the existing Chiquito Canyon Road north of Highway 126. These new roads will be constructed as major and secondary highways along which transit service will be available.

1.1.3 Bicycle/Trails Network

The Los Angeles County Bicycle Master Plan adopted in 2012 identifies the addition of bike paths, lanes, or routes to several roadways adjacent to the Project Site. Planned improvements include bike paths and lanes along The Old Road, Castaic Creek, and the Santa Clara River/Highway 126. The bicycle master plan and related resources can be found here: https://dpw.lacounty.gov/pdd/bike/masterplan.cfm.

The City of Santa Clarita adopted a non-motorized transportation plan in 2014, which includes network and infrastructure improvements, facility design recommendations, and programmatic recommendations, including bicycle education and encouragement programs. The City of Santa Clarita is a Bronze level Bicycle Friendly Community, a recognition awarded by the League of American Bicyclists. The city's web site includes maps, bike parking information, safety tips, bicycles and transit information, and other resources. See: http://www.bicyclela.org/Programs.htm.

The Project's proposed network of bicycle and multi-use trails generally will resemble the extensive existing trail network in neighboring Valencia. Off-street, multi-use trails will connect the villages within the Project Site. They will be supplemented by paseos, wide sidewalks with lighting, benches, and shade trees that provide connections to activity centers, such as schools, recreation centers, and neighborhood centers. On-street bike lanes will be provided on major roads as well.

1.1.4 Pedestrian Environment

Sidewalks will be provided along all roads within the planned development located on the Project Site, supplemented by the trail network. Cul-de-sacs are part of the street design in certain locations, although pedestrian connections will be provided at some of the planned cul-de-sacs to improve pedestrian connectivity.

2.0 TDM Strategies

The strategies outlined below shall be implemented pursuant to this TDM Plan. However, in light of the ongoing evolution of transportation technology and advancements, the strategies set forth below may be modified or replaced, as necessary, with alternative strategies of equal or enhanced effectiveness. Therefore, the applicant (or its designee) and/or the TMO, or equivalent management entity, shall periodically evaluate the parameters of this TDM Plan so as to ensure that the strategies are meeting the needs and priorities of the residents, employees, tenants, and visitors to the Project Site. As new technologies and strategies become available, the TDM Plan can be modified in order to implement alternative technologies and/or strategies of equal or enhanced effectiveness.

2.1 TDM Strategy Description

The following is a brief description of each TDM strategy and its application to the Project Site.

Construction

1. **Construction Traffic Management Plan**

   Description: A construction traffic management plan can be effective both to reduce VMT and reduce the potential construction-related congestion on traffic by maintaining mobility to, from, and within the Project Site during the construction period.

   Application: Prior to issuance of a grading or building permit for each village level project, the applicant, or its designee, shall develop a Construction Traffic Management Plan that may include, as applicable: worker carpools through available incentives; remote parking areas and corresponding shuttle service; work hours and truck deliveries scheduled to the extent feasible to avoid peak hour traffic conditions (i.e., 7:00 A.M. to 9:00 A.M. and 4:00 P.M. to 6:00 P.M.); and re-routing construction-related traffic from congested streets (i.e., those streets, if any, operating at unacceptable levels of service during the peak hours).

Operation

1. **Integrate Affordable and Below Market Rate Housing**

   Description: Income has a statistically significant effect on the probability that a commuter will take transit or walk to work[2]. Below Market Rate (BMR) housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing

[2] Bento, Antonio M., Maureen L. Cropper, Ahmed Mushfiq Mobarak, and Katja Vinha. 2005. "The Effects of Urban Spatial Structure on Travel Demand in the United States." *The Review of Economics and Statistics* 87,3: 466-478.

balance near transit. Incorporating BMR also can encourage smaller units within the same building footprint, thereby increasing density and potential transit ridership.

Application: The applicant, or its designee, shall include an Affordable Housing Program as part of the planned development within the Project Site, in accordance with the County of Los Angeles' Newhall Ranch Specific Plan approvals.

2. Pedestrian Network

Description: Providing a pedestrian access network to link areas of a Project Site encourages people to walk instead of drive. This mode shift results in people driving less and, thus, a reduction in VMT.

Application: The applicant, or its designee, shall include within the planned development located on the Project Site pedestrian-movement facilities (e.g., sidewalks, paseos, and trails as depicted in the Newhall Ranch Specific Plan Mobility Plan) that eliminate physical barriers and provide pedestrian-based access to both on- and off-site complementary land uses (e.g., neighborhood-serving commercial retail opportunities; schools; recreational amenities).

3. **Traffic Calming**

Description: Providing traffic calming measures can encourage people to walk or bike instead of using a vehicle, thereby reducing VMT. Examples of traffic calming features include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.

Application: The applicant, or its designee, shall include within the planned development located on the Project Site design elements that reduce motor vehicle speeds and improve pedestrian and bicyclist safety on the on-site streets and intersections. These design elements may include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

4. **Transit Network Expansion**

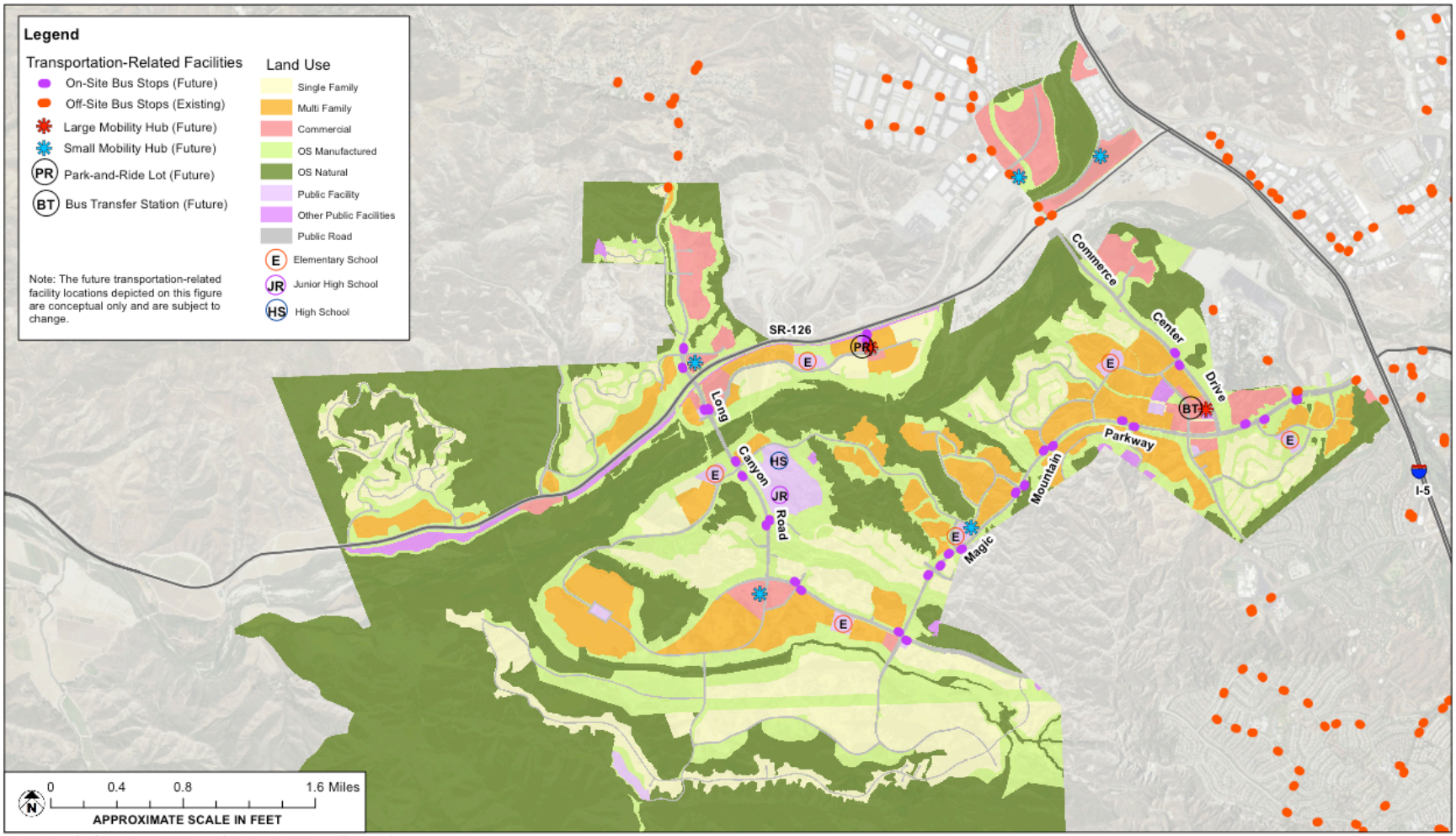
Description: Increasing transit availability through route expansion or increasing existing transit frequency improves access to the Project Site and, therefore, will encourage transit ridership. This mode shift results in people driving less and, thus, a reduction in VMT.

Application: The TMO, or its equivalent management entity, shall coordinate with the local transit agencies, including Santa Clarita Transit, to implement the Conceptual Transit Plan illustrated on Figure 4, to provide an expanded transit network that connects the Project

Site to major transit centers in the Santa Clarita Valley, and enhance on and off-site connectivity options via transit.[3] The expanded transit network shall include bus stops located throughout the development area, a bus transfer station, and a park-and-ride lot to the extent deemed appropriate.

[3] See, Fehr & Peers Technical Memorandum, *RMDP/SCP Project: Transportation Demand Management Plan Evaluation* (September 2016), Exhibit 2.

Figure 4: Conceptual Transit Plan



SOURCE: Hunsaker & Associates - 2016; Santa Clarita Transit - 2016; Meridian Consultants - 2016

FIGURE A

Meridian

Conceptual Transit Plan

5. **Alternative Work Schedules and Telecommute Program (Residential End)**

Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

Application: In furtherance of this strategy relative to Project residents, the TMO, or its equivalent management entity, shall utilize all appropriate marketing tools, including incentive strategies, to promote alternative work schedules and telecommuting on the part of Project residents, as feasible. In addition, the applicant, or its designee, shall construct all residential units to facilitate installation of high-speed internet services.

6. **Required Commute Trip Reduction Program**

Description: A Commute Trip Reduction (CTR) program is an employer-administered program that discourages single-occupancy vehicle trips and encourages alternative modes of transportation such as carpooling, taking transit, walking, and biking. A CTR program provides employees with assistance in using alternative modes of travel, and provides both "carrots" and "sticks" to achieve behavior change. A typical CTR program may include the following: preferential carpool parking, flexible work schedules for carpools, ridematching, designation of a transportation coordinator, transit subsidies, vanpool assistance, and bicycle end-trip facilities (e.g., parking, showers, and lockers). Participation in required commute trip reduction programs typically is required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

Application: The TMO, or its equivalent management entity, shall coordinate with large business employers of the planned development located on the Project Site to implement a required CTR program that may include, but is not limited to, the utilization of ride sharing; provision of transit subsidies and preferential parking to carpools, vanpools and other commute strategies that minimize the use of single occupancy vehicles; and, installs end-of trip bicycle facilities. As part of the program, the TMO (or equivalent management entity) shall establish performance and monitoring standards for the program's implementation status. In furtherance of this strategy, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants, employers, and employees of the Project Site's commercial areas, which establish and promote the benefits of commuting habits that reduce vehicle miles traveled. Additionally, the applicant/designee or the TMO (or equivalent management entity), as applicable, shall coordinate with commercial builders/property owners to promote ridesharing through a multi-faceted approach that includes, but is not limited to, the measures below:

- Designating a certain percentage of parking spaces for ride-sharing vehicles that is equivalent to at least one dedicated parking space per 25,000 square feet of office space;

- Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles; and

- Providing a web site or message board for coordinating rides in conjunction with Strategy

7. **Alternative Work Schedules and Telecommute Program (Work End)**

Description: Encouraging telecommuting and alternative work schedules reduces the number of commute trips and, therefore, VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed workweeks.

Application: The TMO, or its equivalent management entity, shall coordinate with employers of the planned development located on the Project Site to facilitate the utilization of non-traditional worker commute patterns, for both Project residents and Project employees, by encouraging the use of alternative work schedules and telecommuting. In furtherance of this strategy for Project employees, the TMO (or equivalent management entity) shall develop marketing strategies, targeted towards the tenants and employers located in commercial areas on the Project Site that establish the benefits of alternative work schedules/telecommuting and provide successful templates for the implementation of such alternative approaches in the workplace. Additionally, any property management company managing commercial property on the Project Site shall require employers with 100 or more employees within the Project Site to develop and implement an alternative work schedules/telecommuting program consisting of the following elements: (1) appointment of a program coordinator; (2) identification of specific categories of employment positions that are appropriate for alternative work schedules and/or telecommuting; (3) provision of required equipment for telecommuting (e.g., hardware, software, and security); and (4) establishment of communications strategies to facilitate satisfaction of employment responsibilities (e.g., instant messaging). In furtherance of this strategy for Project residents, all residential units will be constructed with high-speed, high-capacity internet, and will be included in the TMO's marketing and incentive strategies.

8. **School Bus Program**

Description: School travel can be a large trip generator, and school bus programs have shown to be an important and cost effective way to reduce overall trips in the community.

Application: The applicant, or its designee, in coordination with the Project Site's school districts shall establish and implement a school busing program to transport students residing within the Project Site to the on-site elementary, junior high, and high schools. The program shall be implemented in phases that correspond to the number of residential units and on-site schools. The TMO, or equivalent management entity, also shall implement school travel planning to promote both the school bus program, and to provide education and incentives intended to increase biking, walking, and carpooling to school.

9. **Transit Fare Subsidies for Employees**

Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund and shall coordinate with those employers of the planned development located on the Project Site not required to participate in the Required Commute Trip Reduction program (Strategy 6) to provide alternative transportation subsidies to employees who commute to jobs located within the Project Site.

10. **Carshare Program**

Description: Carshare members, on average, have lower auto ownership rates and drive less than non-carshare members. One study found that, on average, 21% of carshare members in North America gave up their primary or secondary vehicle after joining a carsharing program[4].

Application: The TMO, or its equivalent management entity, shall establish a membership-based carshare program, whereby members have access to a shared fleet of vehicles. In order to incentivize participation, carshare program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership fee for up to 50 percent of the market rate households that elect to participate in the program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households); and, will subsidize 100 percent of the annual fee for up to 100 percent of the below market rate households. As described in the *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers (September 2016),* the incentive program is entirely additive and does not factor into the VMT reduction calculations. In the event the TMO is unable to retain a commercial carshare vendor, the TMO may consider diverting the funds otherwise planned to provide membership subsidies to the establishment of a peer-to-peer carsharing model, such as Turo or Getaround. The peer-to-peer model relies on private individuals registering their car for use by other residents for a fee. To ensure comparable levels of service and reliability to a traditional carshare provider (such as Zipcar or Car2Go), the peer-to-peer model would require aggressive marketing, outreach, and incentives to ensure that a sufficient fleet is established in terms of the number of vehicles and their locations. Another alternative approach could be the

[4] IBI Group. (2009). *Parking Standards Review: Examination of Potential Options and Impacts of Car Share Programs on Parking Standards.* The City of Toronto.

establishment of a Newhall Ranch-specific carshare service, as has been done successfully in small cities such as Ithaca, New York (population 30,515).

11. **Neighborhood Electric Vehicle (NEV) and Electric Bicycle (E-Bike) Strategy**

Description: NEVs are classified in the California Vehicle Code as a "low speed vehicle". They are electric powered and must conform to applicable federal automobile safety standards. NEVs offer an alternative to traditional vehicle trips and can legally be used on roadways with speed limits of 35 MPH or less (unless specifically restricted). They are ideal for short trips up to 30 miles in length and can promote a mode shift from single-occupancy vehicles, particularly in their ability to replace short trips.

E-Bikes present another travel option with similar mode shift potential for short trips. Low-speed, pedal-assisted and throttle-assisted E-Bikes (Class 1 and 2) can reach a maximum speed of 20 MPH and are allowed by state law on all bicycle facilities, including dedicated bicycle paths, unless a local ordinance specifies otherwise. A survey conducted in 2015[5] showed that E-Bikes are particularly popular in hilly areas and improve the mobility of older residents or people with disabilities who are unable to ride a standard bicycle. Class 1 and 2 E-Bikes do not require a driver's license, registration or insurance and the State of California specifies no minimum age.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site a comprehensive, interconnected travel network that accommodates NEV use and includes features such as NEV parking, charging facilities, striping, signage, and educational tools. Additionally, the applicant or its designee will provide funding for a subsidy covering 25 percent of the NEV purchase price that would be made available to 20 percent of the residential single-family units located on the Project Site. The applicant or its designee also will provide funding for a subsidy covering 50 percent of the E-Bike purchase price that would be made available to 50 percent of the residential multi-family units on the Project Site.

12. **Mobility Hubs**

Description: Mobility hubs are one-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. Mobility hubs are designed to facilitate multi-modal travel and encourage mode shifts by co-locating services and aggregating information.

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[5] "E-bikes in North America: Results from an Online Survey," John MacArthur, http://www.bikeleague.org/sites/default/files/E_bikes_mini_report.pdf.

Application: The applicant, or its designee, shall incorporate into the design of the planned development located on the Project Site four small mobility hubs and two large mobility hubs. The following amenities are typical amenities that may be included at each mobility hub, dependent upon size (see *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers, September 2016, Exhibits 3 and 4*):

Small Mobility Hub:

- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage
- Co-location of carshare and bikeshare

Large Mobility Hub:

- Information kiosks
- Transit arrival information
- Bike lockers and bike parking
- Enhanced pedestrian amenities
- Branding/signage
- Co-location of carshare and bikeshare
- Designated park-and-ride spaces

13. **Tech-Enabled Mobility**

Description: Advances in technology have led to innovative new TDM opportunities. Recent technological applications include improved ride matching apps, real-time ride sharing, and innovative platforms that allow for trip planning, trip tracking, the administration of rewards programs, and real-time bus information.

Application: The TMO, or its equivalent management entity, shall establish as part of the planned development located on the Project Site a one-stop website for transportation information, as well as complementary apps for mobile devices and computers.

14. **Bikeshare Program**

Description: Similar to carshare members, bikeshare members also have lower auto ownership rates and drive less than non-bikeshare member counterparts. Studies have found that on average 7% of bikeshare members replaced their personal vehicle with the bikeshare[6].

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[6] Johnston, K. (2014, April 7). Beyond Urban Planning: The Economics of Capital Bikeshare. *Georgetown Public Policy Review*. Retrieved from http://gppreview.com/2014/04/07/beyond-urban-planning-the-economics-of-capital-bikeshare/

Application: The TMO, or its equivalent management entity, shall establish a bikeshare system on the Project Site with up to 15 stations. In order to incentivize participation, bikeshare program participation will be subsidized. Specifically, the TMO, through assessments, or other funding mechanisms that may be applicable, will subsidize 50 percent of the annual membership cost for up to 1.5 percent of Project residents who live in market rate housing; and, 100 percent of the annual household membership cost for below market rate households. As described in the *RMDP/SCP Project: Transportation Demand Management Plan Evaluation, Fehr & Peers (September 2016),* the incentive program is entirely additive and does not factor in to the VMT reduction calculations.

15. **Transit Fare Subsidies for Below Market Rate Housing Residents**

Description: Subsidizing the cost of transit or other alternative modes can encourage adoption of these modes.

Application: The TMO, through assessments, or other funding mechanisms that may be applicable, shall fund, and shall provide alternative transportation subsidies to the below market rate households located within the Project Site (up to 300 passes based on anticipated participation rates).

Table 1: TDM Plan Performance Metrics and Targets, sets forth the applicable performance metrics and targets for each strategy identified for implementation herein. Notably, however, and as described in Chapter 4.0 below, implementation of this "umbrella plan" will be subject to applicability evaluations and customization efforts in conjunction with the processing of County-level entitlements for planned development located on the Project Site. The overall implementation of this TDM Plan on the Project Site is anticipated to produce the desired effect and facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

2.2 TDM Resources

The following regional and local resources presently are available to facilitate implementation of the TDM Plan.

2.2.1 Go511

Go511 is Southern California's traffic information portal. It links commuters and employers to resources and information about car- and vanpooling, trip planning, commute costs, current traffic, and other helpful commute information. It offers regional employer programs, including a free Guaranteed Ride Home program, which provides commuters who take transit, car- or vanpool, or bike or walk to work with a free ride home in case of an emergency.

The affiliated ride share service, RideMatching, a joint partnership between Los Angeles County, Orange County, and Ventura County, provides commuters with a platform to find a car- or vanpool match, as well as other local resources and incentives for use. Additional employer and commuter programs are available from the Los Angeles County Metropolitan Transportation Authority, which also offers assistance with and incentives for setting up vanpools.

Associated web sites:

http://www.go511.com/

https://www.ridematch.info/

http://www.metro.net/riding/rideshare/

2.2.2 Vanpool Providers

Commuter vanpooling is a transportation mode that encourages employees who live near each other to commute to work via a van leased to the group by a private company. Two major vanpool providers operating in Southern California are vRide and Enterprise Rideshare. As of this writing, vRide operates 227 vanpools originating in Santa Clarita with destinations throughout the Los Angeles region. The Los Angeles County Metropolitan Transportation Authority (Metro) also has a vanpool program that offers assistance with vanpool formation and provides a $400 subsidy per vanpool.

Associated web sites:

https://www.metro.net/riding/vanpool/

http://www.enterpriserideshare.com/vanpool/en.html

http://www.vride.com/

2.2.3 Ridesourcing Options

In addition to traditional taxicab service, both Uber and Lyft operate in a service area that includes the City of Santa Clarita and the County of Los Angeles, including the Project Site. Both companies allow users to request rides real-time via a mobile app with payment processed through the app, and offer carpooling options on the fly (Lyft Line and UberPool). Rides are generally less expensive than a taxi ride, based on supply and demand of drivers and passengers.

3.0 TDM Implementation Plan

Following the California Department of Fish & Wildlife's (CDFW) approval of the Newhall Ranch RMDP/SCP, implementation of this TDM Plan will be overseen by the County of Los Angeles as individual village-level projects are processed and approved by the County. Because the VMT-reducing strategies that comprise the TDM Plan are expected to have varying levels of applicability and degrees of effectiveness for individual village-level projects, the TDM Plan (including performance metrics) may be refined, as necessary, as part of the County's approval process, to reflect the relevant characteristics (e.g., land use mix) of each respective village.

Notwithstanding, the performance metrics identified in this TDM Plan shall be met in full, upon buildout of all development facilitated by the RMDP/SCP. In the event the maximum development potential authorized by CDFW's approvals is not achieved as part of the County's approval processes for the individual village-level projects, the VMT-reducing strategies and performance metrics may be adjusted to reflect the modified buildout projections while maintaining consistency with the core objectives of this TDM Plan (i.e., to reduce the number of single occupancy vehicle trips through the utilization of alternative forms of motorized and non-motorized transport and related strategies and, thereby, reduce total VMT and the corresponding GHG emissions).

3.1 Funding Options

The TMO and the long-term implementation of the TDM Plan, including transit, car share and bikeshare programs subsidies, will be funded by TDM assessments, or other funding mechanisms that may be applicable, which all applicable property owners will be required to pay. The payment structure will be enforced through Covenants, Conditions and Restrictions (CC&Rs) placed on residential and commercial properties. The applicant or designee will provide funding for infrastructure components, such as mobility hubs, traffic calming, the pedestrian network, bikeshare facilities, school buses, and NEV/E-Bike subsidies. As needed, the applicant, or its designee, also may subsidize TMO operation during the first years until revenues from assessments are sufficient to fund the annual TMO operating expenses.

3.2 Organizational Structure

As previously discussed, a non-profit Transportation Management Organization (TMO) or equivalent management entity will be established to deliver the programs and services identified in this TDM Plan, as applicable.

3.3 TMO Creation Action Plan

It is estimated that the start-up activities to prepare for implementation of the TDM programs and strategies identified in this plan will begin approximately three months prior to issuance of the first building permit. The timing ensures that an organizational structure that facilitates the receipt of funds and the provision of applicable TMO services will be in place as soon as the first property owners and tenants move in. The TMO will be a non-profit organization. The governing body's membership gradually will expand to include a growing number of property owners as they begin occupancy at the Project Site. TMO creation steps are as follows:

- **Create a TMO and form a governing body:** If the TMO is a division of an existing entity, such as a master owners' association, this step simply involves formalizing and expanding a steering committee. If the TMO is envisioned as an independent non-profit organization, the steps for incorporating the entity are listed below.

- **Incorporation of the TMO (optional):** The process for incorporating a TMO is outlined below.

    - Draft and file the articles of incorporation
    - Recruit and appoint a Board of Directors
    - Draft by-laws and conflict of interest policy
    - Conduct initial board actions (election of board officers, approval of the by-laws and conflict of interest policy, and establishment of a bank account).
    - Obtain an employer identification number
    - File the initial registration form (Form CT-1) with the California Attorney General's Registry of Charitable Trusts
    - File the Statement of Information (Form SI-100) with the Secretary of State
    - Apply for federal tax exemption with the Internal Revenue Service (IRS) and receive a determination letter from the IRS
    - Apply for California tax exemption with the California Franchise Tax Board (FTB) and receive an affirmation of exemption letter from the FTB

3.4 Key Implementation Actions

Implementation of the TDM Plan shall be phased in, based on the mix of uses developed, occupancy rates, need, and demand. Additionally, in coordination with the County of Los Angeles, the applicant (or its designee) shall review the planned development located within the Project Site concurrent with the processing of County-level entitlements for each village. Each village's land use map, composition of land use categories, and geographic placement within the Project Site shall guide the determination of the precise implementation of the strategies identified herein. It is not anticipated that every village necessarily will implement each strategy enumerated in this TDM Plan (e.g., each

village may not include its own mobility hub). Village-specific performance metrics and targets will be prepared in conjunction with the County's approval process for use in lieu of the overarching metrics and targets presented in Table 1. That said, the overall implementation of this TDM Plan on the Project Site is anticipated to facilitate transportation behaviors and patterns that result in meaningful reductions in the number of vehicle trips and vehicle miles traveled.

3.4.1 Start Up Activities

The start-up activities summarized below will be undertaken to prepare for TDM service delivery. The applicant, or its designee, will:

- Hire staff and establish the TMO office, including creation of a financial structure and accounting procedures

The applicant, or its designee, and TMO staff will proceed to:

- Create the TMO budget and ensure TDM program funding by finalizing assessment rates;
- Identify stakeholders and establishing the relationships necessary to successfully implement the TDM strategies;
- Finalize a business plan and create a detailed work plan;
- Create TMO branding and identity;
- Develop a marketing plan;
- Create a steering committee; and
- Establish monitoring and evaluation procedures.

3.4.2 Year One Activities – Based on development triggers

The activities described in this section prepare the TMO for effectively implementing its service when certain milestones are reached. These include employers and residents moving in, schools opening, and bikeshare and carshare systems launching. These activities do not necessarily happen during the first year of operation; instead, they are triggered by differing development milestones dependent upon the particular strategy and, generally, correspond to the first year of residential occupancy or the first year of school operation within the district unless otherwise noted. The timeline in section 3.5 below lists the triggers along with the corresponding strategies and actions. In Year One, the TMO will:

- Initiate the preparation of marketing materials, which may include new resident and new employee welcome kits, as well as general marketing materials;
- Establish an incentive structure for behavior-supportive subsidies, including prizes for drawings or giveaways to be used to incentivize and reward change from single occupant vehicle travel;
- Begin working with employers prior to their move to the Project Site;

- Conduct outreach to developers and property managers to ensure that preferential carpool parking, loading and passenger waiting zones and other end-of-trip facilities are implemented;
- Develop an effective system to administer payment of transit, bikeshare, and carshare program subsidies to employees and residents, as applicable;
- Develop a school travel planning strategy that will promote school bus service and encourage walking, biking and carpooling to school;
- Assess and employ tech-enabled mobility to provide functionalities such as trip planning, ridematching, ridehailing, trip tracking, rewards programs, and others;
- Begin implementation of monitoring and evaluation activities;
- Launch bikeshare program;
- Launch carshare program.

3.4.3 Ongoing Activities – Years 2 – 5

While specific implementation details will evolve over time and may be adjusted based on new strategies, technologies, or approaches that become available, these general categories will remain key components of program implementation during the first five years and beyond. During these years, TMO staff will:

- Administer transit/alternative transportation subsidies and introduce bikeshare and carshare subsidies as the programs are launched;
- Implement a residential engagement strategy to educate residents about alternative transportation options, available subsidies, and related programs;
- Implement an employer engagement strategy to educate both employers and their employees about the commute options, subsidies, and programs available to them;
- Administer school travel planning programs, such as school pools, walking, school bus, bike trains, incentives, and other programs available at that time; and
- Continue to monitor and evaluate TDM activities.

3.5 Timeline and Phasing

This timeline of TMO activities was developed to provide an estimate of when, during the development phasing process, certain actions need to begin in order to ensure service delivery as building occupancy occurs. The timeline may be adjusted based on changes to the TDM strategies.

Timeline	Development Triggers	Applicable Land Use				Strategy	Actions
		Residential	School	Retail	Office		
	Prior to issuance of first building permit for each applicable land use	✔	✔	✔	✔	TMO operations	TMO begins operations. Branding and marketing plan development begins.
			✔	✔	✔	Required commute trip reduction program	TMO outreach to developers to ensure preferential parking, passenger loading for rideshare vehicles, waiting areas for rideshare
	Prior to occupancy for each applicable land use	✔	✔	✔	✔	TMO operations	Implement systems to deliver subsidies to residents and employees
			✔			School bus program and travel planning	Coordinate school bus purchase with district, develop school travel planning program, implementation of programs
			✔	✔	✔	Required commute trip reduction program	Pre-relocation employer outreach
		✔				Alternative transportation subsidies - affordable housing	Market subsidies to affordable housing residents
			✔	✔	✔	Alternative transportation subsidies - employees	Work with employers to market alternative transportation subsidies
			✔	✔	✔	Alternative work schedules & telecommute program	General employer outreach, assistance to employers >100 employees, develop monitoring methods and begin tracking of implementation at large employer sites (>100 employees)
		✔				Alternative work schedules & telecommute program	Residential outreach through welcome kits and marketing
			✔	✔	✔	Required commute trip reduction program	Select and launch ridematching tool
		✔	✔	✔	✔	Tech-enabled mobility	Manage web site updates, app selection, distribution & marketing, etc.
	1,250 residential units in each village	✔				Carshare program	Begin implementation of carshare program and promotion of subsidies to residents
		✔				Bikeshare program	Begin implementation of bikeshare program and promotion of subsidies to residents

Activities that do not fall under the purview of the TMO, such as the review and approval of construction traffic management plans, inclusion of affordable housing, the development of a pedestrian network, traffic calming, and the transit network expansion, shall be incorporated into the County of Los Angeles' development review and approval activities and, in the case of transit expansion, coordinated and negotiated with City of Santa Clarita Transit.

4.0 Program Monitoring

The applicant (or its designee) and/or the TMO or equivalent management entity will track the progress towards meeting the performance metrics and targets identified in Table 1, RMDP/SCP TDM Plan Performance Metrics and Targets. Such monitoring includes verification of the installation of infrastructure components, payment of subsidies, and implementation of the various programs and services identified in this TDM plan. Progress will be monitored as identified in Table 1 to ensure that program goals are met and to inform the implementation of TDM strategies going forward.

Progress towards meeting the identified targets will be tracked via the following data collection mechanisms:

- Field verification: Field verification primarily will be used to verify installation of infrastructure components such as the Pedestrian Network, Traffic Calming, NEV travel network, Mobility Hubs, and Bikeshare Network. The field verification will be performed by the TMO or equivalent entity.

- Resident Surveys: The TMO or equivalent entity will conduct annual resident surveys to track the following metrics:
    - Percentage of workforce residents participating in an alternative work schedule;
    - Percentage of students arriving at school via school bus or non-motorized modes;
    - Percentage of households with carshare membership;
    - Percentage of households with an NEV or E-Bike; and
    - Percentage of below-market households with a subsidized transit pass.

- TMO Reports: The TMO or equivalent entity will prepare an annual report detailing its activities and accomplishments, including the establishment of and ongoing activities related to:
    - Required Commute Trip Reduction Program; and
    - Tech-enabled Mobility Program.

- Employer Reports/Surveys: Employers will submit an annual report to the TMO, or participate in an annual survey conducted by the TMO, as appropriate, to ensure the following metrics are tracked:
    - Percentage of employees participating in an alternative work schedule;
    - Percentage of employees receiving a discounted transit pass or other alternative transportation subsidy.

Additional methods listed in Table 1 include the review of partnership documents and reports from partnering agencies, and final as-built documents.

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
1	Integrate Affordable and Below Market Rate Housing	Because income has a statistically significant effect on the probability that a commuter will take transit or walk to work, affordable and below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing balance near transit.	Percentage of deed-restricted, below market housing units	10% of total housing units upon full build-out of the development facilitated by the RMDP/SCP	Review of deed-restricted, below market housing units within the development divided by total number of housing units	Once after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
2	Pedestrian Network	Pedestrian facilities, such as sidewalks, paseos, and trails.	Pedestrian network build-out that provides internal pedestrian facilities and facilities that connect off-site	Full build-out of planned pedestrian network that provides internal and external pedestrian connections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections. These measures include, but are not limited to: count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.	Percentage of streets and intersections with a traffic calming improvement	100% of streets and intersections	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
4	Transit Network Expansion	Extension of Santa Clarita Transit routes into Newhall Ranch.	Extension of transit system coverage throughout RMDP/SCP project area to each village, consistent with the Conceptual Transit Plan (or equivalent)	Extension results in 80% increase in Santa Clarita Transit system network coverage within the RMDP/SCP project area, as compared to the existing coverage provided within the project area	Transit Operator Reports	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
5	Alternative Work Schedules and Telecommute Program (Residential End)	High-speed internet available to residents and marketing efforts by the Transportation Management Organization (or equivalent entity).[7]	Percent of workforce residents participating in an alternative work schedule	10% of workforce residents participating in an alternative work schedule	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Internet speeds	Pre-wired residential access to high speed internet	Internet Service Provider Reports	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village

[7] When referred to in this table, TMO includes a Transportation Management Organization or an equivalent entity.

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
6	Required Commute Trip Reduction Program	Multi-strategy required program at larger employers that encompasses a combination of individual VMT reduction measures, such as ride-sharing, marketing, transit fare subsidy, preferential parking, and/or end-of-trip facilities. (This is neither intended to be an inclusive or exclusive list of potential measures.)	Program established	Establishment of a multi-strategy program that may include components such as preferential carpool parking, flexible work schedules for carpools, transit fare subsidies, ridematching, designation of a transportation coordinator, vanpool assistance, and bicycle end-trip facilities	TMO Report	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	Percent of employees participating in an alternative work schedule	10% of employees participating in an alternative work schedule	Employer Report or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
8	School Bus Program	Implement school bus service.	School Bus Program Established	Established as part of the development of each respective village	School District(s) report	Once as to each village, after build-out of each village is complete	Concurrent with the development of each respective village
			Percentage of students arriving at school via school bus or non-motorized modes	76% of students	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes or other alternative transportation subsidy for those employees whose employer does not participate in the Required Commute Trip Reduction (CTR) Program.	Fund a transit or alternative transportation subsidy program for 8.2% of all employees employed at Newhall Ranch whose employer does not participate in the CTR Program, at $2.98 subsidy per person per day.	8.2% of non-CTR Program employees	Employer Reports or TMO Survey	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or other.	Provide infrastructure for carshare parking spaces at mobility hubs	Full build-out of supportive carshare network	Final as-built documents	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Carshare provider contracted to serve Newhall Ranch	Partnership with carshare provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
			Membership in carshare program	1% of residents participate in carshare program	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
11	NEV/E-Bike Strategies	Travel network that accommodates NEV use, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies is included in this strategy.	NEV travel network build-out	Full build-out of planned NEV travel network	Field Verification	Once as to each village, after build-out of each village is complete	Full development build-out of each respective village
			Percent of single-family households with an NEV and percent of multi-family households with an E-Bike	20% of single-family households (NEV) and 50% of multi-family households (E-Bike)	Resident Surveys	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally-located within neighborhood and employment centers, consistent with the Conceptual Transit Plan (or equivalent).	Number of small mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare)	4 small mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
			Number of large mobility hubs (providing information kiosks, transit arrival information, bike lockers and bike parking, enhanced pedestrian amenities, branding/signage, co-location for carshare and bikeshare, designated park-and-ride spaces)	2 large mobility hubs	Field Verification	Once as to each village that includes a mobility hub, after build-out of each such village is complete	Full development build-out of each village with an identified mobility hub
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Mobile Application implemented by TMO that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information	One TMO-implemented application	TMO Report	Annual updates and upgrades to application	Full development build-out of each village
			Website implemented by TMO for transportation information that displays the following: on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information	One TMO-implemented website	TMO Report	Annual updates and upgrades to website	Full development build-out of each village

Table 1: RMDP/SCP TDM Plan Performance Metrics and Targets

Strategy #	Strategy	Description	Metric/Performance Measure	Target	Collection Method	Collection Frequency	When Target Should Be Met
14	Bikeshare	On-site availability of bikeshare bicycles throughout the project site with subsidized membership.	Provide infrastructure for up to 15 bikeshare stations at mobility hubs and other locations	Full build-out of planned bikeshare network	Field Verification	Once after full build-out of all development facilitated by the RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
			Bikeshare provider contracted to serve Newhall Ranch	Partnership with bikeshare provider	Partnership documents	Annually after full build-out of all development facilitated by RMDP/SCP	Full build-out of all development facilitated by RMDP/SCP
15	Transit Fare Subsidy - Below Market Rate Households	Discounted public transit passes to below market rate households.	Fund subsidized transit pass at $2.98 per day for residents in BMR households	14% of deed-restricted, below market rate housing units (up to 300 passes)	Resident Surveys	Annually after full build-out of all below market rate housing facilitated by RMDP/SCP	Full build-out of all below market rate housing facilitated by RMDP/SCP

Appendix 8

RMDP/SCP Project:
Transportation Demand
Management Plan Evaluation,
Fehr & Peers, September 7, 2016

FEHR PEERS

TECHNICAL MEMORANDUM

Date: September 7, 2016

To: Eric Lu, Ramboll Environ

From: Tom Gaul & Chelsea Richer, Fehr & Peers

Subject: ***RMDP/SCP Project: Transportation Demand Management Plan Evaluation***

Ref: LA16-2810

This technical memorandum presents an evaluation of the recommended Transportation Demand Management (TDM) Plan for the Resource Management & Development Plan and Spineflower Conservation Plan (RMDP/SCP) Project, which would facilitate development within three planning areas (i.e., Newhall Ranch Specific Plan, Entrada, and Valencia Commerce Center planning areas). The recommended TDM Plan is included in the attachment to this document.

1. INTRODUCTION

The recommended TDM Plan contains a set of strategies designed to maximize vehicle miles traveled (VMT) reduction opportunities within the facilitated development areas of the RMDP/SCP Project, taking into account the Project location and the types of land uses that would be facilitated by the Project. The estimated VMT reductions for each strategy presented in the TDM Plan are based on research presented in the California Air Pollution Control Officers Association's (CAPCOA) 2010 report.[1] For certain strategies, reference also is made to research conducted by Fehr & Peers beyond the estimates provided by the CAPCOA report. The remainder of this technical memorandum is organized as follows:

- Section 2 provides an overview of the recommended TDM Plan, including a list of the strategies contained in the recommended TDM Plan.
- Section 3 provides information about the overall methodology used to estimate the VMT reduction potential associated with each strategy.
- Section 4 provides a detailed description of and estimated VMT reductions for each of the strategies contained within the recommended TDM Plan.

[1]California Air Pollution Control Officers Association. *Quantifying Greenhouse Gas Mitigation Measures-A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, 2010. The CAPCOA report is herein incorporated by reference pursuant to CEQA Guidelines, section 15150.

- Section 5 provides a summary of the overall estimated VMT reduction associated with the strategies contained within the recommended TDM Plan.
- Appendix: TDM Strategy Examples provides a listing of examples of TDM strategies implemented in other areas of the state, with applicable internet source references.
- Attachments includes the following documents: Newhall Ranch Transportation Demand Management Plan (September 2016); Exhibit 1, CAPCOA Chart 6-2, Transportation Strategies Organization; Exhibit 2, Conceptual Transit Plan; Exhibit 3, Conceptual Large Mobility Hub Plan; Exhibit 4, Conceptual Small Mobility Hub Plan; Table 1, Strategies in the Recommended TDM Plan for the RMDP/SCP Project; and Table 2, Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project.

2. OVERVIEW OF THE RECOMMENDED TDM PLAN

The following strategies are included in the recommended TDM Plan:

1. Integrate Affordable and Below Market Rate Housing
2. Pedestrian Network
3. Traffic Calming
4. Transit Network Expansion
5. Alternative Work Schedules and Telecommute Program (Residential End)
6. Required Commute Trip Reduction Program
7. Alternative Work Schedules and Telecommute Program (Work End)
8. School Bus Program
9. Transit Fare Subsidy for Employees
10. Carshare Program
11. Neighborhood Electric Vehicle (NEV) & Electric Bicycle (E-Bike) Strategy
12. Mobility Hubs
13. Tech-Enabled Mobility
14. Bikeshare Program
15. Transit Fare Subsidy for Below Market Rate Housing Residents

The implementation of the TDM Plan would be, in part, accomplished through the creation of a Transportation Management Organization (TMO) or equivalent management entity, the formation of which is a pre-requisite to achievement of some of the VMT reduction estimates identified herein.

3. METHODOLOGY

The 2010 CAPCOA report, titled *Quantifying Greenhouse Gas Mitigation Measures*, is a primary resource to the assessment of quantifiable greenhouse gas emission reduction benefits. CAPCOA's research focuses on strategies to reduce greenhouse gas emissions at the project level, primarily in terms of land use, transportation, and energy use. The transportation component bases the emission reduction benefits on estimated reductions in VMT. These strategy-specific VMT reduction estimates were applied to the TDM strategies included in Section 4 below.

For each strategy, the CAPCOA report provides a discussion of the relevant literature, as well as a guideline for estimating the VMT reduction resulting from each individual strategy. The recommended guidelines for estimating VMT reduction were developed from relevant research and case studies. Section 4 below summarizes the particular methodology used to estimate the specific VMT reduction for each of the strategies included in the recommended TDM Plan.

For three strategies (Strategies 12, 13 and 14 below), there was no methodology available for estimating VMT reduction using the CAPCOA report, due to research limitations at the time the CAPCOA report was published. Therefore, VMT reduction estimates were derived from research conducted by Fehr & Peers, using professional engineering judgement and based on experience working on other TDM projects in California. These three instances are indicated in their respective sections in Section 4. In addition, while the effectiveness of the NEV component of Strategy 11 is based on CAPCOA research, the effectiveness of the e-bike component of the strategy is based on transportation technology trends and studies that post-date the CAPCOA report.

In addition, each strategy is considered by CAPCOA as part of a larger category group: Land Use/Location, Neighborhood/Site Enhancement, Parking Policy/Pricing, Transit System Improvements, Commute Trip Reduction, and Road Pricing Management. The CAPCOA report provides certain maximum reductions in VMT for each individual strategy, as well as for each category of strategies. The maximum reductions serve as caps for each category to prevent the double counting of reductions resulting from a combination of related strategies, similar in concept to the dampening adjustment discussed above.

Similarly, the CAPCOA report sets overall maximum caps based on context, with a 20% maximum reduction cap set for "Suburban Center," the context most appropriate to the RMDP/SCP Project, based on the balance of jobs and housing facilitated by the RMDP/SCP Project and the availability of transit service throughout the Project site. This maximum cap recognizes that each set of strategies is somewhat bounded by the overall land use beyond a project site, opportunities to connect to other suburban and urban environments, and the set of already existing mobility and access tools. Exhibit 1 duplicates Chart 6-2 from the CAPCOA report, identifying the category and overall maximum VMT reduction caps, as well as the individual strategies included in each category.

4. EVALUATION OF RECOMMENDED TDM STRATEGIES

This section provides a detailed evaluation of each TDM strategy listed in Section 2: Overview of the Recommended TDM Plan, above. For each strategy that is based on the CAPCOA report, the related CAPCOA strategy code (for example, CAPCOA TRT-6 or SDT-3) is provided.

1. Integrate Affordable and Below Market Rate Housing

According to CAPCOA, a VMT reduction of 0.04% - 1.20% would be expected based on the inclusion of below market rate housing into residential and mixed-use development projects with more than 5 dwelling units (CAPCOA LUT-6). Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work. According to the research underlying the CAPCOA range of effectiveness, housing that is affordable to an average income of 75% below the area median income produces the expected VMT reduction. At Newhall Ranch, 10% of the total housing would be deemed affordable, below market rate, while 6% would be affordable to those with an average income of 75% below the area median income. As such, the more conservative 6% rate was utilized to calculate the VMT reduction attributable to this strategy.

The reduction rate is based on the amount of below market rate housing provided and calculated according to the following formula:

> % VMT Reduction = 4% times, or multiplied by (*) Percentage of units in the project that are below market rate

Approximately 10% of the housing facilitated by the RMDP/SCP Project would be below market rate housing, with 6% affordable to an average of 75% below the area median income. This type housing is therefore expected to result in a 0.2% decrease in total VMT (4% * 6% = 0.2%).

2. Pedestrian Network

According to CAPCOA, enhancing pedestrian infrastructure can reduce VMT for residential, retail, office, industrial, and mixed-use projects (CAPCOA SDT-1). A high quality pedestrian network within an urban or suburban project site would be expected to result in an estimated 1% VMT reduction. With the expansion of the pedestrian network to include connections to the off-site network, a project can achieve an estimated VMT reduction of up to 2%.

In order for the pedestrian network to facilitate a reduction in VMT, the pedestrian network must directly connect to all existing and planned pedestrian facilities both within and adjacent to the project site, while minimizing any barriers to pedestrian access. According to CAPCOA, pedestrian network improvements are those that eliminate physical barriers to pedestrian access, such as walls, landscaping, and slopes/steep inclines that prevent easy access.

The RMDP/SCP Project would facilitate development that would incorporate a high-quality pedestrian network to enhance pedestrian access both on- and off-site, thereby encouraging a mode shift from driving to walking. The pedestrian network would be built into the design of the street network throughout the Project site, and would connect to existing development surrounding the Project site and to a network of off-street trails that will link areas of residential development with areas of commercial development, schools, and open space. Moreover, higher capacity streets throughout the Project site would have sidewalks and generally avoid barriers to pedestrian travel such as walls, landscaping, and steep slopes/inclines that otherwise would impede pedestrian travel. As a result, this high quality network is expected to directly result in a 2% reduction in total VMT, and indirectly would combine with other TDM strategies to further reduce VMT.

3. Traffic Calming

According to CAPCOA, traffic calming strategies include design elements intended to reduce motor vehicle speeds and improve pedestrian and bicyclist safety, creating an environment that encourages people to walk or bike instead of driving (CAPCOA SDT-2). Design elements could include, but are not limited to, count-down signal timers, marked crosswalks, raised crosswalks, raised intersections, speed tables, median islands, planter strips with trees, curb extensions, on-street parking, tight corner radii, roundabouts or mini-circles, and chicanes/chokers.

CAPCOA's estimation of VMT reduction for traffic calming measures is based on the percentage of streets and intersections within the project receiving traffic calming improvements. When 100% of streets and intersections within the project receive such improvements, there is an estimated 1% reduction in VMT. This estimated reduction in VMT applies to both urban and suburban projects, although the underlying literature relied upon by CAPCOA includes differences in reductions between the two. The VMT reductions were generally higher for traffic calming improvements in suburban environments (1.5%-2.0%) than urban environments (0.5%-0.6%). According to CAPCOA, "[t]hough the literature provides some difference between a suburban and urban context, the difference is small and thus a conservative estimate was used to be applied to all contexts" (CAPCOA, 192). Thus, CAPCOA's estimate ranges from 0.25%-1%, based on the percentage of streets and intersections incorporating traffic calming design elements.

Traffic calming improvements interact with other TDM strategies that encourage a mode shift from driving to walking and/or biking. The VMT reductions estimated by CAPCOA take this interaction into account and the estimated VMT reduction for traffic calming is specific to the traffic calming improvements and is separate from any other interacting measures.

For purposes of the RMDP/SCP Project, and based on the CAPCOA report, it is estimated that the traffic calming improvements would result in a 1% reduction in total VMT. This percentage is based on the fact that 100% of the streets and intersections will include one or more of the design elements listed in CAPCOA's description of traffic calming improvements, as detailed above, or other features such as streetscaping, NEV lanes, or bike lanes.

4. Transit Network Expansion

According to CAPCOA, transit network expansion includes the extension of local transit service (CAPCOA TST-3), shuttles to major rail transit centers and other areas within a project site (CAPCOA TST-6), and improved pedestrian access to transit facilities (CAPCOA TST-2; e.g., sidewalk/crosswalk safety enhancements and/or bus shelter improvements).

The CAPCOA report provides the following formula for calculating the percent VMT reduction associated with transit network expansion:

> % VMT Reduction = (% increase in transit network coverage) * (elasticity of transit) * (existing transit mode share) * (adj. factor = 0.67)

According to the CAPCOA report, transit network expansion results in VMT reductions ranging from 0.1-8.2%.

With respect to the RMDP/SCP Project, Santa Clarita Transit plans to extend existing bus routes into the planning areas where the RMDP/SCP Project would facilitate development, thereby connecting the RMDP/SCP Project's planning areas to major transit centers such as the Santa Clarita or Newhall Metrolink Stations.[2] Based on the CAPCOA formula, these planned transit enhancements were estimated to increase the existing transit system network coverage by 80%, a conservative estimate given the current lack of any transit presently serving the Project site. Given these coverage improvements (i.e., 80%), in combination with a transit elasticity of 1.01 based on CAPCOA documentation, and an existing 2.3% transit mode share as reported by the City of Santa Clarita,[3] the estimated reduction in total VMT attributable to the transit network expansion would be approximately 1.3% (80% * 1.01 * 2.3% * 0.67 = 1.3%).[4]

5. Alternative Work Schedules and Telecommute Program (Residential End)

This strategy captures commuters who live within the RMDP/SCS Project area and commute elsewhere, while Strategy 7 presented later captures commuters who live outside the RMDP/SCS Project area and work within the RMDP/SCS Project area.

According to CAPCOA, participation in an alternative work week or telecommute program results in fewer commute trips, which then reduces commute and overall VMT (CAPCOA TRT-6). The degree to which these programs reduce VMT is a direct result of the extent of the program and the number of people participating. Depending on the participation rate and the program type, the range in reduction of commute trip VMT is estimated by CAPCOA to be between 0.07% and 5.5%.

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[2] City of Santa Clarita. *Transportation Development Plan*, May 2013.
[3] 2.3% transit mode share based on the 2014 Census Journey to Work data for the City of Santa Clarita.
[4] Transit elasticity of 1.01 for suburban transit routes based on CAPCOA documentation.

The program participation rate is approximated according to the methodology presented by CAPCOA, which itself is based on a Cambridge Systematics/Fehr & Peers study.[5] Based on this methodology, a maximum of 50% of the typical workforce would have the potential to participate in an alternative work schedule, and 50% of those people actually would chose to participate; i.e., 25% of the total workforce would chose to participate. CAPCOA conservatively suggests that this rate be adjusted down further, in order to take into consideration possible rebound effects (i.e., travel for other purposes during the day while working at home), to a 10% participation rate.

As to program type, telecommute program types based on alternative work schedules range from one to several telecommute days per week; that is, employees participating in the program would be expected to telecommute anywhere from 1 to 3 days. Based on the range of telecommute days, in combination with the marketing support of the Transportation Management Organization noted in Section 2, a telecommute program would be expected to result in an average of 1.5 days of telecommuting per week.

Given a participation rate of 10% in a program expected to result in an average of 1.5 days of telecommuting/week, CAPCOA estimates the commute VMT reduction as 2.2% (CAPCOA page 237). To extrapolate this reduction in commute VMT to a reduction in overall VMT, the commute VMT reduction rate of 2.2% was applied to the commute VMT, which is 11% of the total VMT attributable to home-based (production end) work trips.[6] Additionally, since any work trips that start and end within Newhall Ranch (internal trips) would be captured by the reduction for Strategy 7: Alternative Work Schedules and Telecommute Program (Work End), the results are multiplied by the percentage of home-to-work production-end trips, which are external, or 78%.[7] This results in an overall VMT reduction of 0.2% (2.2% * 11% * 78% = 0.2%).

6. Required Commute Trip Reduction Program

According to CAPCOA, a required commute trip reduction program (CAPCOA TRT-2) is a multi-strategy program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing and promotions, preferential parking, transit subsidies, and bicycle end-of-trip facilities. Commute trip programs are typically operated by Transportation Management Organizations that manage and promote the program, collect data and monitor effectiveness. In some cases, some strategies, such as ride-sharing or providing preferential parking for carpool participants, may be implemented and operated by individual employers who monitor and report progress regularly to the TMO. The critical components of a required commute trip program (TRT-2) compared to a voluntary commute trip program (TRT-1) is that the required commute trip program has established performance standards, required implementation, and regular monitoring and reporting. Participation in required commute trip reduction programs is typically

[5] Cambridge Systematics and Fehr & Peers. *Moving Cooler: An analysis of transportation strategies for reducing greenhouse gas emissions.* Urban Land Institute, 2009.
[6] Percent of VMT attributable to home-based (production end) work trips calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).
[7] Percent of work trips that are external are 78%, calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).

required of employers above a certain size threshold, exempting small businesses and non-traditional employers from the requirement to participate.

Based on the diversity of types of jobs that would exist as part of the development facilitated by the RMDP/SCP Project (i.e., large and small businesses, schools, community facilities), it is conservatively estimated that 50% of the employees would be employees of larger businesses eligible to access the services and benefits provided by the required commute trip program as a result of their employer's required participation. This estimate is at the low end of CAPCOA's expected participation range for this strategy, between 20% and 100%. According to CAPCOA, required commute trip reduction programs would result in a 21% decrease in vehicle mode share for commute trips for those employees who are eligible to participate in the program (CAPCOA page 224). Therefore, the following formula is used to estimate the commute-trip-related VMT reduction attributable to a required commute trip program:

> % VMT Reduction = (% employees eligible) * (21% reduction in vehicle mode share) * (% share of all trips attributable to home-based commute trips)

For the RMDP/SCP Project, it is estimated that a 1.5% VMT reduction would result from implementation of a required commute trip program based on a 50% employee eligibility rate, and a 21% reduction in the percentage share of all trips attributable to home-based work trips, which is 14% (50% * 21% * 14% = 1.5%).[8]

7. Alternative Work Schedules and Telecommute Program (Work End)

Related to alternative work schedules and telecommute programs from the residential perspective (Strategy 5) are similar programs viewed from the work, or employer, perspective. This strategy captures commuters who live outside the RMDP/SCS Project area and work within the RMDP/SCS Project area, while Strategy 5 captures commuters who live within the RMDP/SCS Project area and commute elsewhere. Therefore, the participation of an employee in an alternative work week or telecommute program is analogous to that of a project site resident (see Strategy 5, above): the higher the participation rate and the more extensive the program, the larger the reduction in VMT.

Determining the participation rate and program type for the telecommute program on the work end utilizes the same CAPCOA methodology as on the residential end: while 50% of a typical work force would have the potential to participate in the alternative work schedule, only a 10% participation rate is utilized. As to program type, commercial businesses that locate in the RMDP/SCP Project's planning areas would be encouraged to implement alternative work schedules and telecommuting options for their employees. Using the reference table provided on page 237 of the CAPCOA report, a 4/40 alternative work schedule (4 days per week, 10 hours a day) and a 10% participation rate would yield a 1.5% reduction in commute VMT.

[8] Percent VMT attributable to home-based (attraction end) work trips calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).

To extrapolate the reduction in commute VMT to a reduction in overall VMT, the commute reduction rate of 1.5% is applied to the 14% of total VMT that is attributed to home-based (attraction end) work trips, thereby resulting in an overall VMT reduction of 0.2% (1.5% * 14% = 0.2%).

8. School Bus Program

According to CAPCOA, the implementation of a school bus program involves coordinating with local school districts to provide school bus service in the project area and local community (CAPCOA TRT-13). The degree to which the school bus program would reduce school VMT (i.e., those vehicle miles generated by student travel to and from a school) ranges from 38% to 63% dependent upon the number of families participating in the program.

Based on the methodology provided by CAPCOA, the reduction in school VMT is calculated as follows:

> % Reduction in School VMT = Participation rate of Families * (39 school weeks / 52 weeks)

CAPCOA research identified an 84% participation rate based on a study conducted in connection with the Lamorinda School Bus Program serving Lafayette, Orinda, and Moraga, California. The Lamorinda study, which contains the only empirical data provided by CAPCOA supporting participation rates, determined that 84% of the families within the boundaries of the School Bus Program participated in the program. CAPCOA also includes a low end participation rate of 50%, which is not supported by quantitative study and is based on an assumption of a "minimum participation goal." Because the communities of Lafayette, Orinda, and Moraga are suburban communities similar to the type of communities that would be built as part of the Project, and because the proposed School Bus Program would have as its goal a maximum, rather than minimum, participation rate, based on the professional judgment of the engineers preparing this analysis, a participation rate of 84% was used as a starting point for the analysis. As a conservative estimate, the participation rate was reduced by 10% to 76%.

Based on the methodology provided by CAPCOA, the proposed School Bus Program would result in an annual reduction in school-trip VMT of 57.0% (76% of families participating * 75% (39 weeks of school / 52 weeks in a year) = 57.0% of annual school-trip VMT reduced). This percent reduction is then applied to the total VMT that would be generated by the Project's school-based trips, or 5.9% of total annual VMT, resulting in an overall VMT reduction of 3.4% (57.0% * 5.9% =3.4%).[9]

9. Transit Fare Subsidy for Employees

CAPCOA associates certain levels of transit fare subsidy with corresponding levels of commuter participation in transit based on locational context (CAPCOA TRT-4). For the Suburban Center

[9] CAPCOA estimates that 9.8% of total trips (5.9% of total VMT) are related to school trips based on 2000-2001 California Statewide Travel Survey and 2001 NHTS Summary of Travel Trends.

context, a subsidy of $2.98 per person per day incentivizes a 16.4% reduction in commute VMT when employees are given a subsidy at their place of employment (CAPCOA page 231). The 16.4% reduction provided by CAPCOA is then multiplied by the percent of employees eligible to receive this subsidy to arrive at the final percent VMT reduction for this category of trips.

For subsidies of $2.98 per person per day, the CAPCOA report provides the following formula for calculating the percent VMT reduction associated with employee transit fare subsidies:

> % VMT Reduction = (% employees eligible to participate) * (16.4% reduction in commute VMT) * (% share of all trips attributable to home-based commute trips)

The transit fare subsidy will be offered through the TMO. Because an estimated 50% of Newhall Ranch employees would be eligible to access the services and benefits provided by the required commute trip program (Strategy 6) as a result of their employer's required participation, the remaining 50% of employees who commute to jobs located within the RMDP/SCP Project's planning areas will be eligible to access transit fare subsidies directly through the TMO. As noted above, at the level of $2.98 per day, which equates to between 25% and 100% of an existing round-trip Santa Clarita Transit fare, depending on service class, CAPCOA estimates that 16.4% of commuters would switch, resulting in a reduction of 8.2% of commute-based VMT (50% * 16.4%). Overall, the commute-based VMT for employees accounts for 14% of the overall VMT.[10] Therefore, an 8.2% reduction in commute-based VMT equates to a 1.1% reduction in overall VMT (14% * 8.2% = 1.1%).

10. Carshare Program

Carshare programs are membership-based programs that provide members access to a shared fleet of vehicles (CAPCOA TRT-9). Cost is generally based on a per mile or hourly basis. There are three common categories of carshare programs: transit station based, employer based, or residential based/citywide. Each of these programs has slightly different uses. Transit station-based carshare generally is intended to close the "last mile" gap by allowing users to drive from the transit station to their final destination. Employer-based carshare programs can provide transit/bike/walk commuters with an opportunity to conduct business/day trips while also providing a guaranteed ride home. Residential based/citywide carshare programs generally replace entire home-based trips.

The CAPCOA methodology calculates the reduction in overall VMT attributable to carshare programs as follows:

> % VMT Reduction = (37% reduction in carshare member VMT) * (20 carshare members per shared car) * (1 car / 2,000 suburban residents)

For purposes of the RMDP/SCP Project, the CAPCOA reduction in carshare member VMT for suburban areas is estimated as 0.4% (37% * 20/2,000 = 0.4%).

[10] Percent VMT attributable to home-based (attraction end) work trips calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).

To incentivize participation, the recommended TDM Plan includes partial subsidization of the annual membership fee (50% subsidy) for up to 50% of the households that would elect to participate in the carshare program (i.e., a 50% subsidy for all households that elect to participate in the program, capped at 50% of the total Project households), and 100% subsidization of the annual fee for up to 100% of the below market rate households. The incentive program is entirely additive and does not factor in to the VMT reduction calculations.

11. Neighborhood Electric Vehicle (NEV) & Electric Bicycle (E-Bike) Strategy

CAPCOA associates a VMT reduction with neighborhood electric vehicle (NEV) participation and ownership, along with a travel network that accommodates NEV use, including features such as charging facilities, striping, signage, and educational tools (CAPCOA SDT-3). The VMT reductions are associated with market penetration levels (i.e., percent of households owning a NEV) and an average reduction in total VMT per NEV household of 12.7% (Percent Market Penetration * 12.7%), as follows:

- 1 out of 10 Households purchase an NEV (10%) * 12.7% = 1.3% reduction in total VMT
- 1 out of 5 Households purchase an NEV (20%) * 12.7% = 2.5% reduction in total VMT
- 1 out of 3 Households purchase an NEV (33%) * 12.7% = 4.2% reduction in total VMT

While the methodology of how to estimate market penetration is not well documented in CAPCOA, a case study undertaken for a community in Los Angeles County provides a method to estimate market penetration levels given certain subsidy levels.

The South Bay region in Los Angeles County conducted a pilot demonstration project for NEVs, which surveyed participants after the study on price-point and willingness to buy an NEV.[11] Based on this survey, 83% of respondents said they would consider purchasing an NEV at the $6,000 price point (or a 54% subsidy based on an average purchase price of $13,000), and 69% said they would consider purchasing an NEV at the $8,000 price point (or a 38% subsidy). However, these survey respondents are not reflective of the general public because they already expressed interest in NEVs by signing up to participate in the pilot study, and already had been given an NEV to drive, free of charge. At the end of the study, two out of 51 participating households purchased an NEV without any subsidy, or about 4%.

Assuming the above survey data for the South Bay region of L.A. County overstates NEV interest relative to an average resident who has not participated in a pilot study nor expressed a pre-existing interest in NEVs, based on our professional judgment it was estimated that the general population's willingness to purchase an NEV at each price point would be one-half that of the South Bay study participants' willingness. Using this approach and interpolating from the survey results, it is estimated that about 1 in 10 residents (12%) would consider purchasing an NEV with

[11] Siembab, W. and Magarian, D. *Zero Emission Local Use Vehicles: The Neglected Sustainable Transportation Mode.* Published June 30, 2013 for the South Bay Cities Council of Governments.

a 10% subsidy; about 1 in 5 (20%) would consider purchasing with a 25% subsidy; and about 1 in 3 (35%) would consider purchasing with a 50% subsidy.

The recommended TDM Plan includes a 25% NEV purchase subsidy, to be promoted and marketed through the Transportation Management Organization, for single-family residences. At this price point, in combination with a supportive travel network that accommodates NEVs, it is estimated that 1 out of 5 single-family residences would purchase and use NEVs, resulting in a VMT reduction for single-family residences of 2.5% (12.7% * 20% = 2.5%).

With respect to multi-family residences, such residences may not have access to the facilities needed to store and charge an NEV as readily as single-family residences, primarily due to the potential lack of available driveway and garage space. However, electric bikes (e-bikes), which have a lower price point than NEVs but can serve similar travel objective purposes, can be stored and charged inside the home or smaller spaces in the garage. Therefore, the recommended TDM Plan includes a 50% e-bike purchase subsidy, to be promoted and marketed through the Transportation Management Organization, for multi-family residences.

Although the CAPCOA report does not address e-bikes as a strategy to reduce VMT, several recent studies have evaluated the travel behavior of individuals who have access to an e-bike.[12] Two key elements from these studies indicate how much VMT reduction can be anticipated from an e-bike subsidy: uptake rates (i.e., acquisition participation rates) and mode-shift tendencies (i.e., likelihood of use over alternative forms of transportation).

In the most recent study, *Evaluation of an Electric Bike Pilot Project at Three Employment Campuses in Portland, Oregon* (2017), 26% more study participants reported using the e-bike for trips at least one day per week and up to three days per week, compared to bicycle usage before the study began (i.e., a 26% uptake rate and a 14%-43% mode-shift tendency). Similarly, 4% more study participants reported using the e-bike for trips at least 4 days per week and up to seven days per week, compared to bicycle usage before the study began (i.e., a 4% uptake rate and a 57%-100% mode-shift tendency). Therefore, these study results indicate that between 6% and 15% of participant VMT could be reduced as a result of e-bike usage.

Some important differences exist between the Portland study and Newhall Ranch. In the Portland study, e-bikes were given to participants, while at Newhall Ranch, up to 50% of multi-family residences will be provided a 50% e-bike subsidy. In the Portland study, participants self-selected into the study, while Newhall Ranch will include the entire population of multi-family residences. In the Portland study, three employment centers were used as the basis for selecting participants, ranging from very suburban to urban contexts with varying levels of bicycle culture and

[12] Hiselius, L.W. and Svenssona, A. (2014) Could the increased use of e-bikes (pedelecs) in Sweden contribute to a more sustainable transport system? *9th International Conference "Environmental Engineering"*.
Lienhop, M. et al. (2015) PEDELECTION: Verlagerungs- und Klimaeffekte durch Pedelec-Nutzung im Individualverkehr. *Institut fur Transportation Design & Institut fur Energie- und Emweltforschung Heidelberg GmbH*.
MacArthur, J. et al. (2017) Evaluation of an Electric Bike Pilot Project at Three Employment Campuses in Portland, OR. *National Institute for Transportation and Communities*.

supportive facilities, while Newhall Ranch exhibits a suburban center context in the Santa Clarita Valley, with substantial existing bicycle culture and planned supportive facilities throughout the region. Given these differences and the range of potential VMT reduction demonstrated by the Portland study, a VMT reduction of at least 2.5% is a reasonable estimate for the e-bike component of this strategy, and falls below the low end of the range generated by the Portland study.

Therefore, with a 25% NEV purchase subsidy for single-family residences and a 50% e-bike purchase subsidy for multi-family residences, an overall 2.5% VMT reduction is estimated for this combined/hybrid NEV & e-bike strategy. At Newhall Ranch, the proportion of total VMT attributable to single family residences is 46%, and the proportion of total VMT attributable to multi-family residences is 54%.[13] Based on this proportion, the NEV component of this strategy is estimated to comprise 1.2% VMT reduction, and the e-bike component of this strategy is estimated to comprise 1.3% VMT reduction, for a total of 2.5% VMT reduction.[14]

12. Mobility Hubs

Mobility hubs are one-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, and other commuter amenities. These sites are conveniently located within each neighborhood and employment center in order to attract the most use and provide the most benefit.

Mobility hubs within the RMDP/SCP Project site would tie together the other mobility options available within the three planning areas, and are expected to enhance the effectiveness of other strategies contained within the recommended TDM Plan by providing a centralized location to access mobility services and by exposing users of one type of service to the other options available on site. The Mobility Hub results in its own VMT reductions because it improves the usability of the other strategies available at the hub by making transfers easier, providing information about the full suite of transportation options to users who may start out using only one type of transportation service, and providing a location for promotional events, in this case those related to transportation within Newhall Ranch.

Four small mobility hubs and two large mobility hubs would be established within the RMDP/SCP Project's three planning areas; potential locations of these mobility hubs are shown in Exhibit 2. Exhibit 3 shows a representative example of a large mobility hub, and Exhibit 4 shows a representative example of a small mobility hub. The following amenities are typical amenities that may be included at each mobility hub, based on size:

- Small Mobility Hub:

[13] Percent VMT attributable to single family residences and multi-family residences was calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010).

[14] These numbers have been rounded to one decimal place for consistency with other strategies in the TDM Plan. The CAPCOA equation produces a more precise reduction of 2.54% for this strategy, of which 1.17% can be attributed to single-family residences purchasing NEVs and 1.37% can therefore be attributed to multi-family residences purchasing an e-bike.

  - Info kiosks
  - Transit arrival information
  - Bike lockers and bike parking
  - Enhanced pedestrian amenities
  - Branding/signage
  - Co-location of carshare and bikeshare
- Large Mobility Hub:
  - Info kiosks
  - Transit arrival information
  - Bike lockers and bike parking
  - Enhanced pedestrian amenities
  - Branding/signage
  - Co-location of carshare and bikeshare
  - Designated park–and-ride spaces

The Mobility Hub strategy is a relatively new innovation, and research documenting the effectiveness of this strategy was not available at the time the CAPCOA report was published. However, based on research conducted by Fehr & Peers for other California projects, and the CAPCOA 0.1-0.5% percent reduction attributable to park-and-ride lots as a stand-alone facility (CAPCOA page 298), mobility hubs can contribute up to an additional 0.5% VMT reduction when used in conjunction with a suite of other TDM strategies. Based on this information and Fehr & Peers' professional engineering judgment, in combination with the inclusion of six mobility hubs and the related synergy with the Project site, a 0.3% overall VMT reduction was utilized for the RMDP/SCP Project.

13. Tech-Enabled Mobility

"Tech-enabled mobility" describes the development and provision of a one-stop website for transportation information, as well as complementary apps for mobile devices and computers. This website/app would provide comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (carshare, bikeshare), and traffic information for the development facilitated by the RMDP/SCP Project. This strategy brings together elements of and enhances the effectiveness of the other strategies included in the TDM Plan. By digitally assembling resources and information about transportation options and TDM services in one place, users are enabled to make different choices based on their needs for a particular trip. It also serves as an educational tool to expose users to the full range of transportation choices.

Additional capabilities of tech-enabled mobility include:

- It allows for two-way communication once the user has registered and downloaded the app. This can enable the TMO to remind users of transportation choices or alert users about promotions through push notifications, emails, or alerts.

- The website and app can be developed in a way that moves beyond simply assembling information in one place; it has the potential to "gamify" participation on the go, allowing users to set goals, track progress, provide rewards, and compare their activity to other users. Health/habit/lifestyle tracking apps are pervasive and popular, and the website/app format can engage users even when a trip is not being made.

One example of a mobile application that brings transportation services together in one digital space is GoLA (http://golaapp.com/), produced in partnership between the City of Los Angeles and Xerox. This app allows the user to see the full range of available choices, set mode-based preferences, compare trips across a variety of metrics (total travel time, monetary cost, and environmental cost), and select an itinerary that meets the needs of that trip. Another example of a more "gamified" version of a transportation website/app is the Denver Regional Council of Government's Clear the Air Challenge (http://cleartheairchallenge.org/). Arlington County, Virginia's comprehensive TDM program also includes several tech-enabled components that bring together the program's transportation options in a digital space (www.commuterpage.com).

This strategy is a relatively new innovation, and research documenting the effectiveness of this strategy was not available at the time the CAPCOA report was published. However, based on research conducted by Fehr & Peers at large employers in the Silicon Valley, and documentation from mobility-app developers on the effectiveness of their products, mobility websites and apps can contribute up to an additional 1%-2.5% VMT reduction when used in conjunction with a suite of other TDM strategies. Based on this research and professional engineering judgment, a conservative 1.5% overall VMT reduction was estimated for the RMDP/SCP Project based on the development of a website and mobile device application specific to Newhall Ranch and the mobility options available on-site and nearby and the potential to reach many more users with information, promotions, and service options with a faster and less costly frequency.

14. Bikeshare Program

According to CAPCOA, bikeshare has a minimal impact on VMT when implemented alone, but in conjunction with other strategies, can further enhance VMT reduction. Though CAPCOA lists bikeshare as a strategy, it does not provide associated estimates of VMT reduction.

In membership surveys of an established urban bikeshare system, a self-reported VMT reduction of 5.5% per year was observed.[15] Based on additional investigation done by Fehr & Peers into the effectiveness of this strategy, in combination with our professional judgment, it is estimated that the availability of bikeshare bicycles throughout the project site, in conjunction with subsidized membership, can reduce overall VMT by between 0.2%-0.5%.

Based on the conservative professional judgment of transportation engineers and planners, and in recognition of the differences between an established urban bikeshare system and the Suburban Center context of the RMDP/SCP Project's planning areas, a 0.3% VMT reduction was estimated, based on inclusion of an on-site bikeshare system with up to 15 stations. To provide additional

[15] Capital Bikeshare membership survey, 2014.

incentive to participate in the bikeshare system, the TDM Plan will subsidize 50% of the annual cost for up to 1.5% of Project residents who live in market rate housing, and 100% of the annual household membership cost for below market rate housing. The incentive program is entirely additive and does not factor in to the VMT reduction calculations.

15. Transit Fare Subsidy for Below Market Rate Housing Residents

In addition to the transit fare subsidy for employees discussed above in Strategies 6 and 9, additional subsidies would be offered to residents living in below market rate households. This is a separate strategy, with an analogous methodology to Strategies 6 and 9.

For subsidies of $2.98 per person per day, the CAPCOA report provides the following formula for calculating the percent VMT reduction associated with employee transit fare subsidies, which is applied only to the external work trips, and to the 10% of households that would be affordable, below-market-rate:

> % VMT Reduction = (% employees eligible to participate) * (16.4% reduction in commute VMT) * (% share of all trips attributable to home-based commute trips) * (% external work trips) * (% below market rate households)

The same level of subsidy would be offered, the same level of eligibility is utilized, and the same information relative to the Santa Clarita Transit fare would apply as for the employee transit fare subsidy: 50% * 16.4% = 8.2%.[16] As previously described, the home-based (production end) work VMT accounts for 11% of the overall VMT, and 78% of those trips are external and would not be captured by the CTR program or transit fare subsidies for employees offered in Strategies 6 or 9. Because the subsidy would be offered to all 10% of the households identified as affordable, below market rate, the 10% rate was utilized for the calculations. Therefore, an 8.2% reduction in commute-based VMT would equate to a 0.1% reduction in overall VMT (11% * 8.2% * 78% * 10% = 0.1%).

It should also be noted that subsidizing transit passes for below market rate housing residents would be expected to increase transit usage for non-commute (i.e., non-work-related) trips, further reducing VMT from the reduction estimate provided herein.

5. OVERALL VMT REDUCTION EFFECTIVENESS

Based on the methodology outlined in the CAPCOA report, when determining the overall VMT reduction, the VMT reduction separately calculated for each of the individual strategies should be dampened, or diminished, according to a multiplicative formula to account for the fact that some of the strategies may be redundant or applicable to the same populations. The multiplicative equation to accomplish this adjustment is as follows:

> Overall % VMT Reduction = 1-(1-A)*(1-B)*(1-C)*(1-D) …

[16] Based on this level of subsidy and the associated CAPCOA utilization rates, the TDM Plan is structured to provide subsidized passes to up to 300 individuals living in below market rate housing.

where A, B, C, D … = individual mitigation strategy reduction percentages

For example, if two strategies were proposed with corresponding VMT reductions of 20% and 10%, the equation would be [1-(1-20%)*(1-10%)] or [1-(80%*90%)], which equates to a 28% reduction rather than the 30% reduction that would otherwise be seen with a direct sum. Therefore, the overall VMT reduction was calculated as a dampened, or diminished, total according to the equation above, which produces a conservative overall estimate.

Table 1, Strategies in the Recommended TDM Plan for the RMDP/SCP Project, identifies the strategies discussed above. The overall estimated VMT reduction, after accounting for the dampening effect previously described, is 14.9%. This total VMT reduction level is consistent with CAPCOA's global maximum reduction cap for projects, like the RMDP/SCP Project, located within a Suburban Center context. Additionally, Table 2, Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project, provides a tabular overview of the mathematical inputs informing the VMT reduction effectiveness calculations for each of the strategies.

Given the ongoing evolution of transportation technologies and advancements, alternative TDM strategies with equal or enhanced effectiveness may prove to be better suited to the development facilitated by the RMDP/SCP Project. As additional TDM strategies become available, the TDM Plan would have the flexibility to implement these alternative TDM strategies of equal or enhanced effectiveness.

APPENDIX: TDM STRATEGY EXAMPLES

Alternative Work Schedules and Telecommute Programs

Telecommute programs have been implemented as a TDM strategy in Menlo Park, Alameda County, and San Mateo.[17]

Carshare Programs

Carshare programs have been implemented as a TDM strategy in Menlo Park and Alameda County, and are under development in Santa Monica.[18]

NEV Networks

Areas that have implemented NEV networks include Rancho Mission Viejo, a master planned community in Orange County, and the City of Lincoln, California.[19,20]

Mobility Hubs

Mobility Hubs have been used to bolster the use of mobility options in Broward County (Florida), Toronto, and Milton (Ontario), and are under development in the City of Los Angeles.[21]

Tech-Enabled Mobility

In June 2013, Rancho Mission Viejo and Ladera Ranch, master planned communities in Orange County, launched a comprehensive online mobility hub website to provide bus and train schedules, traffic information, and rideshare requests to users who then accumulate reward points based on commute decisions.[22] The goal of these sites was to enroll 500 residents of these communities (or 2% of all residents) in the program, further enabling easy access to the available transportation choices and encouraging participation in the suite of options.[23] Examples of

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[17] http://www.menlopark.org/DocumentCenter/View/2634; http://www.greatcommunities.org/wp-content/uploads/pdf/2007%2011%20Parking%20TDM%20Policy%20Fact%20Sheet.pdf; http://www.alamedactc.org/files/managed/Document/2414/TDM_and_Parking_Management.pdf

[18] http://www.menlopark.org/DocumentCenter/View/2634; http://www.alamedactc.org/files/managed/Document/2414/TDM_and_Parking_Management.pdf

[19] Knight Shine, N. *Golf cart-like vehicles part of the plan at Rancho Mission Viejo*. OC Register. September 15, 2015. http://www.ocregister.com/articles/rancho-683758-mission-viejo.html

[20] MHM Engineers & Surveyors. *NEV Transportation Plan for the City of Lincoln*. August 2006. http://lincolnca.gov/home/showdocument?id=16

[21] http://www.browardmpo.org/projects-studies/mobility-hubs; https://crcresearch.org/case-studies/case-studies-sustainable-infrastructure/transportation/mobility-hubs-toronto-ontario; http://www.miltontransit.ca/en/transit-programs/resources/AppendixC-MiltonMobilityHubWorkingPaper.pdf; additional information provided by LADOT via email on 2/16/16.

[22] RideAmigos. *Rancho Mission Viejo Case Study*. http://rideamigos.com/wp-content/uploads/2014/11/2.1.8-Case-Study-iGoLadera.pdf

[23] Ekberg, Marie. *Five things you need to know about iGoLadera* The Orange County Register. March 27, 2013. http://www.ocregister.com/articles/community-501573-program-traffic.html

potential commercial providers of tech-enabled services include RideAmigos, Luum, Ridescout, Xerox, and Metropia.

Bikeshare Programs

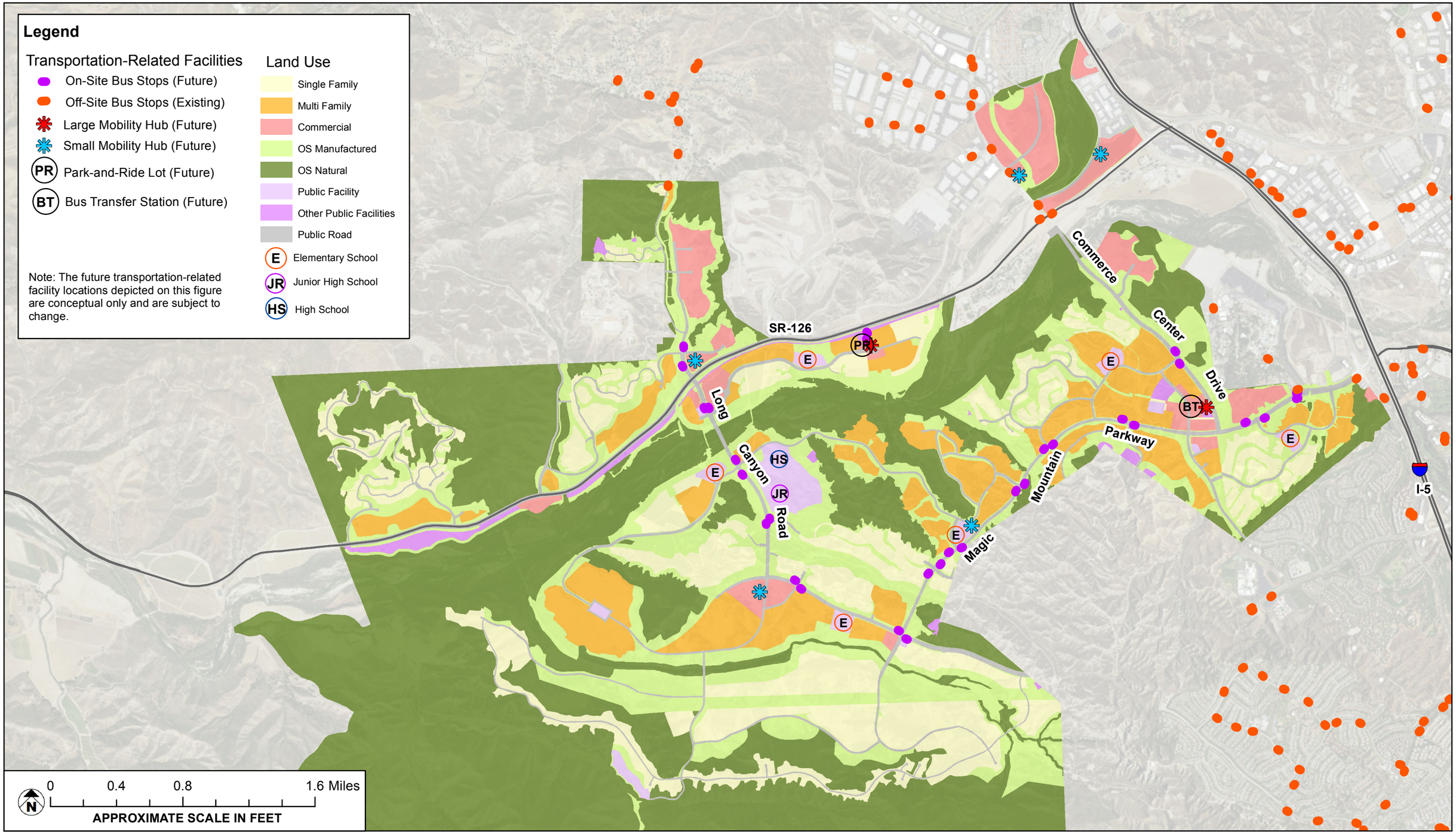
Bikesharing has been implemented as a TDM strategy in Menlo Park and Berkeley, was implemented recently in the City of Santa Monica and the City of San Diego as an additional transportation option, and is under development in Downtown Los Angeles.[24]

[24] http://www.smgov.net/Departments/PCD/Programs/Santa-Monica-Bike-Share/; http://thesource.metro.net/2015/06/25/metro-board-approves-bikeshare-vendor-for-los-angeles-county/

Chart 6-2: Transportation Strategies Organization

Transportation Measures (Five Subcategories) Global Maximum Reduction (all VMT): urban = 75%; compact infill = 40%; suburban center or suburban with NEV = 20%; suburban = 15%					Global Cap for Road Pricing needs further study	
Transportation Measures (Four Categories) Cross-Category Max Reduction (all VMT): urban = 70%; compact infill = 35%; suburban center or suburban with NEV = 15%; suburban = 10%				Max Reduction = 15% overall; work VMT = 25%; school VMT = 65%;	Max Reduction = 25% (all VMT)	
Land Use / Location Max Reduction: urban = 65%; compact infill = 30%; suburban center = 10%; suburban = 5%	**Neighborhood / Site Enhancement** Max Reduction: without NEV = 5%; with NEV = 15%	**Parking Policy / Pricing** Max Reduction = 20%	**Transit System Improvements** Max Reduction = 10%	**Commute Trip Reduction** (assumes mixed use) Max Reduction = 25% (work VMT)	**Road Pricing Management** Max Reduction = 25%	**Vehicles**
Density (30%)	Pedestrian Network (2%)	Parking Supply Limits (12.5%)	Network Expansion (8.2%)	CTR Program Required = 21% work VMT Voluntary = 6.2% work VMT	Cordon Pricing (22%)	Electrify Loading Docks
Design (21.3%)	Traffic Calming (1%)	Unbundled Parking Costs (13%)	Service Frequency / Speed (2.5%)	Transit Fare Subsidy (20% work VMT)	Traffic Flow Improvements (45% CO_2)	Utilize Alternative Fueled Vehicles
Location Efficiency (65%)	NEV Network (14.4) <NEV Parking>	On-Street Market Pricing (5.5%)	Bus Rapid Transit (3.2%)	Employee Parking Cash-out (7.7% work VMT)	Required Contributions by Project	Utilize Electric or Hybrid Vehicles
Diversity (30%)	Car Share Program (0.7%)	Residential Area Parking Permits	Access Improvements	Workplace Parking Pricing (19.7% work VMT)		
Destination Accessibility (20%)	Bicycle Network <Lanes> <Parking> <Land Dedication for Trails>		Station Bike Parking	Alternative Work Schedules & Telecommute (5.5% work VMT)		
Transit Accessibility (25%)	Urban Non-Motorized Zones		Local Shuttles	CTR Marketing (5.5% work VMT)		
BMR Housing (1.2%)			Park & Ride Lots*	Employer-Sponsored Vanpool/Shuttle (13.4% work VMT)		
Orientation Toward Non-Auto Corridor				Ride Share Program (15% work VMT)		
Proximity to Bike Path				Bike Share Program		
				End of Trip Facilities		
				Preferential Parking Permit		
				School Pool (15.8% school VMT)		
				School Bus (6.3% school VMT)		

Note: Strategies in bold text are primary strategies with reported VMT reductions; non-bolded strategies are support or grouped strategies.



SOURCE: Hunsaker & Associates - 2016; Santa Clarita Transit - 2016; Meridian Consultants - 2016

Exhibit 2

Meridian Consultants

Conceptual Transit Plan

080-001-15

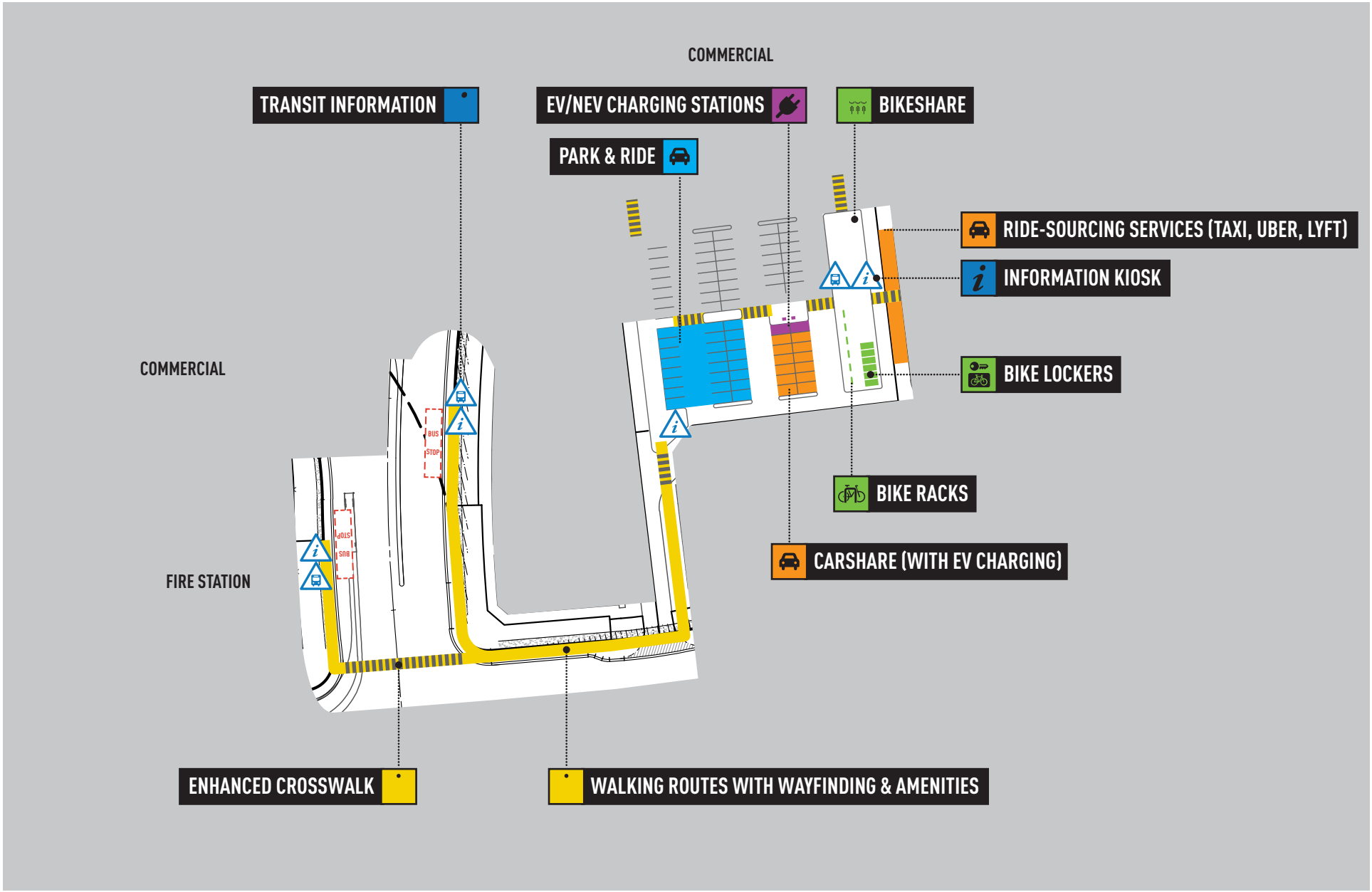


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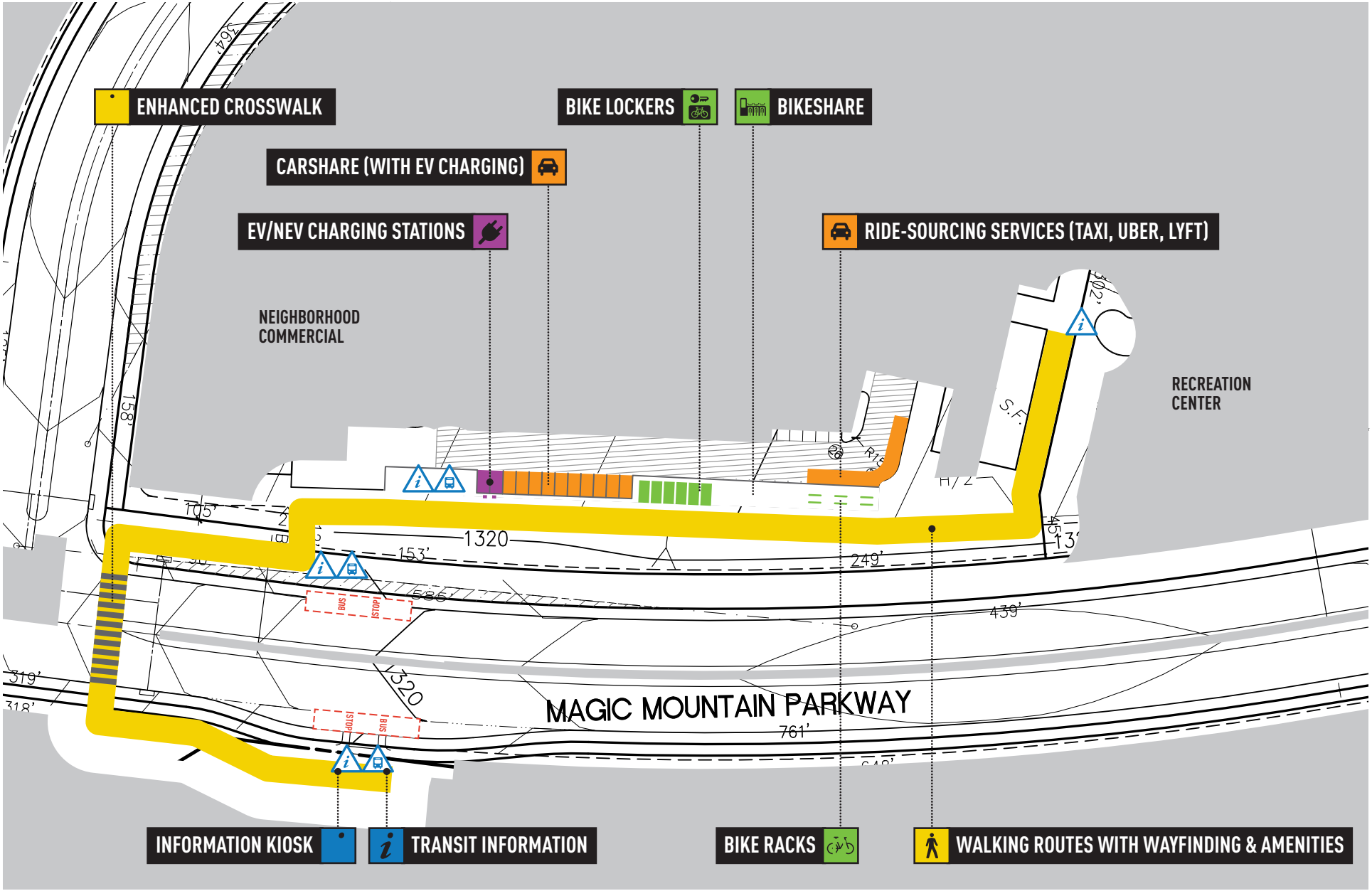
Exhibit 3

Conceptual Large Mobility Hub Plan

The facilities and related locations depicted on this plan are conceptual only and are subject to change.



\\fpla03\data\Jobs\Active\2800s\2810_Newhall Ranch\Graphics\AI

Exhibit 4

Conceptual Small Mobility Hub Plan

The facilities and related locations depicted on this plan are conceptual only and are subject to change.

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
1	Integrate Affordable and Below Market Rate Housing	Below market rate housing provides greater opportunity for lower income families to live closer to job centers and achieve jobs/housing match near transit. Income has a statistically significant effect on the probability that a commuter will take transit or walk to work.	6% of units are below market rate and affordable to an average income of 75% below area median income	LUT-6	0.04%-1.2%	0.2%	0.2%
2	Pedestrian Network	Pedestrian facilities such as sidewalks, paseos, and regional trails.	Within project and connecting off-site	SDT-1	0%-2%	2.0%	2.0%
3	Traffic Calming	One or more traffic calming measures for all on-site roadways and intersections.	100% of streets within project; 100% of intersections within project	SDT-2	0.25%-1%	1.0%	1.0%
4	Transit Network Expansion	Extension of Santa Clarita Transit routes within the RMDP/SCP project area.	80% increase of transit network coverage; 2.3% transit mode share as a % of total daily trips; includes TST-2 [4]	TST-3	0.1%-8.2%	1.3%	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	Highest internet speed available to residents and marketing efforts by the Transportation Management Organization.	10% of employees participating; 1.5 days of telecommuting to jobs outside Newhall Ranch	TRT-6	0.07%-5.5% (commute trips only)	2.2%	0.2%
6	Required Commute Trip Reduction Program	Multi-strategy required program that encompasses a combination of individual VMT reduction measures such as ride-sharing, marketing, preferential parking, and end-of-trip facilities. Targets for the program are set and subject to regular performance monitoring and reporting.	50% of employees eligible (participating); includes TRT-3, TRT-5, TRT-7, TRT-8	TRT-2	4.2%-21% (commute trips only)	10.5%	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	Encouraging telecommuting and alternative work schedules (e.g., 4/40, 9/80).	10% of employees participating; 4/40 plan	TRT-6	0.07%-5.5% (commute trips	1.5%	0.2%
8	School Bus Program	Implement school bus service.	76% of families using school bus program (electric bus)	TRT-13	38%-63% (school trips only)	57.0%	3.4%
9	Transit Fare Subsidy for Employees	Discounted daily or monthly public transit passes for employees.	50% of employees eligible at $2.98/day subsidy	TRT-4	0.3%-20% (commute trips	8.2%	1.1%
10	Carshare Program	On-site availability of car-share vehicles throughout the project site, such as Zipcar or a Newhall Ranch-specific fleet.	Suburban setting	TRT-9	0.4%-0.7%	0.4%	0.4%
11	NEV & Electric Bicycle (E-Bike) Strategy	Travel network that accommodates use of NEVs and e-bikes, including features such as charging facilities, striping, signage, and educational tools. Initial financial incentive in the form of subsidies are included in this strategy.	1 NEV per 5 single-family residences; 1 e-bike per 2 multi-family residences.	SDT-3 (NEVs only)	0.5%-12.7%	2.5%	2.5%
12	Mobility Hubs	One-stop centers for transit, rideshare meeting, car share, bicycle repairs, bicycle share, end-of-trip facilities, commuter amenities. Centrally-located within each neighborhood and employment center.	Contributes to increased uptake of all strategies; co-located with electric vehicle charging stations	N/A	0%-0.5%[5]	0.3%	0.3%

Table 1
Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	Description	Relevant Data	CAPCOA Reference	CAPCOA Reduction Range	CAPCOA VMT Reduction for Trip Type	Reduction to Overall VMT [3]
13	Tech-Enabled Mobility	One-stop website for Newhall Ranch transportation information. Comprehensive commute planning, on-demand rideshare matching, real-time transit arrivals, bicycle route mapping, shared ride reservations (shuttle, car share), traffic information, etc. All-in-one Newhall Ranch specific transportation app or suite of apps. Similar information and services as on website.	Smart-phone apps and online resource centers contribute to increased uptake of all strategies	N/A	1%-2.5%[5]	1.5%	1.5%
14	Bikeshare	On-site availability of bikeshare bicycles throughout the project site.	Minimal impact when implemented alone, but with other strategies can further enhance VMT reduction	TRT-12	0.2%-0.5%[5]	0.3%	0.3%
15	Transit Fare Subsidy - Below Market Rate Households	Discounted public transit passes to below market rate households.	Increases transit mode share for external home-work productions.	N/A	N/A	8.2%	0.1%
Overall Global VMT Reduction							**14.9%[6]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
6. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
1	Integrate Below Market Rate Housing Affordable to an Average Income of 75% Below Area Median Income	LUT-6	0.04%-1.2%	4% Initial CAPCOA Reduction	6% BMR & Low-Income Housing	-	-	-	0.2%
2	Pedestrian Network	SDT-1	0%-2%			(Calculation N/A)			2.0%
3	Traffic Calming	SDT-2	0.25%-1%			(Calculation N/A)			1.0%
4	Transit Network Expansion	TST-3	0.1%-8.2%	80% Coverage	1.01 Elasticity of Transit (CAPCOA)	2.3% Transit Modeshare[4]	0.67 Adjustment Factor (CAPCOA)	-	1.3%
5	Alternative Work Schedules and Telecommute Program (Residential End)	TRT-6	0.07%-5.5% (commute trips only)	2.2% CAPCOA Reduction (given 10% participation; 1.5 days tele-commuting)	11% of VMT (home-based work productions)	78% of work trips external to Newhall Ranch	-	-	0.2%
6	Required Commute Trip Reduction Program (includes creation of TMO)	TRT-2	4.2%-21% (commute trips only)	50% Employees eligible	21% reduction in vehicle mode share (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.5%
7	Alternative Work Schedules and Telecommute Program (Work End)	TRT-6	0.07%-5.5% (commute trips only)	1.5% CAPCOA Reduction (given 10% participation; 4/40 alternative work schedule)	14% of VMT (home-based work attractions)	-	-	-	0.2%
8	School Bus Program	TRT-13	38%-63% (school trips only)	76% participation rate	75% (39 weeks of school/52 weeks in a year)	5.9% of VMT (school-based trips)	-	-	3.4%
9	Transit Fare Subsidy for Employees	TRT-4	0.3%-20% (commute trips only)	50% Employees eligible	16.4% reduction in commute VMT (CAPCOA)	14% of VMT (home-based work attractions)	-	-	1.1%
10	Carshare Program	TRT-9	0.4%-0.7%	37% reduction in carshare member VMT (CAPCOA)	20 carshare members/shared car	1 shared car/2000 suburban residents	90% Market rate households; 10% Below Market Rate Households	-	0.4%

Table 2
Calculations to Support the Strategies in the Recommended TDM Plan for the RMDP/SCP Project [1,2]

Strategy Number	Strategy	CAPCOA Reference	CAPCOA Final Reduction Range	Strategy Calculations					Reduction to Overall RMDP/SCP VMT [3]
				(A)	(B)	(C)	(D)	(E)	(F)=(A)*(B)*(C)*(D)*(E)
11	NEV Strategy for Single-Family Residences	SDT-3	0.5%-12.7%	1 / 5 Single-Family HH with an NEV	12.7% VMT reduction (CAPCOA)	-	-	-	2.5%[5]
	E-Bike Strategy for Multi-Family Residences	N/A	6%-15%[6]	(Calculation N/A)					
12	Mobility Hubs	N/A	0%-0.5%[6]	(Calculation N/A)					0.3%
13	Tech-Enabled Mobility	N/A	1%-2.5%[6]	(Calculation N/A)					1.5%
14	Bikeshare	TRT-12	0.2%-0.5%[6]	(Calculation N/A)					0.3%
15	Transit Fare Subsidy - Below Market Rate Households	N/A	N/A	50% Participation	16.4% reduction in commute VMT (CAPCOA)	11% of VMT (home-based productions)	78% of work trips external to Newhall Ranch	10% Below Market Rate households	0.1%
Overall Global VMT Reduction									**14.9%[7]**

Notes
1. Based on the CAPCOA report, the land use type is Suburban Center.
2. The TDM Plan would include establishment of a transportation management organization (TMO) to implement and manage strategies.
3. 14% of total VMT is home-to-work attractions, 11% of total VMT is home-to-work productions, and 78% of home-to-work productions are external to Newhall Ranch calculated based on traffic modeling conducted for the RMDP/SCP EIS/EIR (December 2010). 5.9% of total VMT is school trips based on CAPCOA.
4. 2.3% transit mode share based on 2014 Census Journey to Work data for Santa Clarita City.
5. This reflects the combined effectiveness of the NEV component for single-family residences and the e-bike component for multi-family residences.
6. Estimated VMT reduction associated with these strategies based on Fehr & Peers research.
7. Individual rows' VMT reductions do not sum to overall total since effect of individual strategy reductions are multiplicative (not additive).

ATTACHMENT

NEWHALL RANCH TRANSPORTATION DEMAND MANAGEMENT PLAN

Appendix 9

ZNE Equivalency Metric Memorandum, Ramboll Environ, May 2017

ZNE EQUIVALENCY METRIC MEMO

Date **05/2017**

The Additional Environmental Analysis (AEA) for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP, or "Project") calls for implementation of Mitigation Measures 2-1 and 2-2. These two measures require that the Project's residences, commercial development, private recreation centers and public facilities achieve Zero Net Energy (ZNE), as defined by the California Energy Commission (CEC) in its 2015 Integrated Energy Policy Report (IEPR). The measures require that if an adequate supply of Project-generated renewable energy cannot be interconnected to allow compliance with the CEC's ZNE standard for the Project, or a portion thereof, then the two measures require the Project applicant or its designee to achieve an equivalent level of greenhouse gas (GHG) emissions reductions to mitigate such shortfall. This memo describes the methodology used to calculate the equivalent level of GHG emissions needed in this context.

Table 1, GHG Equivalency for ZNE Renewable Electricity Generation of this memo identifies the equivalent level GHG emissions reductions per unit of renewable energy generated; specifically, **Table 1** shows that 5.1 metric tonnes of carbon dioxide equivalent (MT CO_2e) reductions must be provided for every megawatt-hour (MWh) of renewable energy generated. This metric is a unit conversion based on the determination that the electricity grid will achieve a 50 percent Renewable Portfolio Standard by 2030 in accordance with the requirements of Senate Bill 350, as discussed in Section 2.1.3 of the AEA Appendix 1. The solar photovoltaic (PV) ZNE calculations in the AEA result in a GHG reduction per megawatt-hour of renewable energy generated, because non-renewable-derived electricity in the electricity grid is being replaced with renewable electricity from the Project's solar panels. Therefore, any shortfall in on-site renewables generation would be mitigated by providing 0.17 MT CO_2e reductions for every MWh of renewable energy generation that would have been needed to achieve the ZNE standard for the Project in 2030. Over a 30-year lifetime, this translates to 5.1 MT CO_2e reductions for every

MWh of renewable energy generated. This value is the same across all land use types because it is calculated on a per MWh basis.

Table 2, Example ZNE Equivalency Demonstration of this memo illustrates how this equivalency metric could be applied during the implementation phase of Mitigation Measures 2-1 and 2-2. For example, if a single-family home requires 8,167 kilowatt-hours per year (kWh/yr) to achieve ZNE based on its ZNE Confirmation Report, but is only able to generate 6,000 kWh/yr per utility interconnection limitations, the shortfall of 2,167 kWh/yr (or 2.167 MWh/yr) will need to be mitigated. The resulting GHG reduction required to offset the renewable energy shortfall is 5.1 MT CO_2e/MWh * 2.167 MWh, which equals 11.1 MT CO_2e. This GHG equivalency metric can be applied to any building for which a ZNE Confirmation Report is prepared, by multiplying the renewables shortfall in MWh/year by the factor of 5.1 MT CO_2e/MWh.

Table 1. GHG Equivalency for ZNE Renewable Electricity Generation
RMDP/SCP
Los Angeles County, California

Deriving CO_2 per Energy Delivered[1] [MWh]				
	2006	**2007**	**Average**	**Units**
Total Energy Delivery[1]	82,776,309	83,958,770	--	MWh
from renewables[2]	12,670,583	12,476,219		MWh
from non-renewables	70,105,726	71,482,551	--	MWh
% of Total Energy From Renewables[2]	15%	15%	--	
% of Total Energy From Non-Renewables	85%	85%	--	
Total CO_2 Emissions[1]	24,077,133	24,026,108	--	MT CO_2
CO_2 Intensity Factor per Total Energy Delivered[1]	641.26	630.89	636.07	lbs CO_2/MWh delivered
CO_2 Intensity Factor per Total Non-Renewable Energy[3]	757.16	741.00	--	lbs CO_2/MWh delivered
Calculating CO_2e Savings per Renewable Energy Generated in 2030				
Estimated Intensity Factors for Total Energy Delivered[4,5]	378.6	370.5	374.54	lbs CO_2/MWh delivered
	-	-	377.05	lbs CO_2e/MWh delivered
Unit Conversion	-	-	2204.62	lb/MT
Equivalent Emissions Reductions per Renewable Energy Generated	-	-	0.17	MT CO_2e/MWh/yr
Equivalent Emissions Reductions per Renewable Energy Generated[6]	-	-	**5.1**	MT CO_2e/MWh

Notes:

[1] Total energy delivery and total CO_2 emissions are provided in SCE Power/Utility Protocol (PUP) Reports. Available at: http://www.climateregistry.org/tools/carrot.html. Accessed: September 2016.

[2] Renewable energy delivered is the sum of biogenic, geothermal and other renewable generations in PUP reports.

[3] The emissions metric presented here is calculated based on the total CO_2 emissions divided by the energy delivered from non-renewable sources.

[4] The intensity factors for default RPS assumption are estimated by multiplying the percentage of energy delivered from non-renewable energy by the CO_2 emissions per total non-renewable energy metric calculated above. Emission factors are based on 50% RPS for 2030. The estimate provided here and the PUP reports issued by SCE assume that renewable energy sources do not result in any CO_2 emissions.

[5] CO_2e is calculated using CH4 and N2O default factors of 0.029 and 0.011 pounds of GHG per megawatt-hour, respectively, from CalEEMod®, which are based on emissions from California's mix of power generation sources in 2009. As more renewable energy is integrated into the electricity grid, these intensity factors will also decrease, however these intensity factors are conservatively kept constant here. The GWPs from the IPCC Fourth Assessment Report are used to calculate CO_2e.

[6] Equivalent emissions reductions approximated based on a 30 year lifetime.

Abbreviations:

CO_2 - carbon dioxide
GHG - greenhouse gases
lbs - pounds
MT - metric tonnes
MWh - megawatt-hour
RPS - Renewable Portfolio Standards
SCE - Southern California Edison

Table 2. Example ZNE Equivalency Demonstration
RMDP/SCP
Los Angeles County, California

Land Use	Required Renewable Energy Generation[1]	Proposed Energy Generation[2]	Shortfall in Energy Generation	Lifetime GHG Reduction Required[3]	Lifetime GHG Reduction Required[4]
	kWh/yr/home	kWh/yr/home	MWh/yr/home	MT CO_2e/MWh	MT CO_2e/home
Single Family	8,167	6,000	2.167	5.1	11.1

Notes:

[1] Example required renewable energy generation is for the prototype used in AEA Appendix 1, App. C. Specific renewable electricity generation requirements will be shown in the ZNE Confirmation Report prepared for each building or group of building permits.

[2] Proposed energy generation would be from the ZNE Confirmation Report for each project. If this value is less than the 'required renewable energy generation', the shortfall needs to be mitigated.

[3] The lifetime GHG reduction derivation is shown in Table 1.

[4] This is calculated by multiplying the shortfall (2.167 MWh/yr) by the lifetime GHG Reduction Required (5.1 MT CO_2e/MWh).

Abbreviations:

CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
kWh - kilowatt-hour
MWh - megawatt-hour
MT - metric tonnes
yr - year

Appendix 10

Environmental Assessment of Zero Net Energy and Electric Vehicle Chargers Memorandum, Ramboll Environ, May 5, 2017

RAMBOLL ENVIRON

ENVIRONMENT & HEALTH

MEMORANDUM

To: File

From: **Ramboll Environ**

Subject: Environmental Assessment of Zero Net Energy and Electric Vehicle Chargers

May 5, 2017

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The Additional Environmental Analysis (AEA) for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP, or "Project") was prepared in response to direction from the California Supreme Court (see *Center for Biological Diversity v. California Department of Fish and Wildlife (2015)* 62 Cal.4th 204). Draft AEA Appendix 1 (Appendix 1), Greenhouse Gas Emissions Technical Report, presents the Project's unmitigated and mitigated greenhouse gas (GHG) emissions inventories. The GHG analysis presented recommended mitigation measures to ensure that the Project's mitigated emissions are reduced to zero. The purpose of this document is to assess the potential environmental impacts of a subset of these mitigation measures that require Zero Net Energy (ZNE) residential and non-residential development, Electric Vehicle Chargers (EV Chargers), and building retrofits.

This report is intended to provide a high-level analysis of potential environmental effects for mitigation measures that will be implemented by the Project. Accordingly, this report makes reasonable assumptions about the mitigation measures and is intended to inform the AEA about the potential environmental impacts that may be associated with the mitigation measures and whether those impacts would be significant in nature. As detailed below, this report concludes that implementation of these mitigation measures likely would not result in a significant impact to the environment.

MITIGATION MEASURE 2-1 (RESIDENTIAL ZNE) AND MITIGATION MEASURE 2-2 (NON-RESIDENTIAL ZNE)

Mitigation Measure 2-1 (Residential ZNE) generally requires that the Project applicant or its designee demonstrate that the residential development within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the California Code of Regulations (CCR) has been designed and shall be constructed to achieve Zero Net Energy, as defined by the California Energy Commission in its 2015 Integrated Energy Policy Report[1]

[1] AEA Appendix 1, page 20.

Mitigation Measure 2-2 (Non-residential ZNE) generally requires that the Project applicant or its designee demonstrate that the commercial development, private recreation centers and public facilities within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the CCR have been designed and shall be constructed to achieve ZNE, as defined by the California Energy Commission in its 2015 Integrated Energy Policy Report. ("Commercial development" includes retail, light industrial, office, hotel, and mixed-use buildings. "Public facilities" are fire stations, libraries, and elementary middle/junior high and high schools.)[2]

The AEA is based on building energy modeling that analyzes prototype residential and non-residential buildings designed to achieve ZNE by exceeding the 2016 Title 24 standards through the combined use of building envelope efficiencies and on-site photovoltaic (PV) systems.

For purposes of this report, we considered the assessment of environmental impacts associated with assumptions of the ZNE development that were used in the Draft AEA.

Initial Screening

An initial screening indicates that the ZNE mitigation measures are not expected to have a significant environmental impact. Based on a screening-level review of the ZNE mitigation measures and the reasoning below, the following topics have been screened from additional review:

- ***Less Than Significant Impacts*** – For Agriculture and Forestry Resources, Air Quality, Biological Resources, Cultural Resources, Greenhouse Gas Emissions, Hazards & Hazardous Materials, Hydrology/Water Quality, Land Use/Planning, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation/Traffic, and Utilities/Service Systems, the ZNE mitigation measures would not have the potential to cause a significant environmental impact based on the temporary and limited nature of the construction activities that would be associated with installing PV panels and other energy efficiency designs. Construction and operation of the Project have already been analyzed and potential impacts disclosed, and designing the building to achieve ZNE standards would not materially change the construction methods or the ongoing operation of the buildings. As such, impacts to these topic areas would be considered less than significant and no additional analysis is warranted.

Based on this screening analysis, we conclude that Mitigation Measures 2-1 and 2-2 have some potential to adversely impact Aesthetics, warranting additional analysis. However, as shown below, we conclude the measures are not expected to result in significant impacts to visual resources.

Additional Analysis

Aesthetics - The current technology and design of solar panels and PV systems is not expected to result in aesthetic or glare impacts.[3] PV panels on building rooftops are becoming increasingly common features of the built environment and will be common visual elements of the Newhall Ranch community. Additionally, many of the energy efficiency measures associated with the ZNE buildings will not be visible because they are part of the internal building envelope. Overall, ZNE compliance is not expected to result in an adverse effect on the scenic vista or damage any scenic resources on site. This mitigation measure is not expected to degrade the existing visual character or quality of the site and its surroundings.

In summary, Mitigation Measures 2-1 and 2-2 are expected to result in less than significant impacts.

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[2] AEA Appendix 1, page 20-21.

[3] US Department of Energy (USDOE). Solar PV and Glare Factsheet. Available at: https://energy.gov/eere/sunshot/downloads/solar-pv-and-glare-factsheet. Accessed: March 2017.

MITIGATION MEASURE 2-4 (RESIDENTIAL EV CHARGERS), MITIGATION MEASURE 2-5 (NON-RESIDENTIAL EV CHARGERS), AND MITIGATION MEASURE 2-12 (OFF-SITE EV CHARGERS)

Mitigation Measure 2-4 generally requires that the Project applicant or its designee submit building design plans demonstrating that each residence within the RMDP/SCP Project site subject to application of Title 24, Part 6, of the CCR shall be equipped with a minimum of one single-port electric vehicle charging station. Each charging station shall achieve a similar or better functionality as a Level 2 charging station. Additionally, the Project applicant or its designee shall establish and fund a dedicated account for the provision of subsidies for the purchase of zero emission vehicles, as defined by the California Air Resources Board.

Mitigation Measure 2-5 generally requires that the Project applicant or its designee submit building design plans demonstrating that the parking areas for commercial buildings on the RMDP/SCP Project site shall be equipped with electric vehicle charging stations that provide charging opportunities to 7.5 percent of the total number of required parking spaces. ("Commercial buildings" include retail, light industrial, office, hotel, and mixed-use buildings.)

Mitigation Measure 2-12 generally requires that the Project applicant or its designee provide proof of installation of electric vehicle charging stations capable of service off-site parking spaces. The electric vehicle charging stations shall be located within the geographic area defined to include Los Angeles County, and in areas that are generally accessible to the public. For example, the charging stations may be located in areas that include, but are not limited to, retail centers, employment centers, recreational facilities, schools, and other categories of public facilities.[4]

The electric vehicle charging stations shall achieve a similar or better functionality as a Level 2 charging station.[5] For purposes of this report, we considered the assessment of environmental impacts associated with the construction and operation of the EV charging stations.

Initial Screening

An initial screening indicates that the EV charger mitigation measures are not expected to have a significant environmental impact. Based on a screening-level review of the EV charger mitigation measures and the reasoning below, the following topics have been screened from additional review:

- ***Less Than Significant Impacts*** – For Agriculture and Forestry, Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Greenhouse Gases, Hazards & Hazardous Materials, Hydrology/Water Quality, Land Use/Planning, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation/Traffic, and Utilities/Service Systems, the on-site and off-site EV mitigation measures would not have the potential to cause a significant environmental impact because of the minor scope and intensity associated with installing EV charging stations. The construction activities associated with installing EV chargers are limited, primarily related to electrical work, and are not expected to require additional nor substantial ground disturbance. The Los Angeles County Municipal Code has also

[4] AEA Appendix 1, page 23-24.

[5] AEA Appendix 1, page 21-22.

established procedures to expedite the approval for EV charger installation.[6] The code indicates that "EVSEs [electric vehicle supply equipment] and their associated electrical equipment rated for less than four-hundred (400) amps do not require an electrical plan check, and a permit for that specific installation may be obtained over the counter at a local Building and Safety District Office." This supports the finding that there is not expected to be an environmental impact associated with the installation and operation of EV chargers. This finding is generally applicable to all sections of the environmental assessment regarding the installation of EV chargers on- and off-site. As such, impacts to these topic areas would be considered less than significant and no additional analysis is warranted.

Based on this screening analysis, we conclude that mitigation measures 2-4, 2-5, and 2-12 have some potential to adversely impact Aesthetics, warranting additional analysis. However, as shown below, we conclude the measures are not expected to significantly impact this issue.

Additional Analysis

Aesthetics - Following installation, the EV chargers will likely be located inside garages or in close proximity to planned parking, with a negligible effect on the aesthetic character of such areas. EV chargers are becoming increasingly common features of the built environment. As such, the installation and operation of EV chargers is not expected to result in an adverse effect on any scenic resources or the visual character or quality of the site or its surroundings.

We conclude that Mitigation Measures 2-4, 2-5, and 2-12 are expected to result in less than significant impacts.

MITIGATION MEASURE 2-11 (OFF-SITE RETROFIT PROGRAM)

Mitigation Measure 2-11 generally requires that the Project applicant or its designee provide proof of funding of the proportional percentage of the Building Retrofit Program (Retrofit Program). Building retrofits covered by the Retrofit Program can include, but are not limited to: cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting (including, but not limited to, light bulb replacement), energy efficient appliances, energy efficient windows, insulation, and water conservation measures.

The Retrofit Program shall be implemented within the geographic area defined to include Los Angeles County and primarily within disadvantaged communities, as defined by the Retrofit Program, or in other areas accepted by the Los Angeles County Planning Director.[7]

For purposes of this report, we considered the assessment of environmental impacts associated with the construction and operation of potential building retrofits.

Initial Screening

Based on our review, there is not adequate information to assess environmental impacts associated with the building retrofit program because of uncertainties with the location, nature, and type of possible building retrofits. We further note that any building retrofits will be required to comply with applicable environmental regulations once proposed, which will ensure the potential impacts of the building retrofit

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[6] Available at: https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT27ELCO_ART85ELVECHST. Accessed: April 2017.

[7] AEA Appendix 1, page 23.

program will be analyzed prior to commencement of the program. However, as stated above, to inform the AEA analysis, this report was completed based on potential retrofits.

An initial screening indicates that, for most environmental topic areas, the building retrofit program would have no or low potential for a significant environmental impact. As described above, the following topics have been screened from additional review:

- ***Less Than Significant Impacts*** – For Agriculture and Forestry, Biological Resources, Cultural Resources, Geology/Soils, Hazards & Hazardous Materials, Hydrology/Water Quality, Land Use/Planning, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation/Traffic, Utilities/Service Systems, the building retrofit program would not have the potential to cause a significant environmental impact. The construction activities required for off-site building retrofits are expected to be temporary and limited in nature. The operation of buildings after retrofits are implemented is not expected to result in any substantial changes or new significant impacts. As such, impacts to these topic areas would be considered less than significant and no additional analysis is warranted.

Based on this screening analysis, we conclude that the building retrofit program has some potential to adversely impact Aesthetics, Air Quality, and Greenhouse Gases, warranting additional analysis. However, as shown below, we conclude that the building retrofit program is not expected to significantly impact these issue areas.

Additional Analysis

Aesthetics – Mitigation Measure 2-11 consists of off-site retrofits including, but not limited to, cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting, and other measures as described above. The current technology of solar panels and PV systems is not expected to result in glare impacts.[8] As noted above, PV panels on building rooftops are becoming increasingly common features of the built environment, and PV panels on building rooftops do not significantly affect the aesthetic of a building or the surrounding area. Further, most energy efficiency measures will not be visible outside of a building. This mitigation measure is not expected to degrade the existing visual character or quality of the site and its surroundings.

Air Quality - The off-site retrofits could include (but are not limited to) cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting (including, but not limited to, light bulb replacement), energy efficient appliances, energy efficient windows, insulation, and water conservation measures.

As described above, the construction activities required for off-site building retrofits are expected to be temporary and limited in nature, and likely would not result in a significant level of emissions. The operation of buildings after implementation of retrofits is expected to result in nominal emissions. In fact, the building retrofits will likely reduce air quality emissions (e.g., reducing natural gas-usage). Therefore, the operation of the off-site building retrofit program is not expected to result in new significant air quality impacts.

Greenhouse Gas Emissions - As described above, the construction activities required for off-site building retrofits are expected to be temporary and limited in nature, and likely would not result in a significant level of emissions.

[8] US Department of Energy (USDOE). Solar PV and Glare Factsheet. Available at: https://energy.gov/eere/sunshot/downloads/solar-pv-and-glare-factsheet. Accessed: March 2017.

The operation of buildings after implementation of retrofits will result in a reduction in GHG emissions because of reductions in energy usage and/or replacement of fossil fuel-fired devices with devices that rely on renewable energy (e.g., replacing a natural gas-fired water heater with a solar water heater). These reductions have already been analyzed and disclosed in the AEA. As such, the operation of the off-site retrofit program is accounted for and is not expected to result in a significant impact.

We conclude that Mitigation Measure 2-11 is expected to result in less than significant impacts.

Appendix 11

Forest Offset Programs Memorandum, Ramboll Environ, May 5, 2017

RAMBOLL ENVIRON

ENVIRONMENT & HEALTH

MEMORANDUM

To: File

From: **Ramboll Environ**

Subject: Forest Offset Programs

May 5, 2017

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The Newhall Ranch Greenhouse Gas Reduction Plan (GHG Reduction Plan) presented in the Additional Environmental Analysis (AEA) for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP) Project identifies potential direct reduction activities. One direct reduction activity being considered is forest conservation. The purpose of this document is to assess the potential environmental impacts of a forest conservation offset program ("forest offset program").

This report is intended to provide a high-level analysis of potential environmental effects because no specific forest offset program has been proposed at this time and it is not certain if, when, or where a forest offset program will be implemented, if at all. This report does not provide a "project level" environmental analysis of a forest offset program, but is rather intended to inform the AEA as to the potential environmental impacts that may be associated with a forest offset program and whether those impacts would be significant in nature. As detailed below, this report concludes that, based on the assumptions provided below, implementation of a forest offset program is not expected to result in significant impacts to the environment.

OVERVIEW OF ACTIVITIES CONSIDERED

Forest conservation offset programs remove GHGs from the atmosphere through sequestration. There are three main types of forest offset programs that can generate GHG offsets:

- Afforestation: this activity involves the planting of new trees.
- Improved forestry management: this activity may include increasing rotation ages to increase the overall age of the forest, increasing the stocking of trees on understocked areas, and increasing forest productivity by thinning diseased and suppressed trees.
- Avoided conversion of forests: this activity involves the avoided de-forestation of forest land through a land purchase or, in the U.S., the creation of a conservation easement or other legally binding agreement.

This report focuses on improved forestry management projects because this is the most common type of forest offset program and it generally results in greater environmental effects than the other types of forest offset programs, thus making this analysis conservative.

FOREST PRACTICE RULES

Tree harvesting, a major component of forestry projects, is regulated in California by the Forest Practice Rules, which implement the Z'berg-Nejedly Forest Practice Act of 1973.[1] The Forest Practice Rules require that landowners prepare a Timber Harvesting Plan (THP) to outline what timber is to be harvested, how it will be harvested, and the steps to be taken to prevent damage to the environment. The THP process is functionally equivalent to the preparation of an Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA). It includes, among other things, requirements for harvesting practices and erosion control, watercourse and lake protection, hazard reduction, fire protection and wildlife protection. Improved forest management projects in California will need to follow the Forest Practice Rules.

For purposes of this report, we considered the assessment of environmental impacts associated with the recent THP for a forest offset program in Mendocino County.[2]

Initial Screening

Based on our review, there is not adequate information to assess environmental impacts associated with a forest offset program because of uncertainties with the location, nature and size of a possible forest offset program. We further note that a forest offset program will be required to undergo environmental review under CEQA and comply with applicable environmental regulations once the specific project has been proposed, which will ensure the potential impacts of the forest offset program will be analyzed prior to commencement. However, as stated above, to inform the AEA analysis, this report was completed based on available information.

An initial screening indicates that, for many environmental topic areas, a forest offset program would have no or very little potential for a significant environmental impact, particularly with the implementation of standard mitigation measures as part of the THP process. Based on a screening-level review of a forest offset program and the rules and precedent described above, the following topics have been screened from additional review:

- ***Less Than Significant Impacts*** – Aesthetics, Agriculture and Forestry Resources, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Land Use/Planning, Mineral Resources, Noise, Population, Public Services, Recreation, Transportation/Traffic, and Utilities Service Systems would not have the potential to cause a significant environmental impact. As such, impacts to these topic areas would be considered less than significant and no additional analysis is warranted.
- ***Less Than Significant Impacts With Standard Mitigation*** – Similarly, the following issue areas are expected to have less than significant impacts with the imposition of standard mitigation measures: Air Quality,[3] Cultural Resources,[4] Geology/Soils,[5] and Hazards & Hazardous Materials.[6]

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[1] Title 14 California Code of Regulations (CCR) Chapters 4, 4.5, and 10. "California Forest Practice Rules". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

[2] Timber Harvesting Plan. Coastal Ridges LLC. THP No. 1-15-007 MEN. Submitted to State of California Department of Forestry and Fire Protection. Timber Harvesting Plan documents. Available at: ftp://thp.fire.ca.gov/THPLibrary/North_Coast_Region/THPs/THPs2015/1-15-007MEN/. Accessed March 2017.

Based on this screening analysis, we conclude that a forest offset program has some potential to adversely impact Water Quality and Biological Resources, warranting additional analysis. However, as shown below, we conclude that a forest offset program is not expected to significantly impact these issue areas.

Additional Analysis

Biological Resources – Forest projects generally provide for a more biologically diverse habitat compared to young forests. Group selection openings can provide habitat for wildlife species that need edge cover. The forest canopy can provide additional habitat for wildlife. Vegetation on the forest floor can provide cover, food, and shelter for wildlife that utilize the forest floor. With the implementation of forestry management measures, potential impacts are expected to be less than significant on species identified as a candidate, sensitive, or special status species.[7, 8]

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[3] Common construction mitigation measures include limiting vehicle speeds on unpaved roads to 15 miles per hour, minimizing equipment idling time to less than 5 minutes or less, and maintenance and tuning of construction equipment per manufacturer's specifications.

Some common operational mitigation measures would be similar to construction emissions mitigation measures such as limiting vehicle speeds on unpaved roads, minimizing equipment idling time, and proper maintenance and tuning of equipment. Additional mitigation, if required, could include use of higher-tiered diesel engines (i.e., Tier 4), use of diesel particulate filters, use of diesel oxidation catalysts, use of alternative fuels, and reduced operation times.

Air district references for some common mitigation measures:

Bay Area Air Quality Management District. 2012. California Environmental Quality Act Air Quality Guidelines. May. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/baaqmd-ceqa-guidelines_final_may-2012.pdf?la=en. Accessed April 2017.

Sacramento Metropolitan Air Quality Management District. 2010. CEQA Guide. Basic Construction Emission Control Practices. September. Available at: http://www.airquality.org/LandUseTransportation/Documents/Ch3BasicEmissionControlPracticesFINAL9-2010.pdf. Accessed April 2017.

South Coast Air Quality Management District. 2017. Mitigation Measures and Control Efficiencies: Off-Road Engines. Available at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies/off-road-engines. Accessed April 2017.

[4] Mitigation measures for Cultural Resources include surveying for historical and archaeological resources per the Forest Practice Rules. If human remains are uncovered, the project developer must halt activities and notify appropriate agencies.

Title 14 California Code of Regulations (CCR) Chapters 4, 4.5, and 10. "California Forest Practice Rules". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Cultural Resources: Section 929, 949, and 969.

[5] Mitigation measures for Geology/Soils includes developing a Road Management Plan for avoiding, minimizing, or mitigating adverse impacts to aquatic habitats from soil erosion and sedimentation; monitoring for erosion; and following prescribed silvicultural methods.

Title 14 California Code of Regulations (CCR) Chapters 4, 4.5, and 10. "California Forest Practice Rules". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Road Management Plan: §1093; Silvicultural Methods: 14 CCR §913, 933, and 953; Harvesting Practices and Erosion Control 14 CCR §914, 934, and 954.

[6] Mitigation measures for Hazards & Hazardous Materials can include management of Safety Data Sheets, training and instruction on use of hazardous chemicals, proper storage of equipment fuels and oils, separate storage of ignition devices and fuel, and application of pesticides/herbicides by a Licensed Pest Control Advisor.

[7] Halpern, C.B., and Spies, T.A (1995). Plant Species Diversity in Natural and Managed Forests of the Pacific Northwest. *Ecological Applications*, 5(4). Available at: http://onlinelibrary.wiley.com/doi/10.2307/2269343/full (Abstract).

Pursuant to the Forest Practice Rules, forest offset programs are expected to have protection measures for all riparian areas, other sensitive natural communities, and wetlands in compliance with applicable laws and regulations.[9] Thus, any potential impacts are expected to be less than significant on riparian habitat, other sensitive natural communities, and wetlands.

Construction-related impacts from a forest offset program are expected to be temporary in nature and would require regulatory approvals from the applicable governmental agencies prior to the commencement of activities, if necessary. For example, disturbance in jurisdictional waters may require approvals from the applicable California Regional Water Quality Control Board, California Department of Fish and Wildlife, and the U.S. Army Corps of Engineers.[10, 11] Forest offset programs consistent with the Forest Practice Rules are expected to not interfere substantially with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Forest management activities tend to be seasonal and are expected to generally occur on less than 10 percent of a forest offset program annually. Thus, a forest offset program is expected to have a less than significant impact on the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Endangered species face increased vulnerability due to the effects of climate change on ecosystems. Forest management projects both help reduce GHG emissions to mitigate climate change and may enable forest ecosystems to become more resilient to climate change, which could preserve ecosystem conditions for endangered species.[12] In addition, forestry offset programs are expected to comply with any applicable requirements of the federal Endangered Species Act and California Endangered Species Act.[13, 14] Thus, any potential impacts are expected to be less than significant on endangered species.

If there are local policies or ordinances protecting biological resources in place, or an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any approved habitat conservation plan, then forest offset programs are expected to be implemented consistent with such established plans.

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[8] Woodward, J., Strong, N., Coe, F.C., and Cloughesy, M. Wildlife in Managed Forests. Oregon Forest Resources Institute. Available at: http://oregonforests.org/sites/default/files/publications/pdf/Wildlife_Mngd_Habitat.pdf.

[9] Title 14 California Code of Regulations (CCR) Chapters 4, 4.5, and 10. "California Forest Practice Rules". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Silvicultural Methods: 14 CCR §913, 933, and 953; Water Course and Lake Protection: 14 CCR §916, 936, and 956; Wildlife Protection: 14 CCR §919, 939, and 959.

[10] California Association of Resource Conservation Districts (2009). Guide to Watershed Project Permitting for the State of California. Available at: http://www.carcd.org/docs/publications/guidetowatershedpermitting.pdf. Accessed April 2017.

[11] California Department of Fish and Wildlife (CDFW) (2017). Environmental Review and Permitting. Available at: https://www.wildlife.ca.gov/Conservation/Environmental-Review. Accessed April 2017.

[12] Millar, C.I, Stephenson, N.L., and Stephens, S.L (2007). Climate Change and the Forests of the Future: Managing in the Face of Uncertainty. *Ecological Applications*, 17(8). Available at: http://onlinelibrary.wiley.com/doi/10.1890/06-1715.1/full.

[13] 16 USC §1531 et seq. (1973) Endangered Species Act. Available at: https://www.gpo.gov/fdsys/pkg/USCODE-2015-title16/pdf/USCODE-2015-title16-chap35.pdf. Accessed April 2017.

[14] CDFW (2017). CESA: Sections 2081 (b) and (c) - Incidental Take Permit Process. Available at: https://www.wildlife.ca.gov/Conservation/CESA/ITP-Review-Standards. Accessed April 2017.

Pursuant to the Forest Practice Rules, forest offset programs are expected to have protection measures for riparian areas, other sensitive natural communities, and wetlands in compliance with applicable laws and regulations.[15] Thus, any potential impacts are expected to be less than significant on riparian habitat, other sensitive natural communities, and wetlands.

Water Quality – Forest offset programs have the potential to impact water quality and waste discharge requirements. However, timber operations are required to adhere to a waiver of waste discharge through the Regional Water Quality Board.[16] Adhering to Forest Practice Rules[17], the Regional Water Quality Control Board waiver of waste discharge requirements, and implementation of management measures is expected to reduce potential impacts to less than significant levels.

With regard to potential depletion of groundwater suppliers or interference with groundwater recharge, forest offset programs typically have very minimal water use and would not significantly deplete ground water. No impacts are anticipated for forest offset programs.

Forest offset programs have the potential to impact existing drainage patterns and cause erosion or flooding. There could be increases in peak flow associated with rapid runoff resulting from decreased evapotranspiration[18] connected with vegetation removal and soil compaction. However, adhering to Forest Practice Rules[19], the Regional Water Quality Control Board waiver of waste discharge requirements, and implementation of management measures is expected to reduce potential impacts to less than significant levels.

Forest project management practices have the potential to degrade water quality. However, adhering to Forest Practice Rules[20], the Regional Water Quality Control Board waiver of waste discharge requirements, and implementation of management measures is expected to reduce potential impacts to less than significant levels.

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[15] Title 14 California Code of Regulations (CCR) Chapters 4, 4.5, and 10. "California Forest Practice Rules". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Silvicultural Methods: 14 CCR §913, 933, and 953; Water Course and Lake Protection: 14 CCR §916, 936, and 956; Wildlife Protection: 14 CCR §919, 939, and 959.

[16] Available at: http://www.waterboards.ca.gov/centralvalley/water_issues/forest_activities/index.shtml. Accessed: April 2017.

[17] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Exemption from waste discharge requirements: §4514.3.

[18] Evapotranspiration is the process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants.

[19] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Exemption from waste discharge requirements: §4514.3.

[20] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Exemption from waste discharge requirements: §4514.3.

Certain standards requirements minimizing impacts to water quality include:

- Limiting servicing of equipment to locations where grease, oil, or fuel cannot pass into lakes or watercourses.[21]
- Keeping the number of watercourse crossings to a minimum.[22]
- Immediate removal of accidental depositions of soil in lakes or below the watercourse or lake transition line. [23]
- Felling away from watercourses for trees cut within the Watercourse and Lake Protection Zone. [24]
- Avoiding usage of logging roads and landings when operations may result in significant sediment discharge to watercourses or lakes (i.e., wet weather periods). [25]
- Installing, maintaining, and repairing drainage facilities and drainage structures to allow free flow of water and minimize soil erosion and slope instability.[26]

[21] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Servicing of Logging Equipment, Disposal of Refuse, Litter, Trash, and Debris §914.5, 934.5, 954.5.

[22] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Tractor Road Watercourse Crossing §914.8, 934.8, 954.8.

[23] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

General Limitations Near Watercourses, Lakes, Marshes, Meadows and Other Wet Areas §916.3, 936.3, 956.3.

[24] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

General Limitations Near Watercourses, Lakes, Marshes, Meadows and Other Wet Areas §916.3, 936.3, 956.3.

[25] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017.

Use of Logging Roads and Landings §923.6, 943.6, 953.6.

[26] Public Resources Code (PRC), Division 4, Chapter 8. "Z'Berg-Nejedly Forest Practice Act". Available at: http://calfire.ca.gov/resource_mgt/downloads/2017%20Forest%20Practice%20Rules%20and%20Act.pdf. Accessed April 2017. Maintenance and Monitoring of Logging Roads and Landings §923.7, 943.7, 953.7.

Appendix 12

Dairy Offset Programs Memorandum, Ramboll Environ, May 5, 2017

RAMBOLL ENVIRON

ENVIRONMENT & HEALTH

MEMORANDUM

To: File

From: **Ramboll Environ**

Subject: Dairy Offset Programs

May 5, 2017

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The Newhall Ranch Greenhouse Gas Reduction Plan (GHG Reduction Plan) presented in the Additional Environmental Analysis (AEA) for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP) Project identifies potential direct reduction activities. One direct reduction activity being considered is dairy methane capture. The purpose of this document is to assess the potential environmental impacts of a dairy digester program.

This report is intended to provide a high-level analysis of potential environmental effects because no specific dairy digester program has been proposed at this time and it is not certain if, when, or where a dairy digester program will be implemented, if at all. This report does not provide a "project level" environmental analysis of a dairy digester program, but is rather intended to inform the AEA as to the potential environmental impacts that may be associated with a dairy digester program and whether those impacts would be significant in nature. As detailed below, this report concludes that, based on the assumptions provided below, implementation of a dairy digester program likely would not result in significant impacts to the environment.

OVERVIEW OF ACTIVITIES CONSIDERED

Dairy digester programs reduce GHG emissions by capturing methane generated by dairy manure and reducing the overall global warming potential (GWP) of emissions. There are three main end uses of the methane:

- Flaring: This activity involves the disposal of the methane by combustion in a flare. This activity is a disposal method only; the GWP is reduced because the methane is converted to carbon dioxide during the combustion process in the flare.
- Energy Generation: This activity involves the generation of electricity by combustion of the digester gas in an internal combustion engine (ICE), a microturbine, or a fuel cell. The GWP is reduced because the methane is converted to carbon dioxide during the combustion process in the energy generation equipment. In addition, this activity is a beneficial use of the gas, as the energy generated with the digester gas meets demand otherwise met by GHG emitting resources.

- Pipeline Injection: This activity involves the clean-up of gas and injection in an existing natural gas pipeline for offsite vehicular use. The GWP is reduced because the methane is converted to carbon dioxide when the gas is combusted off-site. In addition, this activity is a beneficial use of the gas, as the volume of gas injected into the pipeline meets and offsets a portion of demand otherwise met by traditional transportation fuels (i.e., gasoline and diesel).

This report focuses on the energy generation option because this is the most common type of digester gas program and it is likely representative of the greatest potential for environmental effects in comparison to the other types of digester gas program.[1] Thus, analysis of this option is a conservative approach.

EXISTING ANALYSES

Dairy digester programs have been previously considered under the California Environmental Quality Act (CEQA) in a Program Environmental Impact Report (Program EIR) and an Environmental Analysis (EA).

RWQCB Program EIR

A Draft Program Environmental Impact Report (PEIR) addressing dairy digester programs was released in 2010. The PEIR assessed the environmental impacts of the Central Valley Regional Water Quality Control Board's (RWQCB) waste discharge regulatory program for dairy digester facilities located within the RWQCB's jurisdictional boundaries (i.e., Region 5).[2] Region 5 encompasses the San Joaquin Valley, which has the highest concentration of dairy cows and farms in California and likely would be the proposed location of any dairy digester program implemented under the GHG Reduction Plan. The Final PEIR was certified by the RWQCB in 2010.[3] The PEIR states that it "is intended to provide a comprehensive analysis of the environmental impact of the development of dairy manure digester and co-digester facilities, including construction and operation. As such, it is expected to facilitate and enhance the CEQA process for individual dairy manure digester and co-digester facilities throughout Region 5. The Program EIR should also allow other State, and local permitting agencies that issue discretionary permits to tier off the Program EIR to satisfy CEQA requirements."[4]

SLCP Environmental Analysis

The California Air Resources Board (ARB) was directed to develop a comprehensive short-lived climate pollutant (SLCP) strategy as a result of Senate Bill (SB) 605.[5] A Final EA for that was released in March 2017, which assessed the environmental impacts of the ARB's Short-Lived Climate Pollutant Reduction Strategy (SLCP Strategy).[6] The purpose of the SLCP Strategy is to develop a roadmap for reducing

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1 Flaring projects likely would produce lower GHG and criteria pollutant emissions than energy generation projects.

2 California RWQCB. 2010. Dairy Manure Digester and Co-Digester Facilities. Draft Program Environmental Impact Report. SCH No. 2010031085. Available at: http://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/1012/dairy_digester_eir/dairy_digstr_dpeir.pdf. Accessed: March 2017.

3 California RWQCB. 2010. Resolution No. R5-2010-0116. Certification of the Final Program Environmental Impact Report for Waste Discharge Regulatory Program for Dairy Manure Digester and Co-Digester Facilities. Available at: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2010-0116_res.pdf. Accessed: March 2017.

4 PEIR, page 2-1.

5 ARB SLCP Strategy. Available at: https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf. Accessed: April 2017.

6 Final Environmental Analysis for the Revised Proposed SLCP Reduction Strategy. Available at: https://www.arb.ca.gov/cc/shortlived/meetings/03142017/appendixe.pdf. Accessed: March 2017.

emissions of SLCPs, which include black carbon, methane, and fluorinated gases. These reduction measures include the conversion of residential fireplaces and woodstoves (black carbon); the use of dairy digesters, conversion to pasture-based or scrape systems, methane capture at wastewater treatment facilities (methane); and prohibition on certain refrigerants and HFC supply phasedown (fluorinated gases); among others. The measures included in the SLCP Strategy, including dairy digesters, were considered in an EA (SLCP EA). The purpose of the SLCP EA is to assess the potential impacts "associated with implementation of the broad policy aspects of the entire broad strategy based on what is known at this time."[7] The SLCP EA states that the assessment "takes a conservative approach and considers some adverse environmental impacts as potentially significant because of the inherent uncertainties about the ultimate design of various measures described… This conservative approach tends to overstate environmental impacts in light of these uncertainties and is intended to satisfy the good-faith, full-disclosure intention of CEQA."[8]

Initial Screening

Based on our review, there is not adequate information currently available to assess environmental impacts associated with a dairy digester program implemented under the GHG Reduction Plan because of uncertainties with the location, nature, and size of a possible dairy digester program. We further note that a dairy digester program will be required to satisfy environmental review under CEQA and comply with applicable environmental regulations once the specific program has been proposed, which will ensure the potential impacts of the dairy digester program will be analyzed prior to commencement of the program. However, as stated above, to inform the AEA analysis, this report was completed based on currently available information.

An initial screening indicates that, for many environmental topic areas, a dairy digester program would have no or very little potential for a significant environmental impact, particularly with the implementation of standard mitigation measures required for the necessary permits (e.g., water and air permits). Based on a screening-level review of a dairy digester program and the rules and precedent described above, the following topics have been screened from additional review:

- ***Less Than Significant Impacts*** – Land Use/Planning, Mineral Resources, Population/Housing, Public Services, and Recreation would not have the potential to cause a significant environmental impact. As such, impacts to these topic areas would be considered less than significant and no additional analysis is warranted.
- ***Less Than Significant Impacts With Standard Mitigation*** – Similarly, the following issue areas are expected to have less than significant impacts with the imposition of standard mitigation measures: Aesthetics, Agriculture and Forestry Resources, Biological Resources, Cultural Resources, Geology/Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Noise, Transportation and Traffic, and Utilities/Services Systems.

Based on this screening analysis, we conclude that a dairy digester program has some potential to adversely impact Air Quality and Water Quality, warranting additional analysis. However, as shown below, we conclude that a dairy digester program is not expected to significantly impact these issue areas.

Additional Analysis

[7] SLCP EA, page 1-4.

[8] SLCP EA, page 4-1.

Air Quality – Construction and operation of a digester project would result in emissions of criteria pollutants including volatile organic compounds (VOCs), oxides of nitrogen (NO_x), carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$). The construction of a dairy digester and associated equipment related to the selected end-use (flaring, energy generation, or pipeline injection) could result in emissions on-site from construction equipment and ground disturbance, and off-site from construction worker vehicles and delivery trucks. The construction equipment are subject to air regulations in the relevant air district; adhering to these requirements is expected to reduce potential impacts to less than significant levels.

Criteria air pollutant emissions also are expected to occur during operation of the equipment related to the end-use of the collected biogas, not from the digester itself.[9] The emissions from each potential end-use will vary; however, all such end-uses are subject to air permitting rules, including requirements regarding gas clean up and air pollution control device requirements. Adhering to these requirements is expected to reduce potential impacts to less than significant levels.

Certain standard requirements minimizing impacts to air quality during construction and operation include[10, 11]:

- Facilities shall be required to comply with the rules and regulations from the applicable air quality management district (AQMD) or air pollution control district (APCD). For example, development of dairy digester and co-digester facilities in the SJVAPCD jurisdiction shall comply with the applicable requirements of Regulation VIII (Fugitive PM10 Prohibitions) and Rule 9510 (Indirect Source Review).
- Use equipment meeting, at a minimum, Tier II emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, §2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Comply with state regulations to minimize truck idling.
- Maintain all equipment in proper working condition according to manufacturer's specifications.
- Use electric equipment when possible.
- Payment into an AQMD or APCD operated Voluntary Emission Reduction Agreement (VERA).
- Incorporate fuel cells where feasible as an alternative to internal combustion engines to generate energy from the biogas produced at dairy digester and co-digester facilities.
  - Where feasible, as an alternative to internal combustion engines use biogas from dairy manure digester and co-digester projects as a transportation fuel (compressed biomethane) or inject biomethane into the utility gas pipeline system.

[9] These projects do not consider co-digestion. If co-digestion is considered, then operational emissions may occur due to collection and transportation of the co-digestion substrates.

[10] PEIR, pages 6-23 through 6-25.

[11] SLCP EA, pages 4-15 through 4-19.

- Applicants for the development of digester facilities shall comply with appropriate local land use plans, policies, and regulations, including applicable setbacks and buffer areas from sensitive land uses for potentially odoriferous processes.
- Develop an Odor Impact Minimization Plan (OIMP) pursuant to 14 CCR 17863.4. Otherwise, applicants shall implement a site-specific Odor Management Plan (OMP) as part of each application submitted to establish digester and co-digester facilities under the waste discharge regulatory program. The OMP will specifically address odor control associated with digester operations and will include:
    - A list of potential odor sources.
    - Identification and description of the most likely sources of odor.
    - Identification of potential, intensity, and frequency of odor from likely sources.
    - A list of odor control technologies and management practices that could be implemented to minimize odor releases. These management practices shall include the establishment of the following criteria as appropriate:
        - Establish time limit for on-site retention of undigested odiferous co-substrates (i.e., organic co-substrates must be put into the digester within 48 hours of receipt).
        - Provide negative pressure buildings for indoor unloading of odiferous co-digestion substrates. Treat collected foul air in a biofilter or air scrubbing system.
        - Establish contingency plans for operating downtime (e.g., equipment malfunction, power outage).
        - Manage delivery schedule to facilitate prompt handling of odorous co-substrates.
        - Modification options for land application practices if land application of digestate results in unacceptable odor levels.
        - Protocol for monitoring and recording odor events.
        - Protocol for reporting and responding to odor events.

- If the health risk is determined to be significant on a project-by-project basis with DPM as a major contributor, then the applicants shall either use new diesel engines that are designed to minimize DPM emissions (usually through the use of catalyzed particulate filters in the exhaust) or retrofit older engines with catalyzed particulate filters, which will reduce DPM emissions by 85%.
- H_2S contained in the biogas shall be controlled before emission to air can occur.

Water Quality – The construction of a dairy digester and associated equipment related to the selected end-use could impact hydrology and water quality issues from soil disturbance, excavation, and grading activities. The construction of a dairy digester is subject to the National Pollutant Discharge Elimination System (NPDES) permitting process, pursuant to which the State Water Resources Control Board has adopted the Construction General Permit. The Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP). Adhering to the requirements of these programs is expected to reduce potential impacts to less than significant levels.

The operation of a dairy digester and associated equipment could result in hydrology and water quality issues if the manure and by-products of the anaerobic digestion process are not properly managed and excess nutrients, solids, and/or pathogens enter receiving waters. The operation of a dairy digester is subject to regulations including the NPDES permitting process, as well as the waste discharge requirements (WDRs) of the pertinent RWQCB (most likely the Central Valley RWQCB for a dairy digester program implemented under the GHG Reduction Plan). Adhering to the requirements of these programs is expected to reduce potential impacts to less than significant levels.

Certain standard requirements minimizing impacts to water quality include[12, 13]:

- Prohibitions against any surface water discharges (unless exempt from NPDES permitting requirements or covered by separate NPDES permit).
- Prohibitions against any discharges that would cause exceedance of surface water quality objectives.
- Setbacks from surface water bodies.
- Drainage requirements for co-digestion substrates/waste storage/receiving/handling areas to drain to on-site wastewater retention ponds.
- Lining requirements for retention ponds in new facilities and operational dairies (e.g., double-lining manure lagoons to meet Tier 1 Specifications).
- Monitoring requirements that include sampling data of soils, retention water, and waste streams to reconcile annually with Nutrient Management Plan (NMP).
- Requirements for tailwater return systems or other effective methods to minimize offsite discharges.
- Prohibitions against any unreasonable effects on beneficial uses of nearby surface waters.
- Prepare and implement site-specific Salt Minimization Plan (SMP) as approved by the Central Valley RWQCB. The SMP shall consider the elimination, decommissioning, or the reduction in use of regenerative water softeners on process water distribution networks or, alternatively, evaluate and install alternate technology that reduces or eliminates on-site brine disposal.

[12] PEIR, pages 5-32 through 5-46.

[13] SLCP EA, pages 4-56 through 4-63.

- Prepare and implement a site-specific NMP that incorporates analytical data for soils, wastewater, manure, digester solids, groundwater and/or surface water supply. The required analytical data is to be generated by a site-specific monitoring and reporting program. In the case of groundwater, data from an approved representative groundwater monitoring program may be substituted for some or all site-specific groundwater monitoring, if appropriate. The NMP will be reconciled annually based on results of the monitoring and reporting program and site-specific measurements of agronomic rates.
- Require all drainage be directed to a retention wastewater pond that has been designed to meet antidegradation provisions of Resolution 68-16 by an appropriately licensed professional.
- To the extent practicable, use crops that maximize salt uptake.
- Apply liquid digestate consistently with crop water uptake rates.
- Prohibit hazardous substances in co-digestion substrates processed by each facility as verified by laboratory analytical testing.
- Apply digestate at an approved rate commensurate with agronomic rate.
- Properly time application of digestate in accordance with crop requirements.
- Avoid excess irrigation.
- Maintain cover crops and vegetative buffer zones.
- Develop co-substrate acceptance criteria.
- Perform vector control and reduction.
- Monitor groundwater for pathogen indicator organisms.
- Require that solid wastes be stored on surfaces designed in accordance with a site-specific Waste Management Plan prepared for the facility by an appropriate California registered professional in accordance with WDR requirements.
- Maintain a neutral or alkaline pH for dairy digestate waste water applied to cropland unless conditions warrant otherwise as detailed in the NMP.
- Prohibit hazardous waste, mammalian tissues (with the exception of mammalian tissue as contained in compostable material from the food service industry, grocery stores, or residential food scrap collection), dead animals, and human waste from all discharges.
- Incorporate lined digester and co-digestion substrate storage facilities that meet the antidegradation provisions of Resolution 68-16, as relevant, into project design in order to prevent groundwater contamination with salts, nutrients, and other constituents.
- Each facility shall prepare a site-specific Waste Management Plan in accordance with the WDR requirements for review and approval to the Central Valley RWQCB prior to commencement of operations. Annual monitoring reports shall be reviewed by the Central Valley RWQCB and any revisions deemed necessary to the handling, storage, or land application of wastes shall be incorporated into facility operations.

Appendix 13

Newhall Ranch
Building Retrofit Program,
May 2017

Newhall Ranch
Building Retrofit Program

I. Benefits of Improving Energy Efficiency of Existing Buildings

This Newhall Ranch Building Retrofit Program ("**Retrofit Program**") is designed to reduce greenhouse gas ("**GHG**") emissions by undertaking Direct Reduction Activities involving the retrofit of existing buildings. Improving the energy efficiency of California's existing buildings has been identified as an important step towards reducing GHG emissions from the built environment.

The California Air Resources Board ("**ARB**") identified the need to improve the efficiency of existing buildings in the 2008 Scoping Plan: "While green building strategies are most easily integrated into new buildings, existing buildings offer the greatest potential for gains in efficiency."[1] Legislation has been enacted in furtherance of the Scoping Plan's framework for GHG emission reductions from existing development. For example, Assembly Bill ("**AB**") 758, which was enacted into law in 2009, requires the California Energy Commission, in collaboration with the California Public Utilities Commission and other stakeholders, to develop a comprehensive program to achieve greater energy efficiency in the State's existing buildings.

Additionally, in October 2015, Senate Bill ("**SB**") 350 was enacted into law. SB 350 includes a goal to double the energy savings in existing electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. SB 350 is consistent with one of California Governor Brown's climate goals, which calls for the doubling of energy efficiency savings in existing buildings by 2030.[2]

II. Defined Terms

This Retrofit Program incorporates the defined terms set forth in the Newhall Ranch GHG Reduction Plan (Appendix [●]). In addition, the following definitions apply to this Retrofit Program:

"**Building Retrofits**" shall mean measures to retrofit existing buildings to improve energy efficiency, including the installation of on-site generation or storage, and shall include, but are not limited to: cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting (including, but not limited to, lightbulb replacement), energy efficient appliances, energy efficient windows, pool covers, insulation, water conservation measures, and any other similar retrofit measures associated with green buildings.

"**Planning Director**" shall mean the Regional Planning Director for Los Angeles County.

"**Retrofit Partner**" shall mean one or more non-governmental organizations or other organizations accepted by the Planning Director.

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1 CARB, 2008. *Climate Change Scoping Plan*, Appendix C, p. C-139.

2 Available at: http://www.arb.ca.gov/cc/pillars/pillars.htm. Accessed: May 2017.

"**Retrofit Program**" shall mean this Newhall Ranch Building Retrofit Program.

"**Retrofit Reduction Requirement**" is defined in Section III.C.1.

"**Retrofit Strategy**" is defined in Section III.A.

III. Implementation Requirements

A. Planning Director Approval of Retrofit Strategy

The Project applicant or its designee may implement the Retrofit Program in collaboration with a Retrofit Partner. To collaborate with a Retrofit Partner to implement this Retrofit Program, the Project applicant or its designee must submit a written request to the Planning Director with supporting documentation of: (i) the Retrofit Partner's qualifications; and (ii) the Retrofit Partner's strategy to implement the Retrofit Program by installing Building Retrofits in homes, schools, or other buildings in disadvantaged communities within Los Angeles County, consistent with this Retrofit Program ("**Retrofit Strategy**"). The Retrofit Strategy may provide a range of potential Building Retrofits that can be tailored to particular buildings (e.g., depending on the age, size, and use of the building). The Retrofit Strategy also can provide flexibility to prioritize certain Building Retrofits, depending on the building stock that is available, and deemphasize or eliminate other Building Retrofits that are not efficient or practical to implement. The Planning Director shall review and respond to any such request within 30 calendar days of its receipt. At any time, the Project Applicant may submit amendments to or a new Retrofit Strategy for approval by the Planning Director. An amended or new Retrofit Strategy shall become effective upon approval or at an earlier date approved by the Planning Director.

B. Locational Restrictions

The Retrofit Program must be implemented within the geographic area under the jurisdiction of Los Angeles County and primarily within disadvantaged communities, or other areas accepted by the Planning Director.

For purposes of the Retrofit Program, disadvantaged communities are considered to include: (i) census tracts with a median household income ("**MHI**") at or below 80% of the state MHI; (ii) census tracts identified as among the most disadvantaged 25% of census tracts according to the Office of Environmental Health Hazard Assessment's CalEnviroScreen;[3] (iii) areas with at least 75% of public school students meeting eligibility criteria for free or reduced price meals; or (iv) areas that do not meet the above criteria, or where data are insufficient, but for which there is a quantitative assessment demonstrating a reasonable basis for why the community should be considered disadvantaged.[4]

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[3] Available at: http://oehha.ca.gov/calenviroscreen. Accessed: May 2017.

[4] *See* Ensuring Disadvantaged Communities Fully Share Active Transportation Program Benefits, available at http://www.scag.ca.gov/Documents/atp031615_ATPBenefits.pdf, at page 7.

The Project applicant or its designee, which may include a Retrofit Partner, may submit a written request to the Planning Director to implement such Building Retrofits in other specified areas so long as it meets the purpose of benefitting disadvantaged communities. The Planning Director shall review and respond to any such request within 30 calendar days of its receipt.

C. Phasing Requirements

The Project applicant or its designee must implement the Retrofit Program as described in this Section III.C.

1. Retrofit Reduction Requirement Quantification

Prior to the issuance of building permits for development within the RMDP/SCP Project site, the Project applicant or its designee shall undertake or fund Direct Reduction Activities and retire the associated GHG Mitigation Credits in a quantity equal to the sum of the following (together, the "**Retrofit Reduction Requirement**"):

- For the residential portion of a building permit application, the product of the planned number of residential units for the village-level project multiplied by 0.0377 $MTCO_2e$;

- For the commercial portion of a building permit application, the product of the planned commercial development per thousand commercial square feet multiplied by 0.0215 $MTCO_2e$. Commercial development, for purposes of this requirement, includes retail, light industrial, office, hotel, and mixed-use buildings.

2. Compliance Requirements

To satisfy this Retrofit Program, the Project Applicant shall undertake or fund Direct Reduction Activities to implement or fund Building Retrofits in accordance with the locational restrictions set forth above. Such Direct Reduction Activities shall meet the requirements and Performance Standards set forth in Section IX of the GHG Reduction Plan, and shall be registered with an Approved Registry.

3. Compliance Demonstration

To demonstrate compliance with this Retrofit Program, the Project Applicant shall provide the following documentary evidence to Los Angeles County in connection with each building permit application:

An attestation from an Approved Registry that the Project Applicant has retired a sufficient quantity of GHG Mitigation Credits or Carbon Offsets associated with Direct Reduction Activities to undertake or fund Building Retrofits in a quantity equal to the applicable Retrofit Reduction Requirement.

All GHG Mitigation Credits and Carbon Offsets shall comply with the performance standards set forth in Section IX of the GHG Reduction Plan.

IV. GHG Reductions from the Retrofit Program

Based on the proportional GHG reductions identified in Section III.C.1, the Retrofit Program would achieve an average of 1,000 $MTCO_2e$ per year of reductions over the 30-year Project life if the maximum allowable development facilitated by the RMDP/SCP Project occurs.[5]

Because of the innovative nature of the Retrofit Program, and because the regulatory and technological frameworks for achieving GHG emissions reductions are rapidly evolving and are expected to continue to do so over the development of the Project, minor modifications to this Retrofit Program may be made by the Project Applicant upon receipt of a written consistency determination from the Planning Director provided that such modifications are environmentally equivalent to this Retrofit Program and Mitigation Measure 2-11. The Planning Director shall determine the adequacy of any minor modifications by evaluating whether the Project Applicant's proposed minor modifications result in equivalent or more beneficial GHG reductions and environmental effects, as compared to the original provisions of this Retrofit Program. The minor modifications cannot result in the creation of new or substantially more severe environmental effects.

[5] Ramboll Environ's analysis of the Retrofit Program is supported by ConSol's *Energy Efficiency Upgrades for Existing Buildings: A GHG Emissions Mitigation Strategy* technical memorandum (September 2016).

Appendix 14

NEV and E-Bike Equivalency Metric Memo, Ramboll Environ, May 2017

RAMBOLL ENVIRON

ENVIRONMENT & HEALTH

NEV AND E-BIKE EQUIVALENCY METRIC MEMO

Date **05/2017**

The Additional Environmental Analysis (AEA) for the Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan (RMDP/SCP, or "Project") calls for implementation of Mitigation Measures 2-6. This measure requires that the Project implement the Newhall Ranch Transportation Demand Management Plan (TDM Plan). One component of the TDM Plan is the neighborhood electric vehicle (NEV) and electric bicycle (E-Bike) strategy, whereby NEV and E-Bike purchase subsidies shall be promoted and made available to residents of single-family and multi-family homes. In the event that the purchase subsidies are not fully utilized, the Project applicant or its designee is required to achieve an equivalent level of greenhouse gas (GHG) emissions reductions. This memo describes the methodology used to calculate the equivalent level of GHG emissions needed in this context.

Table 1, GHG Equivalency for NEV and E-Bike Subsidies of this memo identifies the equivalent level GHG emissions reductions per NEV subsidy; specifically, **Table 1** shows that 2.7 metric tonnes of carbon dioxide equivalent (MT CO_2e) reductions per year must be provided for every unused NEV subsidy and 0.9 MT CO_2e must be provided for every unused E-Bike subsidy. This metric is based on the number of subsidies made available through the Newhall Ranch TDM Plan, and the GHG reductions associated with this component of the TDM Plan. The TDM Plan prepared by UrbanTrans, as well as Fehr & Peers' memorandum quantifying the vehicle miles traveled reduction benefits of the TDM Plan, describe the basis for and parameters of the NEV/E-Bike strategy in further detail. Additionally, Draft AEA Appendix 1, Section 4.2.6 therein, calculates the GHG reductions attributable to the vehicle miles traveled reductions calculated by Fehr & Peers.

Table 1. GHG Equivalency for NEV and E-Bike Subsidies
RMDP/SCP
Los Angeles County, California

TDM Measure	Value	Units
NEV Subsidies		
Number of Single Family Households	8,744	Households
TDM Plan Assumption of NEVs Purchased[1]	20%	%
Number of Subsidies (NEVs purchased) in TDM Plan	1,749	#
Overall VMT Reduction due to NEVs[1]	1.17%	%
2030 Unmitigated Mobile GHG Emissions (after NHTSA)[2]	403,814	MT/yr
2030 Mobile GHG Emissions Reductions due to NEVs[3]	4,725	MT/yr
2030 GHG Reduction per NEV per Year[4]	2.7	MT/yr-NEV
E-Bike Subsidies		
Number of MultiFamily Households	12,498	Households
TDM Plan Assumption of E-Bikes Purchased[1]	50%	%
Number of Subsidies (E-Bikes purchased) in TDM Plan	6,249	#
Overall VMT Reduction due to E-Bikes[1]	1.37%	%
2030 Unmitigated Mobile GHG Emissions (after NHTSA)[2]	403,814	MT/yr
2030 Mobile GHG Emissions Reductions due to E-Bikes[3]	5,532	MT/yr
2030 GHG Reduction per E-Bike per Year[4]	0.9	MT/yr-E-Bike

Notes:

[1] Subsidy availability and VMT reductions are shown in Fehr & Peers' 2016 technical memorandum evaluating implementation of the Newhall Ranch TDM Plan.

[2] Unmitigated mobile GHG emissions are shown in AEA Appendix 1, Table 2-18.

[3] GHG emissions are directly proportional to VMT using CalEEMod® methodology. The emissions reductions are calculated by multiplying the overall VMT reduction due to the NEVs or E-Bikes by the 2030 unmitigated mobile GHG emissions.

[4] GHG reduction per NEV or E-Bike per year is calculated by dividing the emissions reduction by the number of subsidies. This is a conservatively high estimate based on how the individual TDM measures are calculated to reduce VMT in totality. This is discussed in Fehr & Peers' 2016 technical memorandum.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

EMFAC - California Air Resources Board Emissions Factor Model

E-Bike - electric bicycle

CO_2e - carbon dioxide equivalents

GHG - greenhouse gases

MT - metric tonnes

NEV - neigborhood electric vehicles

NHTSA - National Highway Traffic Safety Administration

TDM - Transportation Demand Management

VMT - vehicle miles traveled

yr - year

Appendix 15

GHG Emissions Modeling: Post-2010 Modifications to Methodologies, Update to Appendix J of the Ramboll Environ Technical Report Submitted in May 2016, May 2017

RAMBOLL ENVIRON

ENVIRONMENT & HEALTH

MEMORANDUM

From: **Eric C. Lu, Ramboll Environ**
Shari B. Libicki, Ramboll Environ

Subject: **GHG EMISSIONS MODELING: POST-2010 MODIFICATIONS TO METHODOLOGIES**

Date: May, 2017

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The greenhouse gas (GHG) emissions estimates contained in the RMDP/SCP Project's 2010 EIS/EIR were prepared between 2007 and 2009. The difference in the previously reported GHG emissions estimates, as compared to what is presented in our 2016 GHG Technical Report, primarily is a result of changing methods of estimating and reporting GHGs. The evolution of the methods to estimate and report GHG emissions, and how that evolution impacted the estimation of emissions for this Project, are described in this memorandum.

As background, the original analysis presented in the 2010 EIS/EIR was prepared several years after the passage of Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, but well before any individual agency had formally established methods of estimating GHG emissions for the purposes of environmental documentation prepared pursuant to the California Environmental Quality Act (CEQA)[1]. Since that time, methods to prepare a GHG emissions inventory have been formally established, tools specific for GHG analyses have been prepared, and the tools used to estimate emissions from traffic have been updated. The methods used to evaluate whether GHG emissions associated with land use development are additive or moved from one place to another also have changed substantially. This is further discussed in this memorandum.

This technical memorandum:

- Discusses the evolution of whether GHG emissions are additive or moved (and therefore, not counted);
- Provides a summary of the GHG analytical tools for CEQA in the mid- to late-2000s, as compared to today; and
- Provides a historical review of the RMDP/SCP Project's GHG inventory, and a comparison of the original emissions analysis to the current emissions analysis.

[1] In January 2008, the California Air Pollution Control Officers Association (CAPCOA) prepared a document, "CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act". However, this document did not provide complete guidance on how to estimate emissions from projects. Available at: http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA-White-Paper.pdf. Accessed: May 2017.

I. THE EVOLUTION OF WHETHER GHG EMISSIONS ARE ADDITIVE OR MOVED

One goal of the emissions analyses for environmental documents prepared pursuant to CEQA is to provide the public and decision makers with an understanding of the quantity of new emissions that would result from a project. Critically, if the emissions would exist with or without the project, then the emissions should not be characterized as "new" and should not be counted as being associated with the project.

There are two major categories of GHG emissions associated with new land use development: GHGs associated with vehicular emissions, and GHGs associated with energy use in buildings. The issue of how to account for GHGs is primarily associated with vehicular emissions because emissions associated with energy usage in buildings are typically new unless that building is replacing another building.

As a point of comparison, when evaluating the criteria pollutant impacts for a new project, the vehicular emissions associated with a project are counted as new emissions, even if the project's residents and workers would relocate from another area. The rationale for this is that the new land use development represents growth in the air basin, which has a limited ability to absorb additional criteria pollutant emissions without adverse air quality impacts. As a result, all emissions associated with vehicle travel are counted as new emissions, even if this might lead to some over-counting of criteria pollutant emissions from the project.

For purposes of GHGs, it makes sense to consider operational emissions (including vehicular emissions) from new residential development as growth, as residences are rarely removed from the housing supply once constructed. However, it is not clear that new commercial development should be considered new growth for vehicular travel purposes because, to the extent that new commercial development serves existing residential development, the vehicular travel associated with commercial development may not be new.

For instance, if the new commercial development serves an area with a high residential/commercial balance[2], then this new commercial growth will reduce shopping and work trip lengths and will reduce GHG emissions associated with mobile sources. This type of evaluation is recognized in the draft guidelines issued in furtherance of SB 743. Specifically, the draft guidelines[3] published by the Office of Public Research on January 2016 state, "Because new retail development typically redistributes shopping trips rather than creating new trips, estimating the total change in VMT (i.e. the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts."

If, however, the new commercial development results in longer trips for its workers and residents than they would have previously made, then it adds GHGs emissions. Examples of commercial development that could increase vehicle miles traveled (VMT) would be facilities that draw trips from far away that otherwise would not be made, such as a theme park.

Further, to the extent that new commercial development serves new residential development, the commercial vehicle travel would already be counted in the evaluation of the new residential development.

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[2] For purposes of this discussion, a "high residential/commercial balance" refers to a mix of land uses where commercial serving areas are in lower supply relative to the residential land uses, and thus residents must travel farther to reach commercial areas.

[3] Office of Planning and Research, 2016. Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA Implementing Senate Bill 743 (Steinberg, 2013) dated January 20, 2016. Available at: https://www.opr.ca.gov/docs/Revised_VMT_CEQA_Guidelines_Proposal_January_20_2016.pdf. Accessed: May 2017.

Accordingly, GHG emissions from commercial areas will only be counted if the commercial areas contribute to greater VMT as a result of its location. If the commercial development lowers VMT, then it will be considered to have a zero or negative GHG contribution as a result of its shortened operational vehicle trips.

In summary, for criteria pollutants, if new emissions move into the air basin, and even if there is a reduction in criteria emissions elsewhere, these emissions are new to the basin and, therefore, counted as project-related emissions. For GHGs, if the emissions simply moved location from one basin to another, these emissions are not new on a global scale and should not be counted as project-related emissions.

When the original evaluation for the RMDP/SCP Project was conducted, there was a great deal of discussion between relevant regulatory agencies and the environmental consulting community in terms of how to treat GHG emissions associated with vehicular trips resulting from commercial developments. Those discussions included the idea of not including vehicular trips to commercial developments in order to avoid double counting. Therefore, at the time of the original analysis, the GHG emissions associated with commercial trips were excluded from the emissions estimates. For purposes of the current analysis, and despite a renewed recognition that commercial retail development does not always create new trips, a more conservative approach was taken, such that the GHG emissions results from all commercial trips were counted towards the total Project inventory.

II. HISTORY OF GHG ANALYTICAL TOOLS FOR CEQA

The California Air Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), and other public and private organizations have developed several software programs to facilitate the calculation of emissions from construction, motor vehicles, and urban developments by streamlining emissions estimation from these sources. In the mid- to late-2000s, five different models were required to estimate GHG emissions for land use development projects. These included the EMission FACtor model (EMFAC), the Emissions Inventory Program model (OFFROAD), the URBEMIS[4] model, the eQUEST model, and the Micropas model. The OFFROAD[5] and EMFAC[6] models have been updated by the CARB, and CalEEMod®[7] was developed to replace URBEMIS and incorporated methodology to accomplish what eQUEST and Micropas models were used for (i.e., estimating building energy usage). Ultimately, CalEEMod used data from the California Commercial End Use Survey[8] and the Residential Appliance Saturation Survey.[9] The updates to the models and the development of entirely different models leads to different emission estimates for an identical project evaluation. Additional details on the URBEMIS and CalEEMod models are included below.

A. URBEMIS

The URBEMIS software was created by SCAQMD, although it is used by other air districts as well. It estimates emissions associated with different aspects of urban development.

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[4] URBEMIS Environmental Management Software. Available at: http://www.urbemis.com/. Accessed: May 2017.

[5] CARB. 2011. Off Road Mobile Source Emission factors. Available at: http://www.arb.ca.gov/msei/msei.htm. Accessed: May 2017.

[6] CARB. 2015. EMFAC2014. Release. Available at: https://www.arb.ca.gov/msei/msei.htm. Accessed: May 2017.

[7] SCAQMD. 2013. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/. Accessed: May 2017.

[8] Available at: http://www.energy.ca.gov/ceus/. Accessed: May 2017.

[9] Available at: http://www.energy.ca.gov/appliances/rass/. Accessed: May 2017.

The operational data module in URBEMIS calculates emissions from mobile sources operating during the use of a development based on emission factors from EMFAC and traffic use information specific to a development. Mobile source emissions during the construction phase are calculated separately in the construction module of URBEMIS. URBEMIS provides county, air district / air basin, or state wide averages for number of daily trips per land use unit, such as per housing unit or per student at an elementary school, in the absence of more specific information from traffic engineers. URBEMIS also provides air district-specific default values for vehicle fleet characteristics (vehicle class distribution and technology categories) and travel conditions (average trip length, trip speed, and relative frequency of each type of trip) based on EMFAC2007 (URBEMIS Version 9.2.2).

In addition to mobile source emissions, URBEMIS can calculate emissions associated with the construction phase of a development and emissions from area sources, such as fireplaces, once the development is operational. The URBEMIS construction module enables separate emissions calculations from each of the three typical stages of any construction project: demolition, site grading, and building construction using EMFAC2007 and OFFROAD2007. Based on the timing of construction and size of the development, URBEMIS defaults can be used to estimate emissions. Alternatively, the user can overwrite these defaults by entering specific information about the construction project, such as what types and numbers of equipment are going to be used. In terms of area sources, URBEMIS is equipped to estimate GHG emissions from three types of GHG-emitting area sources based either on program defaults or more specific project information inputted by the user. These uses are natural gas fuel combustion, hearth fuel combustion, and landscaping equipment. URBEMIS was unable to estimate GHG emissions associated with building electricity usage.

B. CalEEMOD

The CalEEMod® version 2013.2.2[10] provides a platform to calculate both construction emissions and operational emissions from a land use development project.[11] The first version of CalEEMod® was released in January of 2011, after the release of the Project 2010 EIS/EIR. It calculates both the daily maximum and annual average for criteria pollutants as well as total or annual GHG emissions. The model also provides default values for water and wastewater treatment and distribution, solid waste disposal, and energy use. Specifically the model aids the user in the following GHG calculations (emission categories of criteria pollutant are slightly different):

- One-time short-term construction emissions associated with site preparation, demolition, grading, utility installation, building, coating, and paving from off-road construction equipment, and on-road mobile equipment associated with workers, vendors, and hauling.
- One-time vegetation sequestration changes, such as permanent vegetation land use changes and new tree plantings.
- Operational emissions associated with the fully built-out land use development, such as on-road mobile vehicle traffic generated by the land uses, off-road emissions from landscaping equipment, wood stoves and hearth usage, natural gas usage in the buildings, electricity usage in the buildings, water usage by the land uses and wastewater treatment, and solid waste disposal by the land uses.

[10] SCAQMD. 2013. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/. Accessed: May 2017.

[11] CalEEMod® is also capable of calculating emissions associated with the vegetation change. However, it is not the focus of this memorandum.

CalEEMod® was developed under the auspices of the SCAQMD and received input from other California air districts, and is currently supported by numerous lead agencies for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources such as the USEPA AP-42 emission factors,[12] CARB's on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the CEC and CalRecycle. In addition, CalEEMod® contains default values and existing regulation methodologies to use in each specific local air district region. Appropriate statewide default values can be utilized if regional default values are not defined.

III. HISTORICAL REVIEW OF EIS/EIR GHG INVENTORY

The GHG emissions estimates in the 2010 EIS/EIR recognize that, based on the actual location of the Project site, the Project's new commercial (i.e., non-residential) development areas will serve an area with a high residential/commercial balance. Therefore, this new commercial non-residential development will reduce shopping and work trip lengths, and will reduce GHG emissions associated with mobile sources. Specifically, development within the Valencia Commerce Center planning area, which is purely commercial, will not result in a net contribution to mobile GHG emissions. Additionally, all commercial non-residential development in the Newhall Ranch Specific Plan area and Entrada planning area will not contribute to net mobile GHG emissions. With this recognition, and using the then-available GHG modeling tools, the 2010 EIS/EIR identified a Project GHG emissions inventory of 269,053 metric tonnes (MT) CO2e per year, of which the mobile emissions contributed 112,138 MT CO2e per year (see Table ES-2 of the *Final Joint EIS/EIR for the RMDP and SCP Project* GHG Technical Report).[13] The annual VMT was estimated to be 364,001,251 miles per year (Table 3-C-1 of the *Final Joint EIS/EIR for the RMDP and SCP Project* GHG Technical Report).

Based on the evolution of the GHG analytical tools for CEQA, notably the development of CalEEMod® and its corresponding treatment of all commercial development trips as "new", the Project's GHG emissions are accounted for differently in the current analysis than in the approach employed in the 2010 EIS/EIR. While the scientific understanding of "new" GHG emissions has not changed, the SCAQMD decided that CalEEMod® would conservatively include all mobile related emissions regardless of consideration of they are "new" GHG emissions. Thus, in the context of this Project analysis, the additional non-home-based and non-residential VMT (approximately 764,743,588 miles per year) was included.

Table 1 shows that the current 2030 Project GHG emissions inventory would be less than the comparable GHG inventory presented in the 2010 EIS/EIR. Specifically, through extrapolation from the 2010 EIS/EIR's GHG inventory, if the non-home-based and non-residential miles were also included, the mobile source-related emissions might be 3.51 times larger than previously disclosed; this is estimated by dividing the 2016 GHG Technical Report's total VMT by the 2010 EIS/EIR's VMT analyzed. Using this ratio, we estimate what the 2010 EIS/EIR GHG inventory would have been if it has assumed all VMT was "new". Thus, with

[12] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors. Accessed: May 2017.

[13] California Department of Fish & Wildlife, *Final Joint EIS/EIR for the RMDP and SCP Project* (June 2010; SCH No. 2000011025), Volume VII – Appendix F8.0 [ENVIRON International Corporation, *Climate Change Technical Addendum* (October 2009)].

inclusion of the vehicular trips identified as non-home-based and non-residential trips, the 2010 EIS/EIR GHG inventory would have been 550,519 MT CO_2e per year. The 2016 GHG Technical Report's Project GHG emissions inventory is estimated to be 237,059 MT CO_2e per year (for comparison purposes, this excludes the Project's commitment to achieve net zero GHG emissions via GCC-13), which is less than the 2010 EIS/EIR's comparable GHG inventory.

Table 2 shows that adjusting the 2016 GHG Technical Report's Project GHG emissions inventory to reflect only the "new" emissions would also be less than the 2010 EIS/EIR GHG emissions inventory. This analysis removes the non-home-based and non-residential VMT from the 2016 GHG Technical Report's Project GHG emission inventory in parallel to the approach used in the 2010 EIS/EIR, and also excludes the mitigation measure emission reductions related to these mobile emissions. The 2016 GHG Technical Report's Project GHG inventory is estimated to be 68,537 MT CO_2e per year (again, for comparison purpose, this excludes the Project's commitment to achieve net zero GHG emissions via GCC-13), which is less than the 2010 EIS/EIR GHG inventory (269,053 MT CO_2e per year).

Note that this memorandum focuses on the differences in mobile VMT calculations between the original analysis and the current analysis. The mobile-related GHG emissions are the largest contributor to the difference in GHG emissions between these analyses. There are other differences in the modeling methodologies, which also contribute to the differences in the emissions[14]; however, the primary driver of the difference is the change in how the mobile-related GHG emissions are estimated and reported.

[14] For example, the Project's GHG emissions inventory in the 2016 GHG Technical Report is based on build out year of 2030 while the 2010 EIR was based on a 2020 evaluation year. Additionally, the Project's mitigation framework – as studied in the 2016 GHG Technical Report – contains additional emissions reduction strategies, as compared to the mitigation framework presented in the 2010 EIR, which influence the Project's emissions inventory total.

Table 1. Updating the 2010 EIS/EIR's Project GHG Emissions Estimate to Include Existing Worker Commute Trips
RMDP/SCP
Los Angeles County, California

Vehicle Miles Traveled (miles/year)	
2010 EIS/EIR VMT, Residential Home-Based Only[1]	364,001,251
Residential Non-Home-Based VMT[2]	148,676,567
Nonresidential VMT[3]	764,743,588
Total VMT (2010 EIS/EIR including Non-Home-Based and Nonresidential VMT)[4]	1,277,421,406
Scaling Ratio (Total VMT divided by 2010 EIS/EIR VMT)	3.51
Mobile GHG Emissions (MT CO_2e/year)	
2010 EIS/EIR Emissions, Residential Home-Based Only	112,138
Updated 2010 EIS/EIR Mitigated Mobile Emissions, Including Non-Home-Based and Nonresidential VMT	393,604
Updated Total GHG Emissions (MT CO_2e/year)	
Updated 2010 EIS/EIR Mitigated Project Total Emissions[5]	550,519
RMDP/SCP Mitigated Project Total Emissions (2016 Analysis)	237,059

Notes:

[1] Residential VMT represents trips that are made by "planning area residents, and begin or end at that resident's home," as described in California Department of Fish & Wildlife, Draft Joint EIS/EIR for the RMDP and SCP Project (April 2009; SCH No. 2000011025), Volume XVI – Appendix 8.0 [ENVIRON International Corporation, Climate Change Technical Report (February 2009)].

[2] Additional Residential VMT represents the home-based trips that are not attributed to residents in the Draft Joint EIS/EIR for the RMDP and SCP Project. Excluded trips met one of the following conditions: (1) an on-site or off-site nonresidential trip to on-site resident (e.g. a delivery truck from a warehouse to on-site resident; or (2) an off-site resident trip to on-site resident. The percent of trips that were excluded in that analysis ranged from 29% to 36%. This table adds back in 29% of trips to estimate the minimum (conservative) Updated 2010 EIS/EIR emissions for comparison purposes.

[3] Nonresidential VMT was estimated from the current RMDP/SCP Project analysis.

[4] Total VMT consists of residential VMT from the Climate Change Technical Report and additional estimated residential and nonresidential VMT.

[5] The updated 2010 RMDP/SCP EIR Mitigated Project Total Emissions is calculated by taking the original 2010 emissions for all source categories except for mobile and adding the updated mobile emissions.

Abbreviations:
EIR - Environmental Impact Report
EIS - Environmental Impact Statement
CO_2e - carbon dioxide equivalents
GHG - greenhouse gases
MT - metric tonnes
VMT - vehicle miles traveled

Table 2. Tailoring the RMDP/SCP GHG Emissions Estimate to Only Include Residential Home-Based Trips

RMDP/SCP

Los Angeles County, California

Vehicle Miles Traveled (miles/year)		
RMDP/SCP Unmitigated Project VMT, All Trips		1,211,961,903
VMT, All Residential		447,218,315
VMT, Residential Home-Based Trips[1]		317,525,004
Scaling Ratio (Residential Home-Based VMT divided by Total RMDP/SCP VMT)		0.26
Mobile GHG Emissions (MT CO_2e/year)		
Total Unmitigated Emissions, All Trips[2]		403,814
Unmitigated Emissions, Residential Home-Based Trips		104,992
Reduction from Mobile Mitigation Measures	All VMT	Residential Only[3]
TDM Program[4]	60,168	15,644
Residential EV Chargers and Vehicle Subsidy	53,724	53,724
Commercial Development Area EV Chargers[5]	39,109	0
Traffic Signal Synchronization [6]	8,212	2,135
Electric School Bus Program	157	0
Electric Transit Bus Subsidy	619	0
Reduction from Mobile Mitigation Measures	161,990	71,503
Tailored RMDP/SCP Mitigated Project Mobile Emissions, Residential Home-Based Trips Only[7]		33,488
2010 EIS/EIR Mitigated Mobile Emissions, Residential Home-Based Trips Only		112,138
Total GHG Emissions (MT CO_2e/year)		
2010 EIS/EIR Mitigated Project Total Emissions		269,053
Tailored RMDP/SCP Mitigated Project Total Emissions[8]		68,537

Notes:

[1] Approximately 29% of home-based trips are not attributed to residents, based on California Department of Fish & Wildlife, *Draft Joint EIS/EIR for the RMDP and SCP Project* (April 2009; SCH No. 2000011025), Volume XVI – Appendix 8.0 [ENVIRON International Corporation, *Climate Change Technical Report* (February 2009), Table 4-30]. These trips were removed from the total VMT.

[2] Unmitigated emissions are used for initial scaling because the mitigation measures do not all equally affect residential and non-residential VMT.

[3] Mitigation measures are scaled to estimate the mobile emissions reduction from residential VMT, excluding non-residential trips.

[4] The entire TDM program measures apply to residential VMT.

[5] The emissions reduction from non-residential electric vehicle charging stations is conservatively excluded.

[6] Traffic signal synchronization is assumed to be applicable to the remaining mobile emissions.

[7] Mitigated mobile emissions are calculated by subtracting a fraction of the total mobile mitigation measures from the total unmitigated mobile emissions.

[8] The RMDP/SCP Mitigated Project Total Emissions are calculated by taking the 2030 Mitigated Project emissions for all source categories except for mobile and adding the adjusted mobile emissions from residential home-based trips.

Abbreviations:

CO_2e - carbon dioxide equivalents

EIR - Environmental Impact Report

EV - electric vehicle

GHG - greenhouse gases

MT - metric tonnes

TDM - Transportation Demand Management

VMT - vehicle miles traveled

Appendix 16

Santa Clara River
Terminal Basin Analysis at
Long Canyon Drive Bridge,
Pace, March 21, 2017

PACE
Advanced Water Engineering

March 21, 2017

Sam Rojas
Director of Environmental Resources
FivePoint
25124 Springfield Court, Suite 300
Valencia, CA 91355
Phone (661) 255-4283

Re: Santa Clara River Terminal Basin Analysis at Long Canyon Drive Bridge

8238E

Dear Sam,

Figure 1, represents the Santa Clara River Terminal Basin analysis conducted at the Long Canyon proposed bridge site. The terminal basins were derived from 2016 LIDAR data at 3' pixels provided by the Los Angeles Region Imagery Acquisition Consortium (LARIAC). The analysis produced terminal basins of at least 6 inches deep within a 500' swath of the low flow channel of the River.

Sincerely,

Mark Krebs, PE
President

MEK/TH

Enclosures: Figure 1

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NEWHALL RANCH

LA County CA

Legend

- Bridge Pile Locations
- 2016 Terminal Basins (>= 6" deep)
- Low Flow Channel

Toe Down
Excavation Limit
Construction Limit

A
B
C
D
E
F

STA 241+15
STA 239+75
STA 237+55
STA 235+65
STA 233+65
STA 231+80
STA 229+40
STA 227+90
STA 226+00
STA 224+15
STA 221+95
STA 220+10
STA 217+90

Construction Limit
Excavation Limit
Toe Down

0 100 200 400 Feet

PACE Advanced Water Engineering

Date: 3/15/2017

Job Number 8238

Drawn By thowze

Figure 1

LONG CANYON BRIDGE TERMINAL BASINS

Aerial Imagery collected in 2014

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Appendix 17

Santa Clara River
Terminal Basin Analysis at
Commerce Center Drive Bridge,
Pace, March 21, 2017

March 21, 2017

Sam Rojas
Director of Environmental Resources
FivePoint
25124 Springfield Court, Suite 300
Valencia, CA 91355
Phone (661) 255-4283

Re: Santa Clara River Terminal Basin Analysis at Commerce Center Drive Bridge

8238E

Dear Sam,

Figure 1, represents the Santa Clara River Terminal Basin analysis conducted at Commerce Center Drive proposed bridge site. The terminal basins were derived from 2016 LIDAR data at 3' pixels provided by the Los Angeles Region Imagery Acquisition Consortium (LARIAC). The analysis produced terminal basins of at least 6 inches deep within a 500' swath of the low flow channel of the River.

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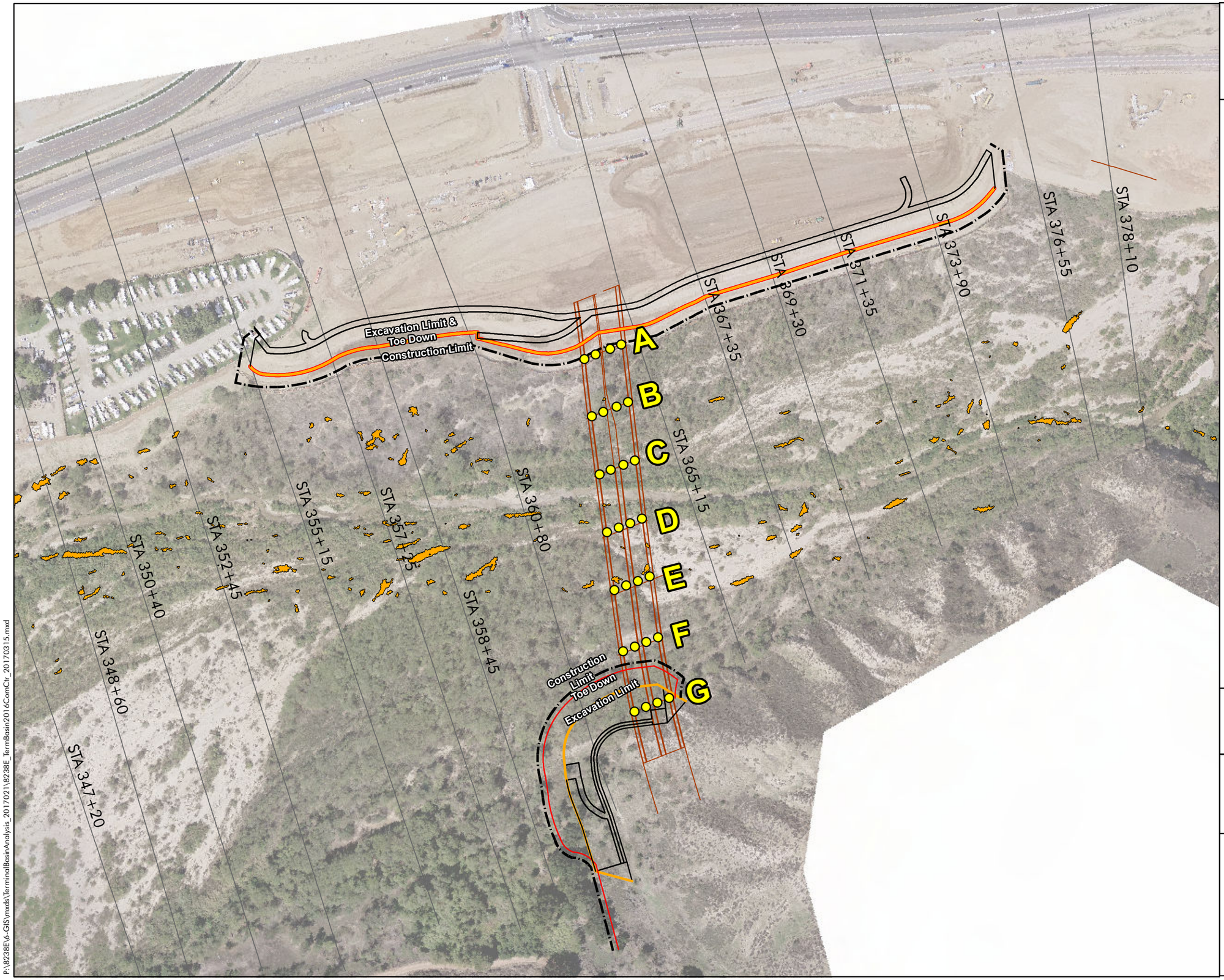

NEWHALL RANCH

LA County CA

Legend

- Bridge Pile Locations
- 2016 Terminal Basins (>= 6" deep)

0 125 250 500 Feet

PACE
Advanced Water Engineering

Date: 3/15/2017

Job Number
JOB#

Drawn By
thowze

Figure 1
COMMERCE CENTER DR TERMINAL BASINS

Aerial Imagery collected in 2014

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Appendix 18

Commerce Center Drive
Historic Thalweg Analysis,
Pace, March 21, 2017

PACE
Advanced Water Engineering

March 21, 2017

Sam Rojas
Director of Environmental Resources
FivePoint
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Valencia, CA 91355
Phone (661) 255-4283

Re: Commerce Center Drive Historic Thalweg Analysis

8238E

Dear Sam,

Attached is Figure 1, which represents the Commerce Center Drive Historic Thalweg analysis conducted at the Commerce Center Drive proposed bridge site. The historic thalwegs were created by digitizing the estimated thalweg as seen on historic aerials for the following years; 2002,2003,2008,2009,2011,2012,& 2014.

Sincerely,

Mark Krebs, PE
President

MEK/TH

Enclosures: Figure 1

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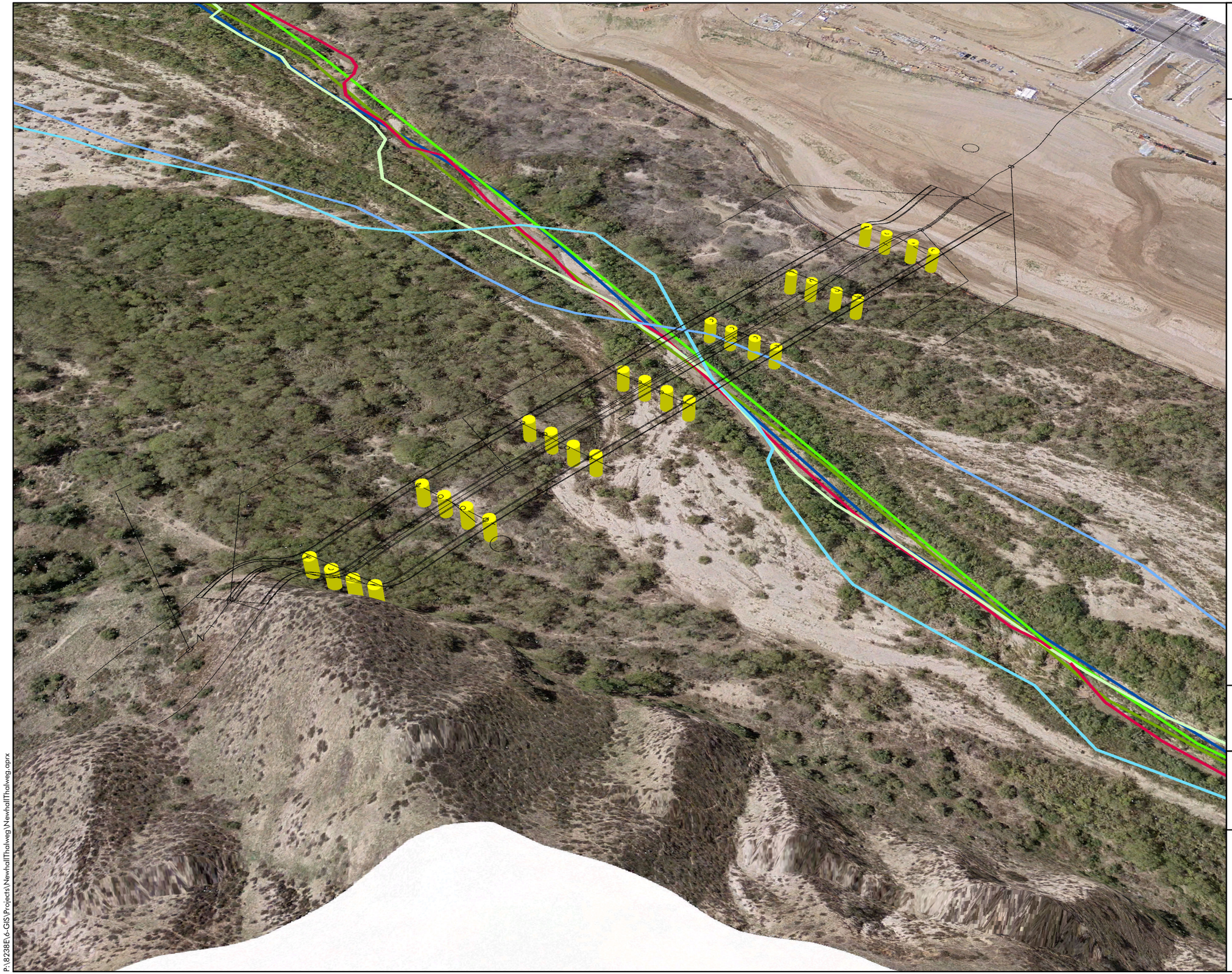

NEWHALL RANCH

LOS ANGELES CO. CA

- Commerce Ctr Bridge Piles
- Year 2014
- Year 2012
- Year 2011
- Year 2009
- Year 2008
- Year 2003
- Year 2002
- Commerce Ctr Bridge

0 75 150 300 Feet

PACE
Advanced Water Engineering

Date: 2/16/2017

Job Number 8238E

Drawn By thowze

Figure 1
COMMERCE CENTER DRIVE
HISTORIC THALWEG

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Appendix 19

Long Canyon Drive
Historic Thalweg Analysis,
Pace, March 21, 2017

PACE
Advanced Water Engineering

March 21, 2017

Sam Rojas
Director of Environmental Resources
FivePoint
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Valencia, CA 91355
Phone (661) 255-4283

Re: Long Canyon Drive Historic Thalweg Analysis

8238E

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Sincerely,

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MEK/TH

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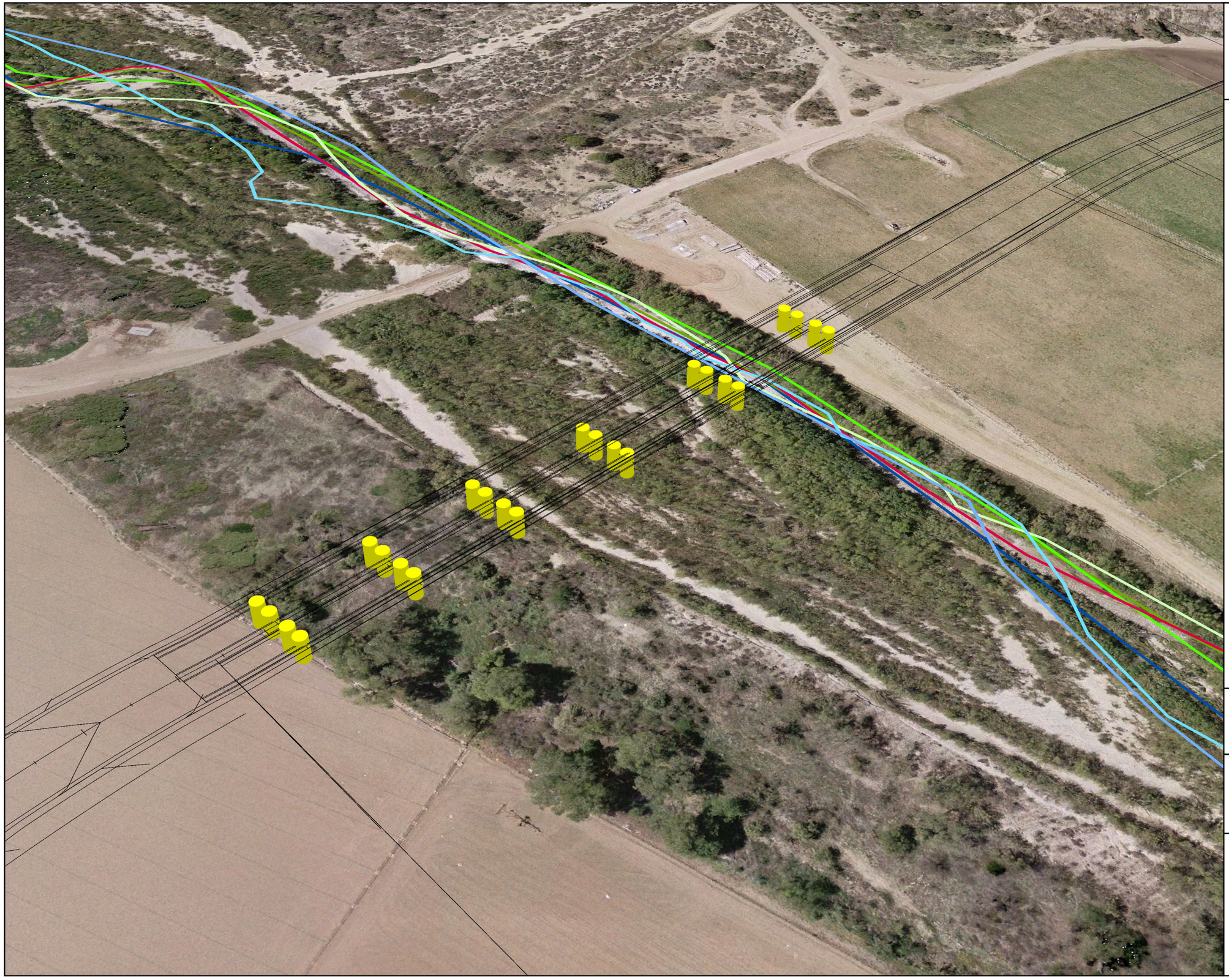

NEWHALL RANCH

LOS ANGELES CO. CA

- Long Canyon Bridge Piles
- Long Canyon Bridge Lines
- Year 2014
- Year 2012
- Year 2011
- Year 2009
- Year 2008
- Year 2003
- Year 2002

0 75 150 300 Feet

PACE Advanced Water Engineering

Date: 2/16/2017

Job Number 8238E

Drawn By thowze

Figure 1
LONG CANYON DRIVE HISTORIC THALWEG

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Appendix 20

Santa Clara River
Low-Flow Inundation Analysis, Summary of Hydraulic Model Input/Output Data for CCD Bridge, Pace, March 17, 2017

PACE
Advanced Water Engineering

March 17, 2017

Sam Rojas
Director of Environmental Resources
FivePoint
25124 Springfield Court, Suite 300
Valencia, CA 91355
Phone (661) 255-4283

Re: Santa Clara River Low-Flow Inundation Analysis
Summary of Hydraulic Model Input/Output Data for CCD Bridge # 8238E

Dear Sam,

The attached items (listed below) provide input and output data for the HEC-RAS hydraulic model created for the Santa Clara River (River) in the vicinity of the proposed Commerce Center Drive (CCD) Bridge for a dry-season flow of 500 cubic feet per second (cfs). Results of the HEC-RAS model were used to estimate the limits of inundation within the study reach, as shown on Figure 1.

- Figure 1 – Commerce Center Drive Bridge Manning's "n" Values and Cross Section Station Locations Exhibit – presents the 2014 aerial photograph used to develop the distribution of Manning's "n" values within the River, the hydraulic model cross-section locations, and a graphical representation of the inundation limits based on the dry-season flow. This figure is the key map to the subsequent HEC-RAS model output summary table, profile section, and station by station cross-sections that follow.

- Table 1 – HEC-RAS Model Output Summary Table – presents HEC-RAS hydraulic model results based on the dry-season flow for hydraulic parameters including water surface elevation, flow velocity, top width, etc.

- Figure 2 – Profile Section – presents a profile section of the minimum channel elevation (labeled as ground) and water surface elevation along the River for all station cross-sections in the study reach.

- Exhibits (46 pages): Station by Station Cross-Sections – presents the surface topography and corresponding water surface elevation for the dry-season flow of 500 cfs along each cross-section location included in the HEC-RAS model. The distribution of Manning's "n" values along each cross-section is also provided (shown along the top of the grid for each exhibit).

Sincerely,

Mark Krebs, PE
President

MEK/jc

Enclosures: Figure 1, Table 1, Figure 2, Cross-Section Exhibits

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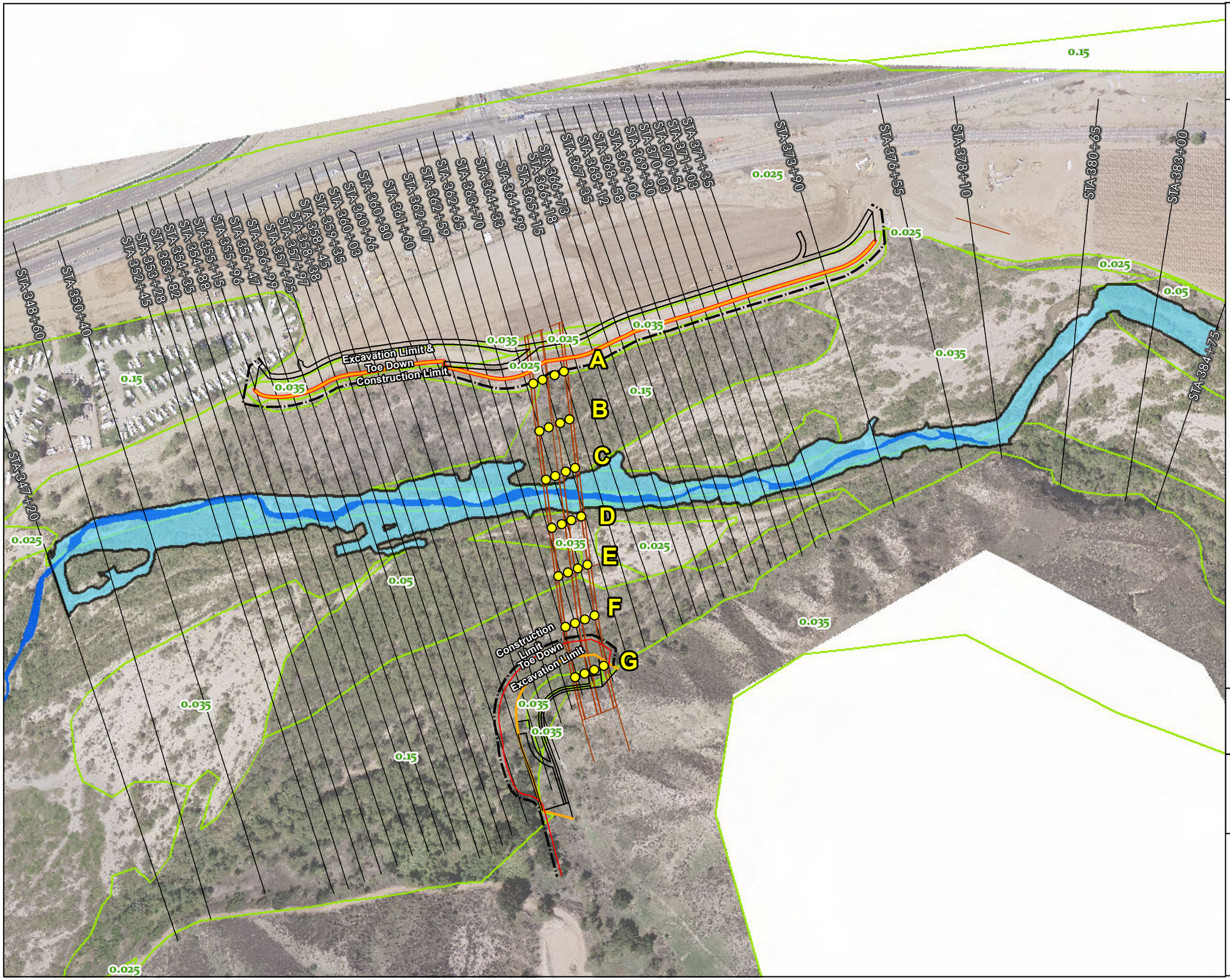

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NEWHALL RANCH

LA County CA

Legend

- Bridge Pile Locations
- Highest Estimated Dry-Season Flow (500 cfs)
- Low Flow Channel
- 0.035 Mannings n

Aerial Imagery collected in 2014

0 150 300 600 Feet

PACE Advanced Water Engineering

Date: 3/17/2017

Job Number JOB#

Drawn By thowze

Figure 1

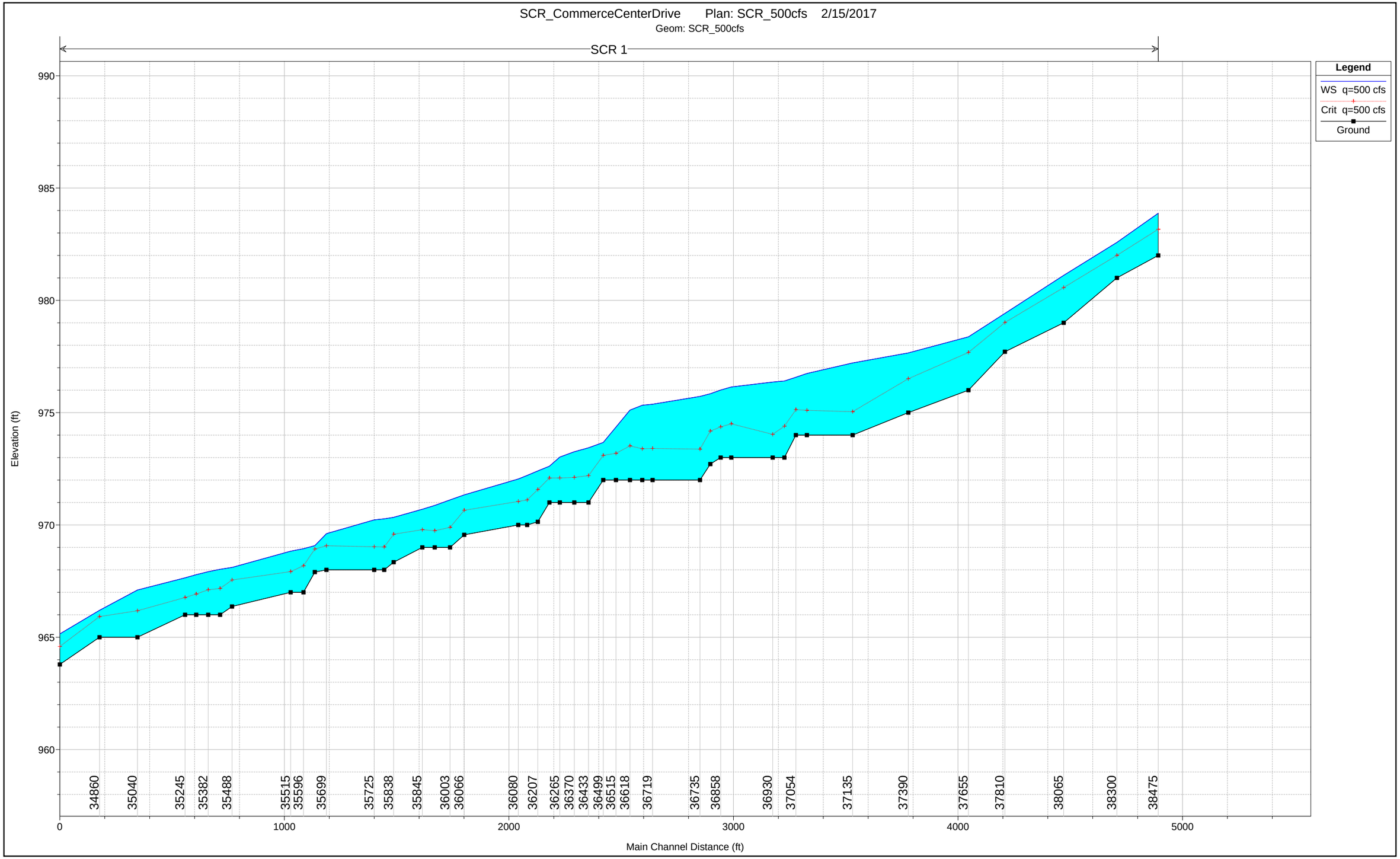
COMMERCE CENTER DRIVE BRIDGE MANNING'S "N" VALUES AND CROSS SECTION STATION LOCATIONS

Table 1 - HEC-RAS Model Output Summary

HEC-RAS Plan: SCR_500cfs River: SCR Reach: 1 Profile: q=500 cfs

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	38475	q=500 cfs	500.0	982.0	983.9	983.2	984.0	0.0056	3.0	168.0	107.3	0.42
1	38300	q=500 cfs	500.0	981.0	982.6	982.0	982.8	0.0085	3.4	145.7	103.8	0.51
1	38065	q=500 cfs	500.0	979.0	981.1	980.6	981.3	0.0046	3.6	137.3	95.7	0.54
1	37810	q=500 cfs	500.0	977.7	979.4	979.0	979.7	0.0090	4.1	120.8	86.4	0.62
1	37655	q=500 cfs	500.0	976.0	978.4	977.7	978.6	0.0049	4.0	123.7	71.0	0.54
1	37390	q=500 cfs	500.0	975.0	977.7	976.5	977.8	0.0021	2.6	191.7	128.4	0.38
1	37135	q=500 cfs	500.0	974.0	977.2	975.0	977.2	0.0019	1.5	325.3	116.9	0.16
1	37103	q=500 cfs	500.0	974.0	976.7	975.1	976.8	0.0023	2.3	220.2	85.1	0.25
1	37054	q=500 cfs	500.0	974.0	976.6	975.1	976.7	0.0045	2.5	203.5	87.4	0.28
1	37003	q=500 cfs	500.0	973.0	976.4	974.4	976.5	0.0030	2.0	246.1	90.2	0.22
1	36930	q=500 cfs	500.0	973.0	976.4	974.0	976.4	0.0006	1.6	303.2	99.3	0.17
1	36906	q=500 cfs	500.0	973.0	976.1	974.5	976.2	0.0018	2.3	220.5	90.9	0.26
1	36858	q=500 cfs	500.0	973.0	976.0	974.4	976.1	0.0026	2.7	187.0	96.0	0.34
1	36812	q=500 cfs	500.0	972.7	975.8	974.2	976.0	0.0051	2.6	189.1	74.5	0.29
1	36735	q=500 cfs	500.0	972.0	975.7	973.4	975.8	0.0021	2.2	228.0	70.6	0.22
1	36719	q=500 cfs	500.0	972.0	975.4	973.4	975.5	0.0012	2.4	206.9	75.3	0.26
1	36673	q=500 cfs	500.0	972.0	975.3	973.4	975.4	0.0017	2.0	251.4	115.4	0.24
1	36618	q=500 cfs	500.0	972.0	975.1	973.5	975.2	0.0113	2.3	216.8	99.9	0.28
1	36515	q=500 cfs	500.0	972.0	974.4	973.2	974.4	0.0134	2.2	227.7	171.5	0.34
1	36499	q=500 cfs	500.0	972.0	973.7	973.1	973.8	0.0086	3.1	160.9	128.4	0.49
1	36433	q=500 cfs	500.0	971.0	973.4	972.2	973.5	0.0025	2.5	203.6	107.7	0.31
1	36370	q=500 cfs	500.0	971.0	973.3	972.1	973.4	0.0021	2.8	179.1	89.1	0.35
1	36265	q=500 cfs	500.0	971.0	973.0	972.1	973.2	0.0056	3.0	164.2	86.1	0.39
1	36259	q=500 cfs	500.0	971.0	972.6	972.1	972.8	0.0108	3.5	141.4	143.5	0.55
1	36207	q=500 cfs	500.0	970.1	972.4	971.6	972.5	0.0032	2.5	196.9	173.1	0.42
1	36160	q=500 cfs	500.0	970.0	972.2	971.1	972.3	0.0085	1.8	278.2	179.7	0.25
1	36080	q=500 cfs	500.0	970.0	972.0	971.0	972.1	0.0019	2.1	237.8	164.4	0.31
1	36066	q=500 cfs	500.0	969.6	971.3	970.7	971.5	0.0041	2.7	185.0	152.0	0.43
1	36003	q=500 cfs	500.0	969.0	971.1	969.9	971.2	0.0044	1.8	285.3	168.1	0.24
1	35935	q=500 cfs	500.0	969.0	970.9	969.7	970.9	0.0030	1.7	286.6	168.7	0.24
1	35845	q=500 cfs	500.0	969.0	970.7	969.8	970.8	0.0025	2.1	242.7	187.9	0.30
1	35838	q=500 cfs	500.0	968.3	970.3	969.6	970.4	0.0029	2.3	220.8	182.0	0.34
1	35797	q=500 cfs	500.0	968.0	970.3	969.0	970.3	0.0012	2.1	236.4	182.4	0.27
1	35725	q=500 cfs	500.0	968.0	970.2	969.0	970.3	0.0014	1.9	263.6	196.6	0.29
1	35699	q=500 cfs	500.0	968.0	969.6	969.1	969.8	0.0045	3.3	150.0	150.6	0.51
1	35647	q=500 cfs	500.0	967.9	969.1	968.9	969.4	0.0129	4.6	109.3	145.8	0.81
1	35596	q=500 cfs	500.0	967.0	968.9	968.2	969.1	0.0028	3.1	163.8	103.4	0.43
1	35515	q=500 cfs	500.0	967.0	968.8	967.9	968.9	0.0020	2.6	190.6	114.4	0.36
1	35488	q=500 cfs	500.0	966.4	968.1	967.5	968.2	0.0036	3.0	167.6	124.7	0.45
1	35435	q=500 cfs	500.0	966.0	968.0	967.2	968.1	0.0016	2.3	217.9	138.6	0.32
1	35382	q=500 cfs	500.0	966.0	967.9	967.1	968.0	0.0023	2.3	214.1	140.7	0.33
1	35328	q=500 cfs	500.0	966.0	967.8	966.9	967.9	0.0029	2.3	220.9	139.9	0.32
1	35245	q=500 cfs	500.0	966.0	967.6	966.8	967.7	0.0028	2.2	225.3	143.2	0.31
1	35040	q=500 cfs	500.0	965.0	967.1	966.2	967.2	0.0023	2.2	224.8	154.6	0.31
1	34860	q=500 cfs	500.0	965.0	966.2	965.9	966.5	0.0093	4.1	123.1	170.9	0.66
1	34720	q=500 cfs	500.0	963.8	965.1	964.6	965.2	0.0050	2.3	217.5	312.2	0.39

Figure 2 - Profile Section



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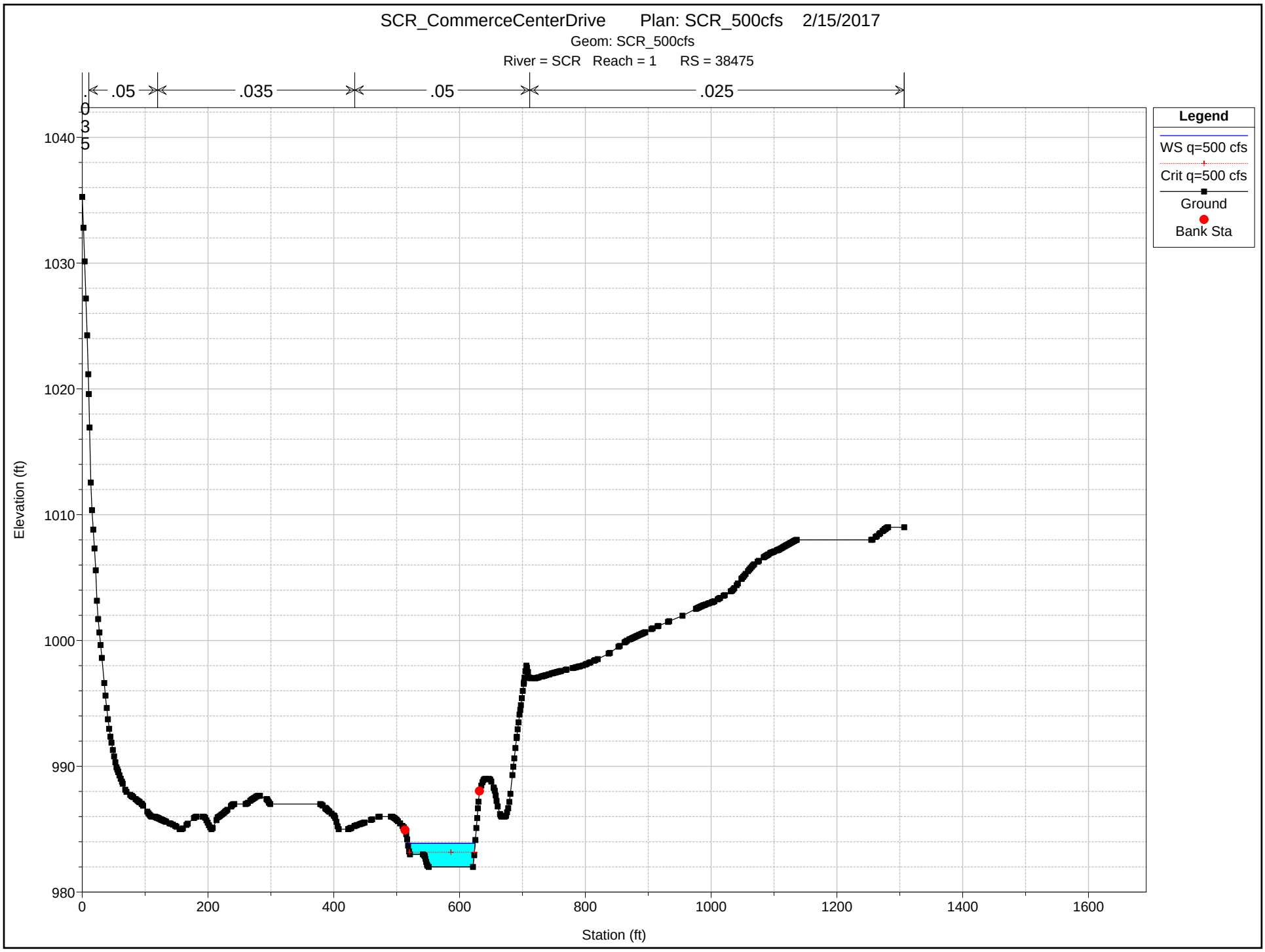

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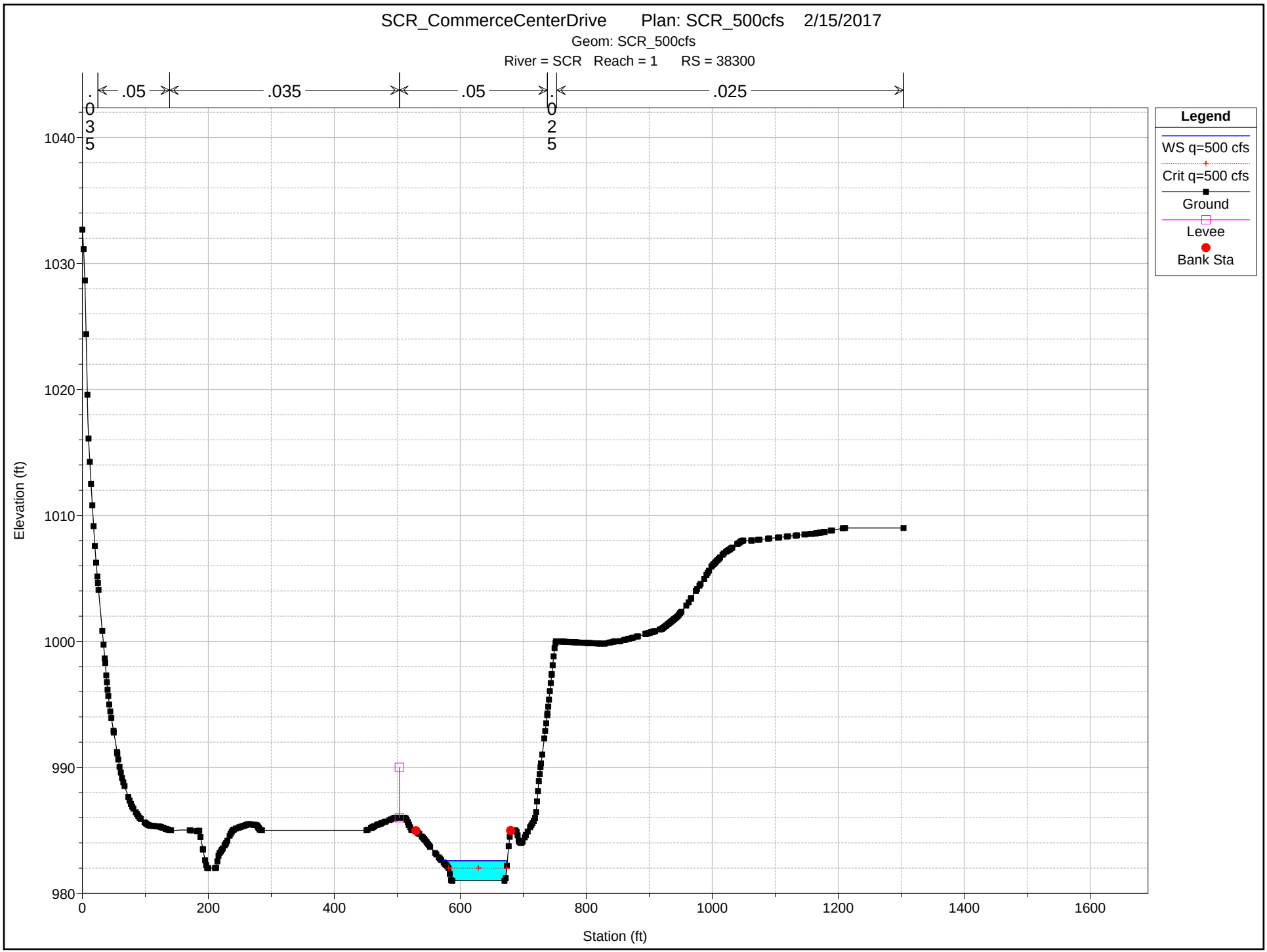

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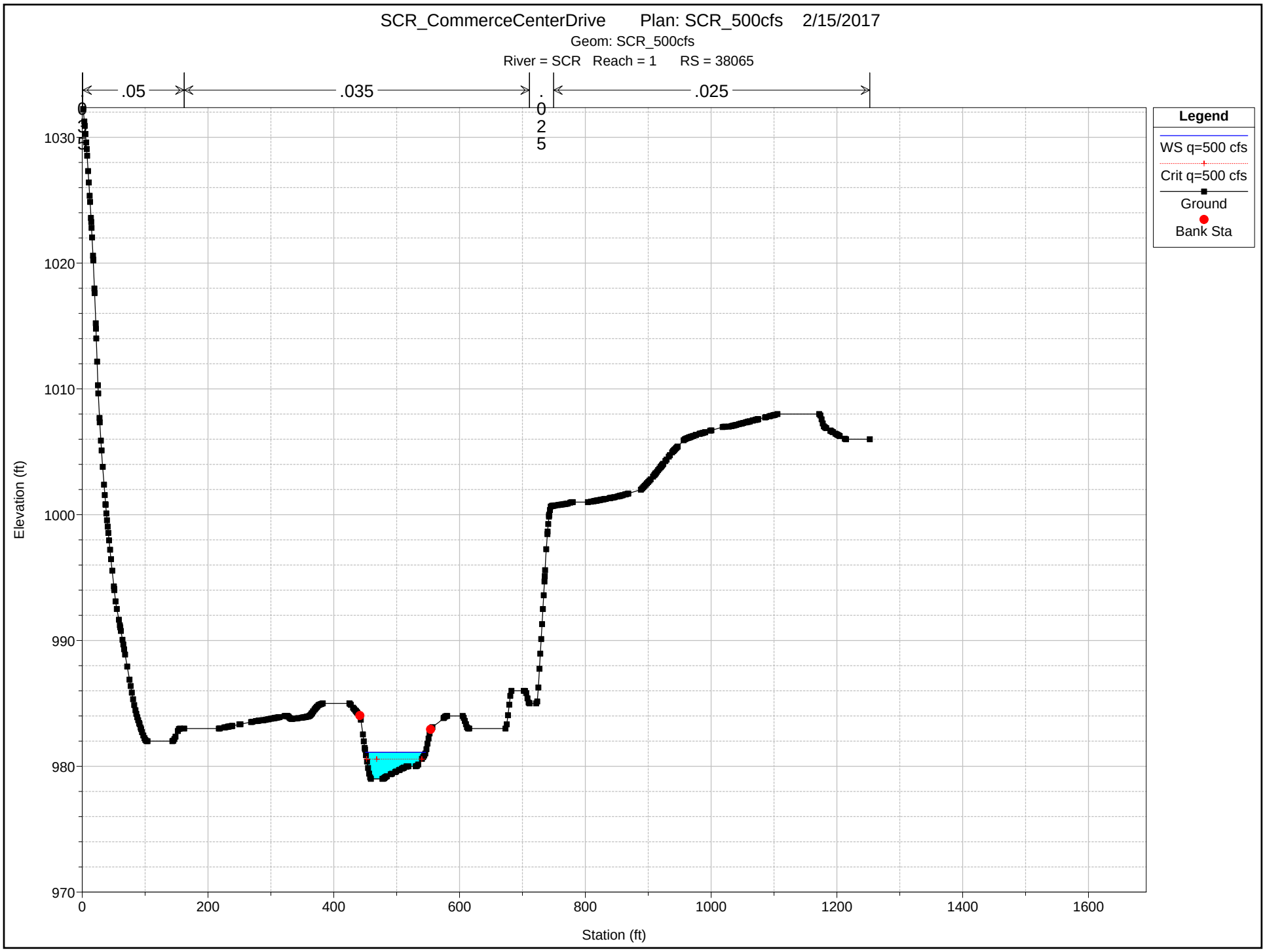

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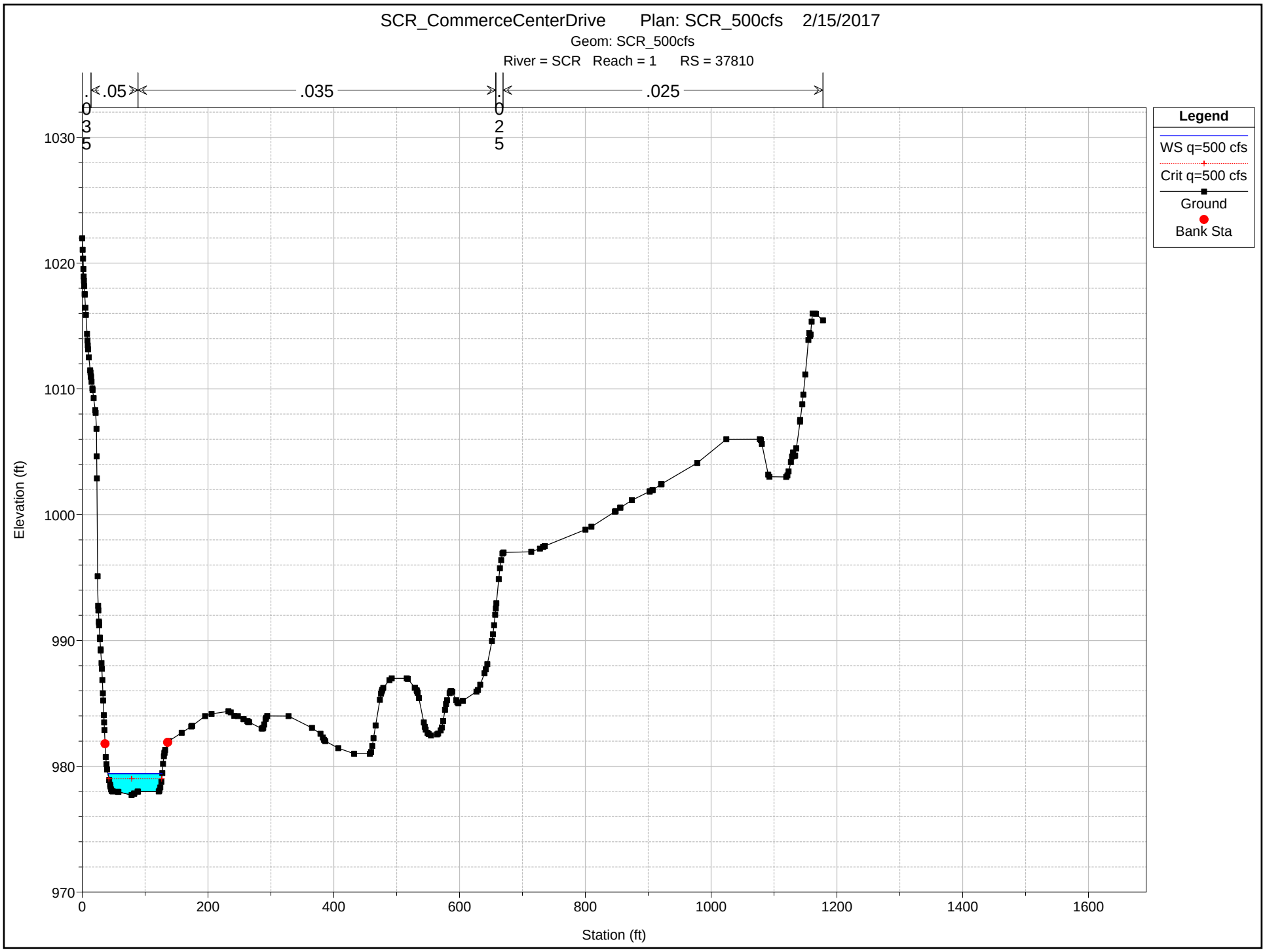

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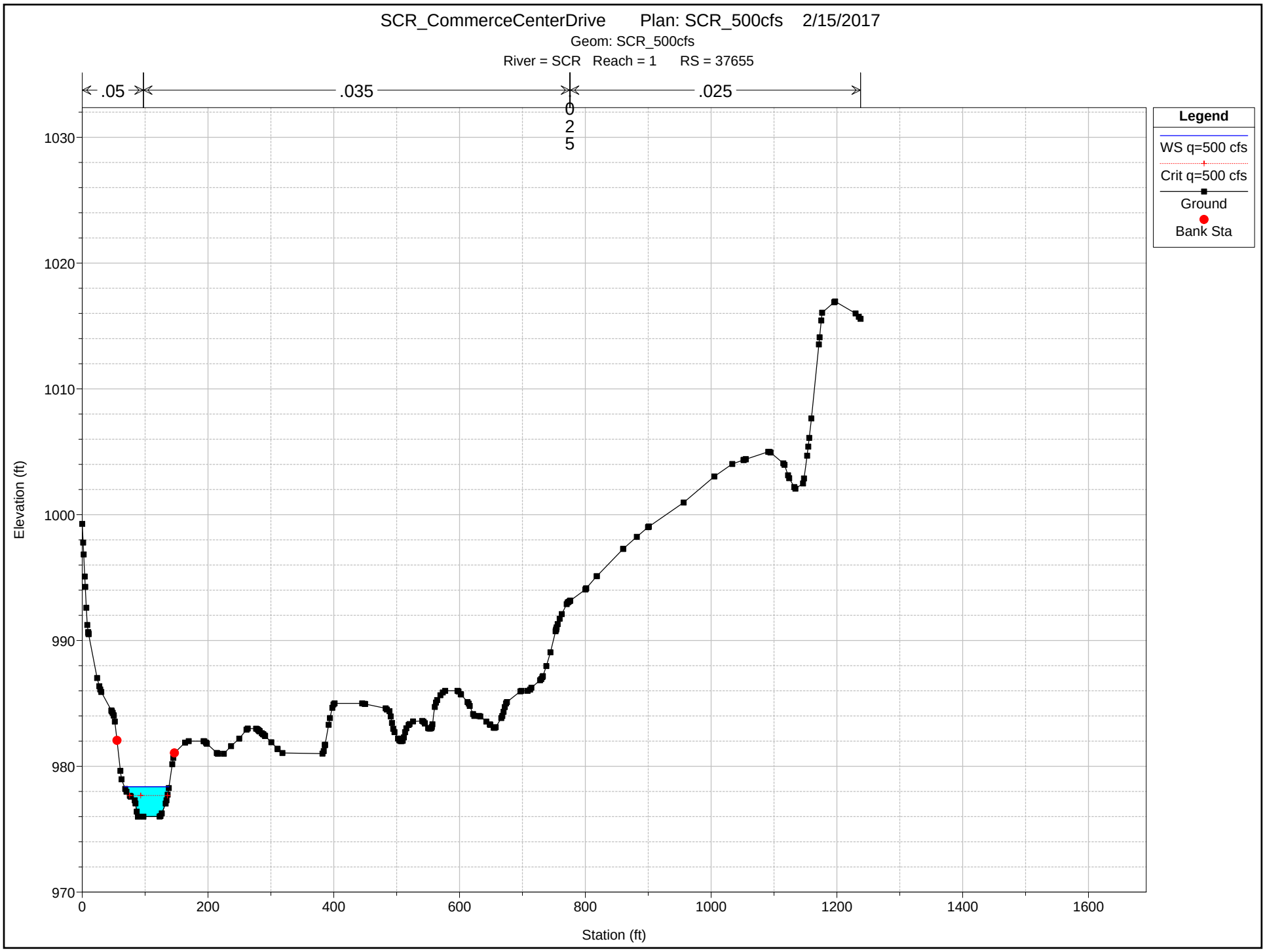

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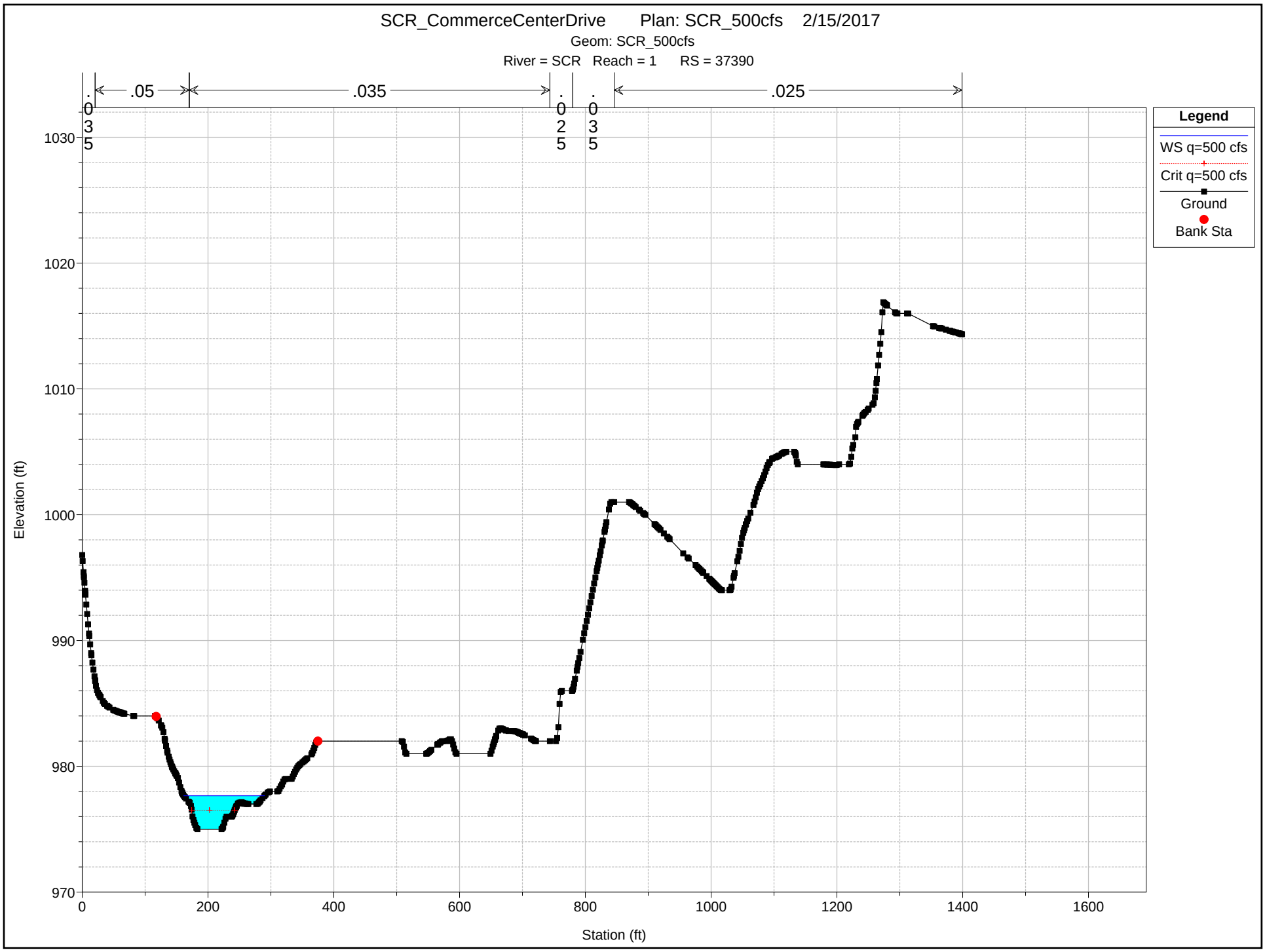

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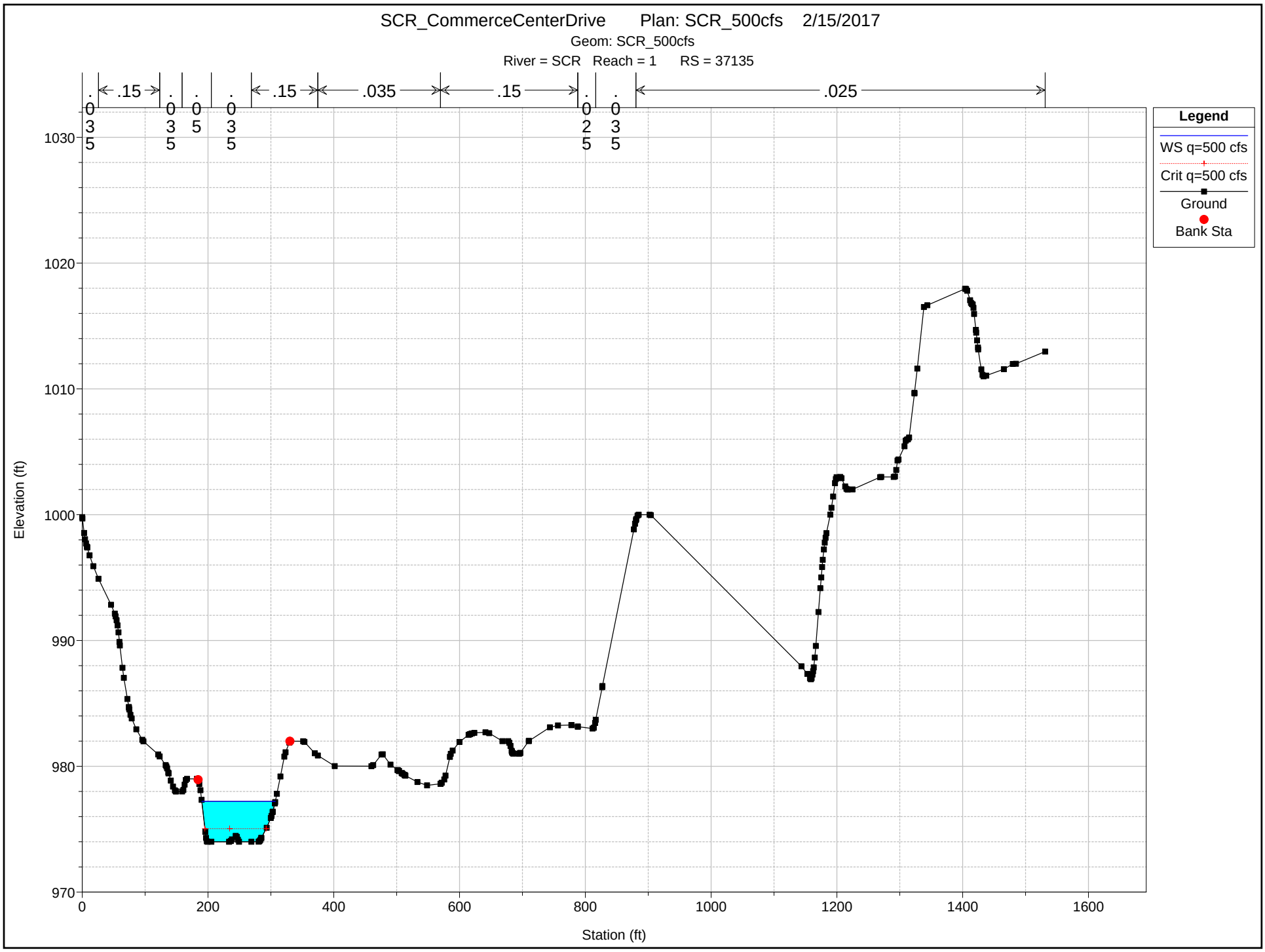

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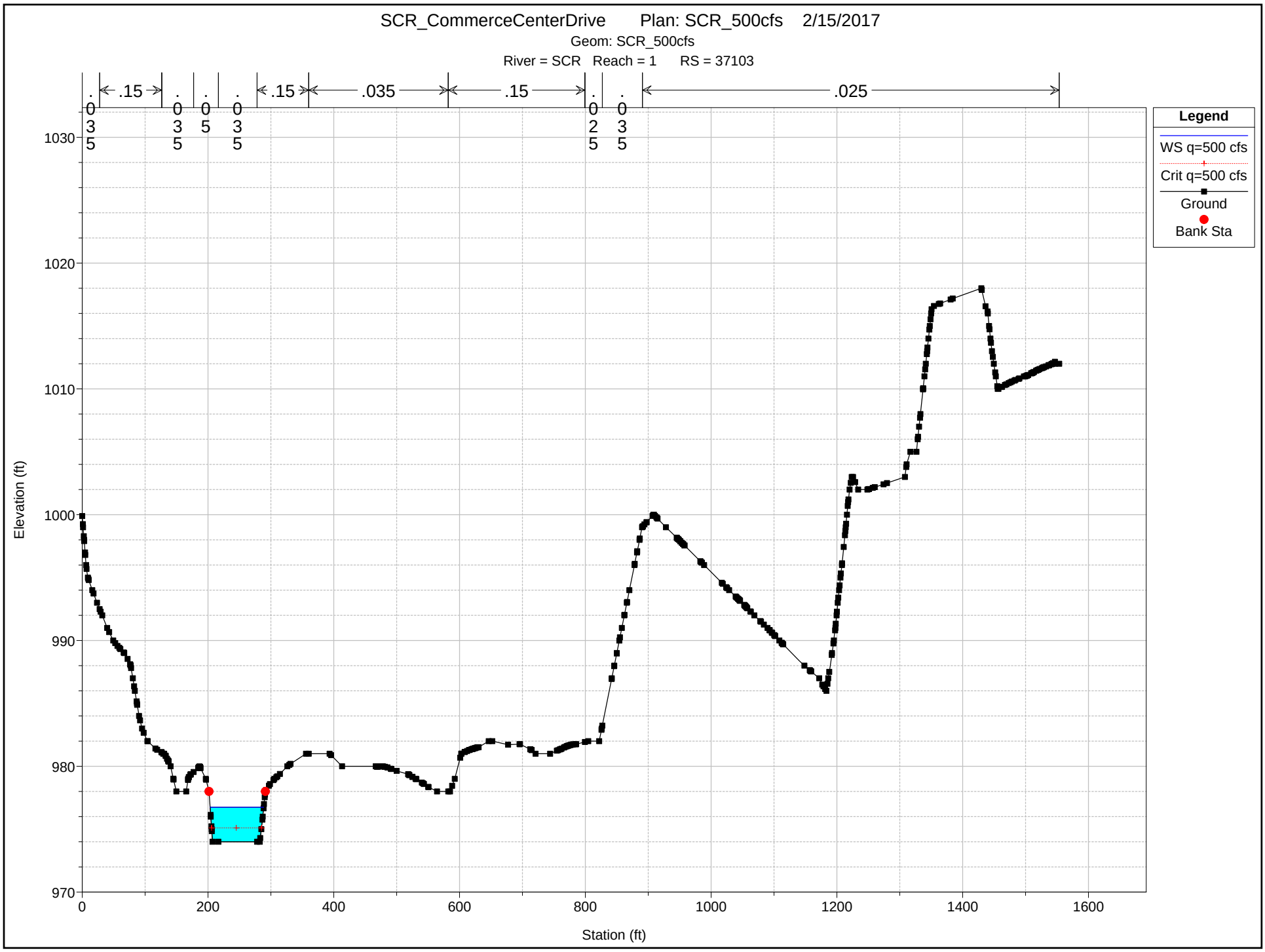

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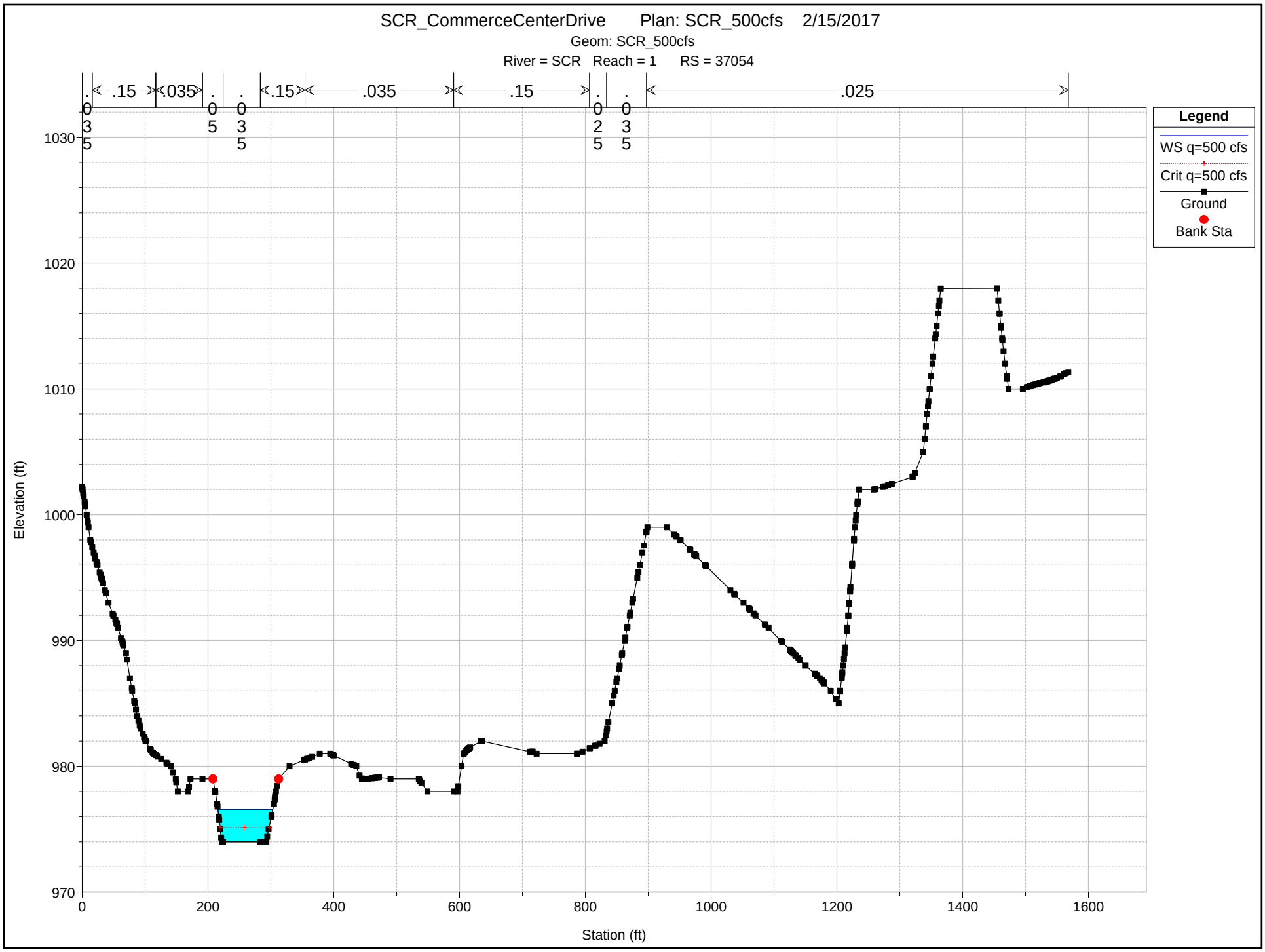

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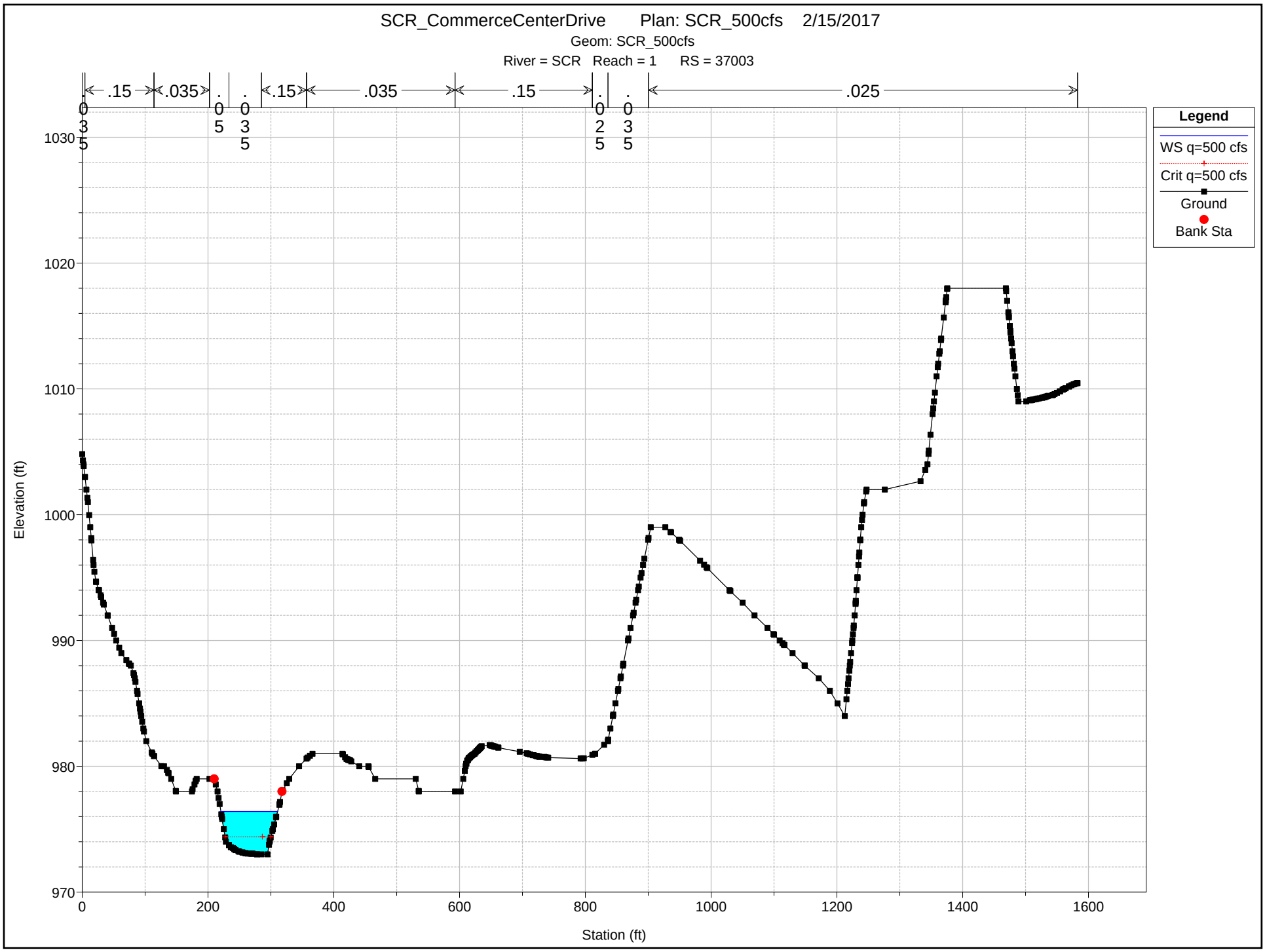

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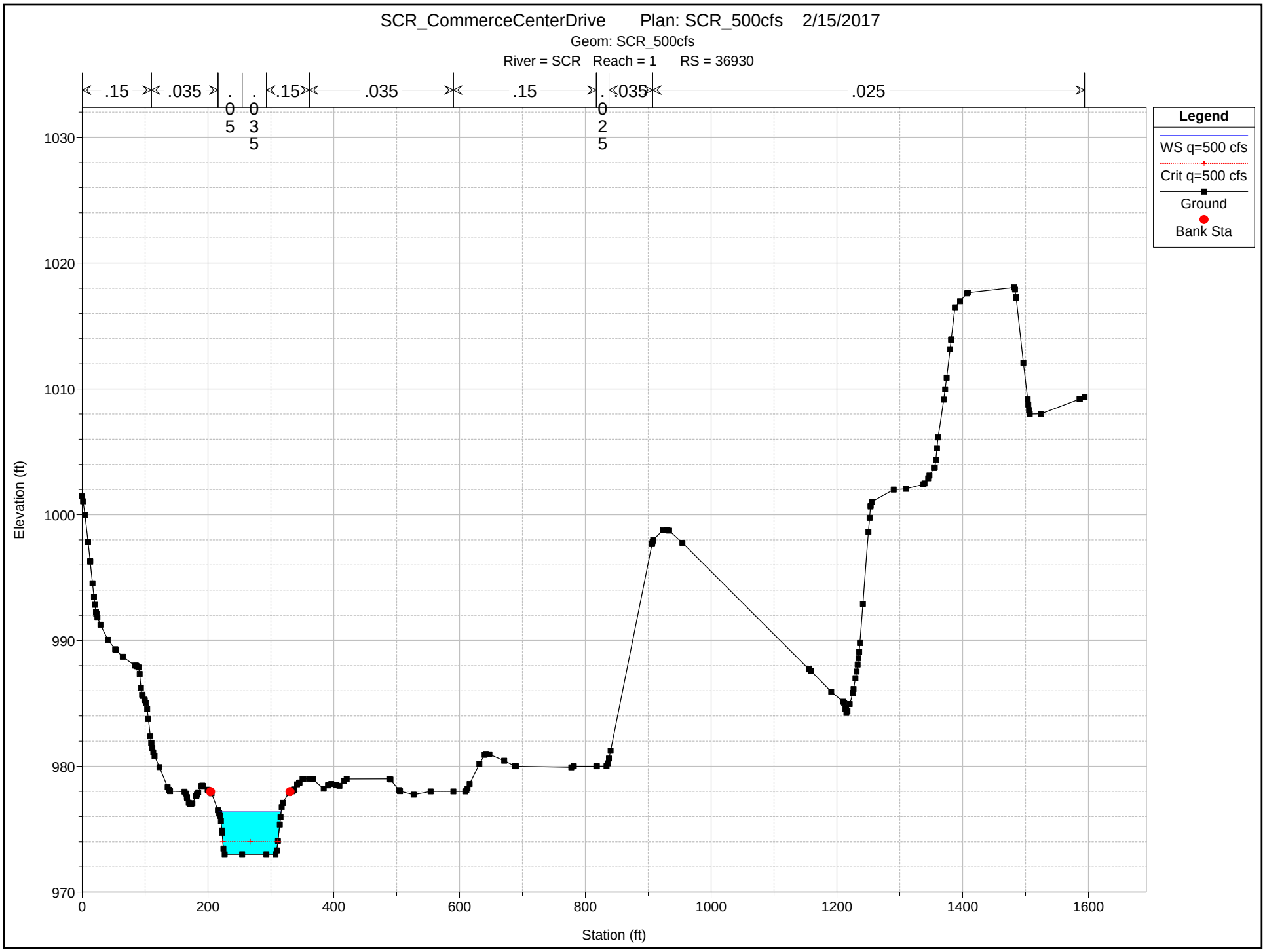

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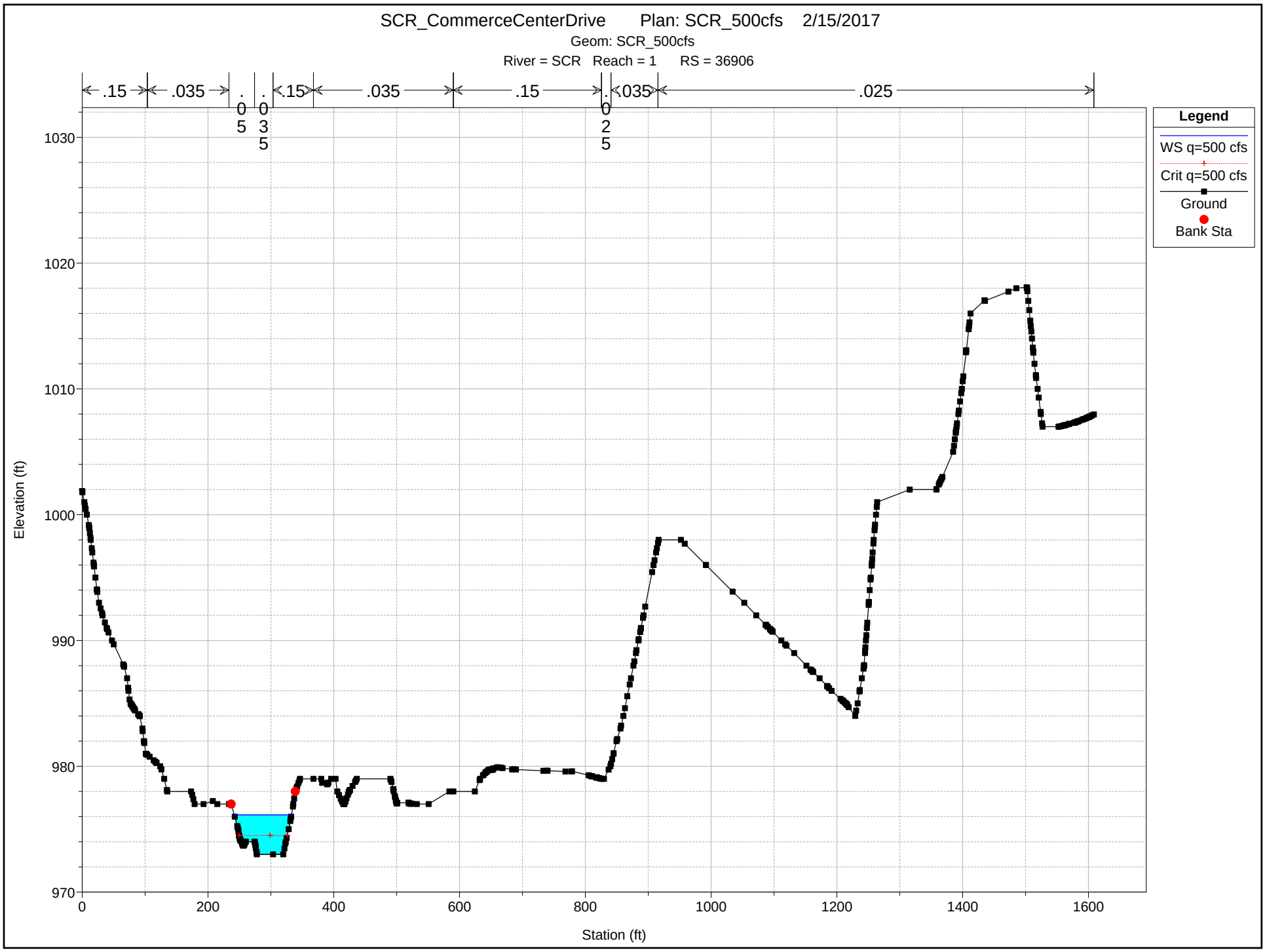

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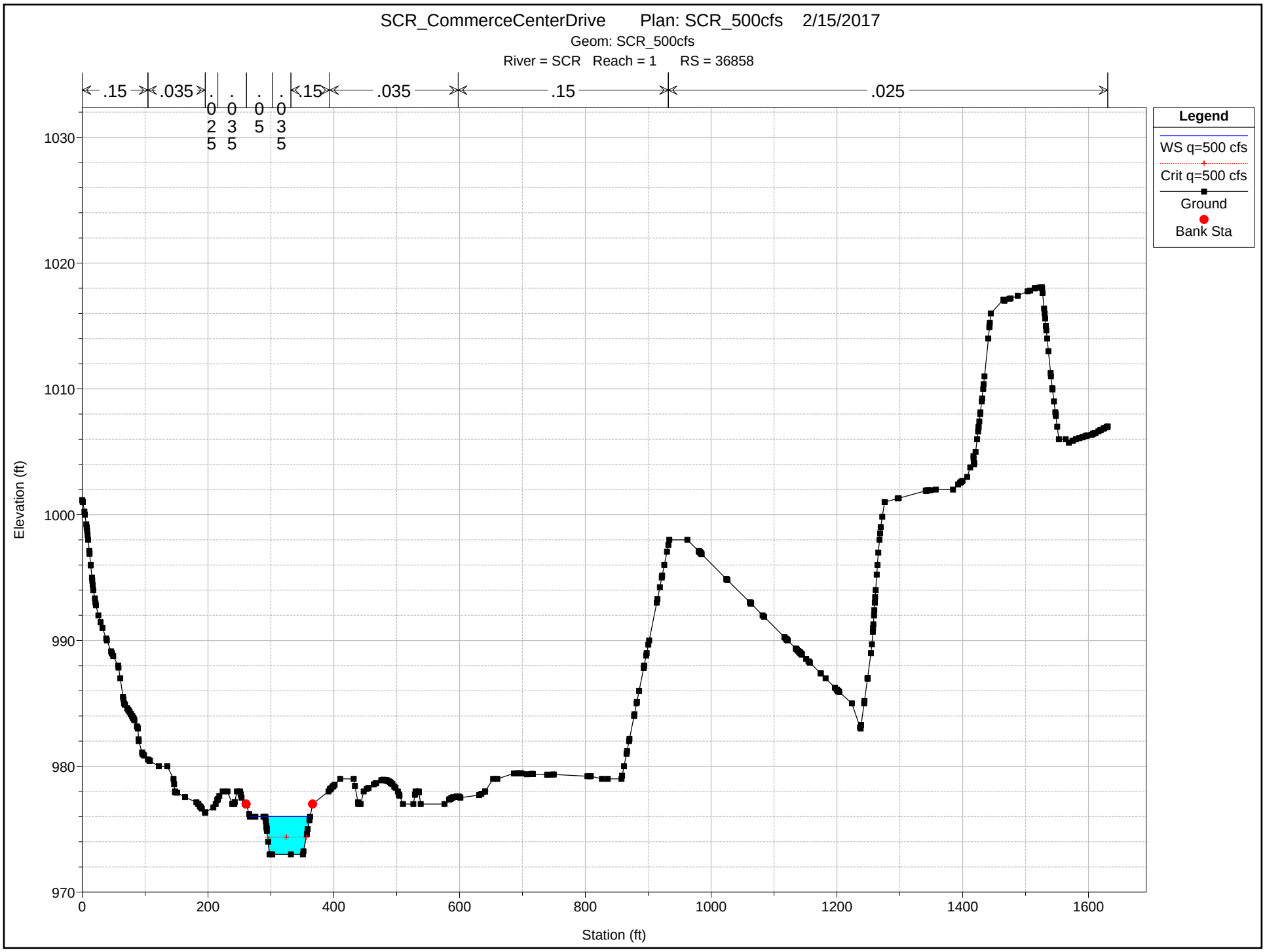

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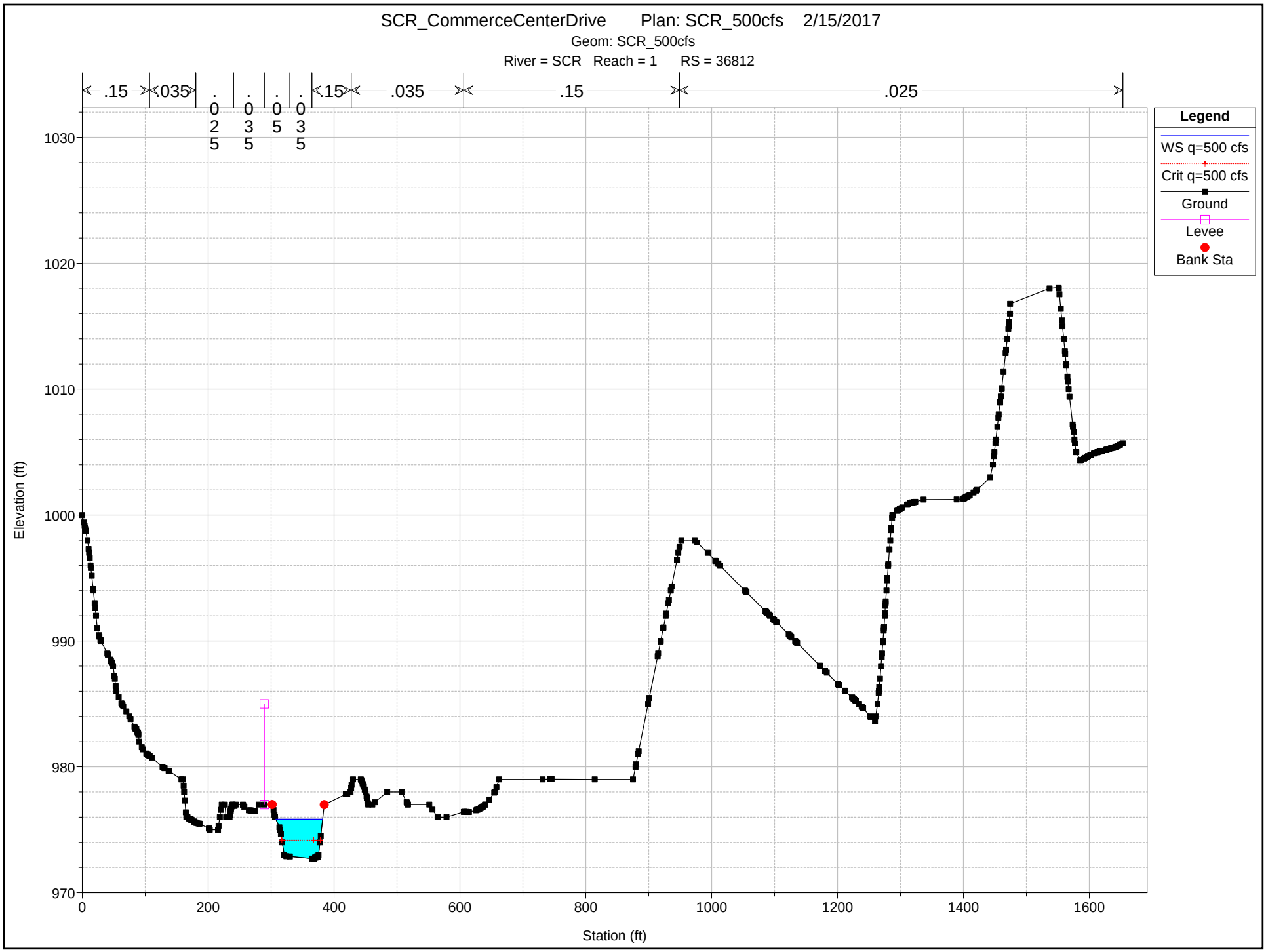

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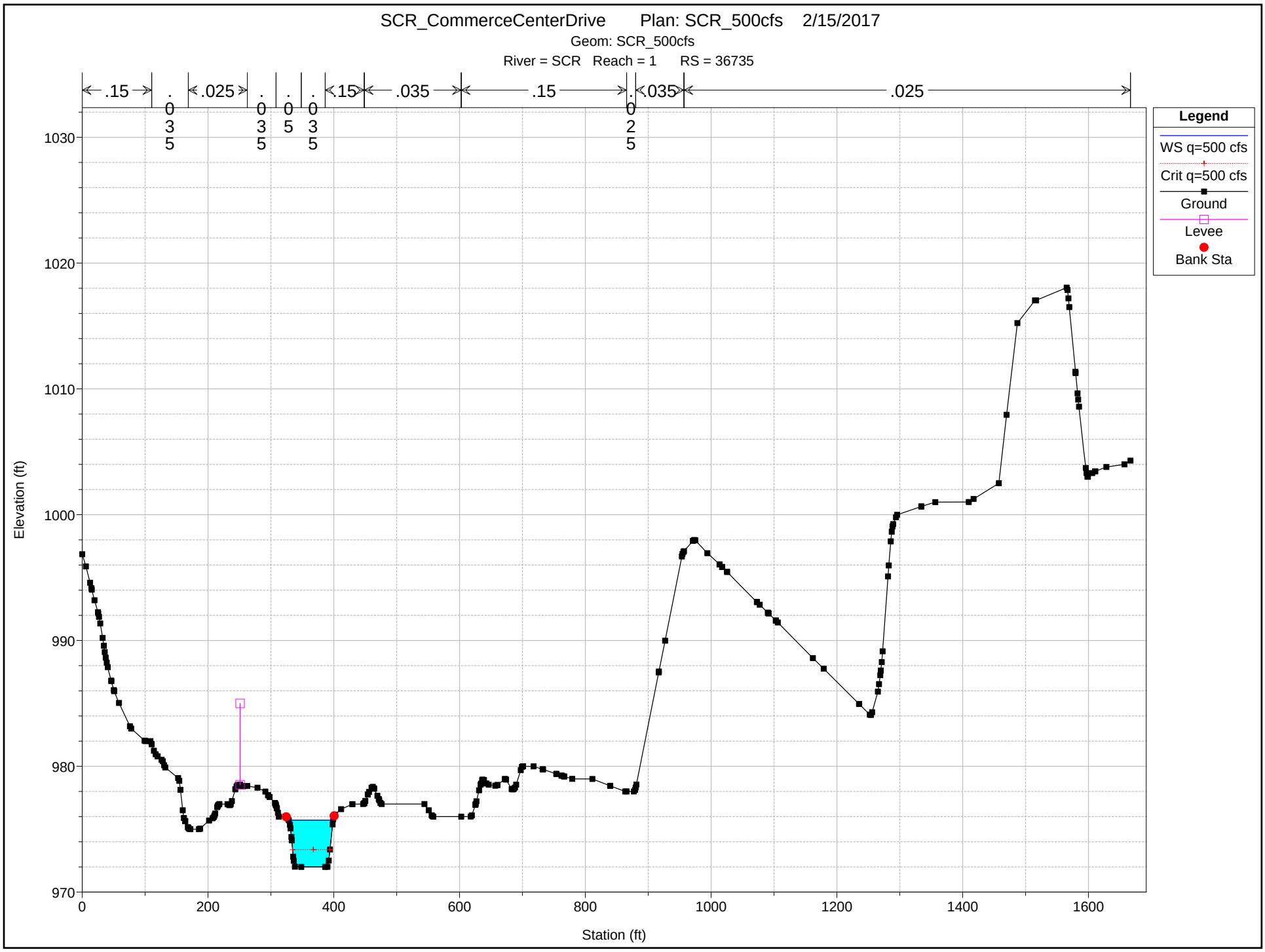

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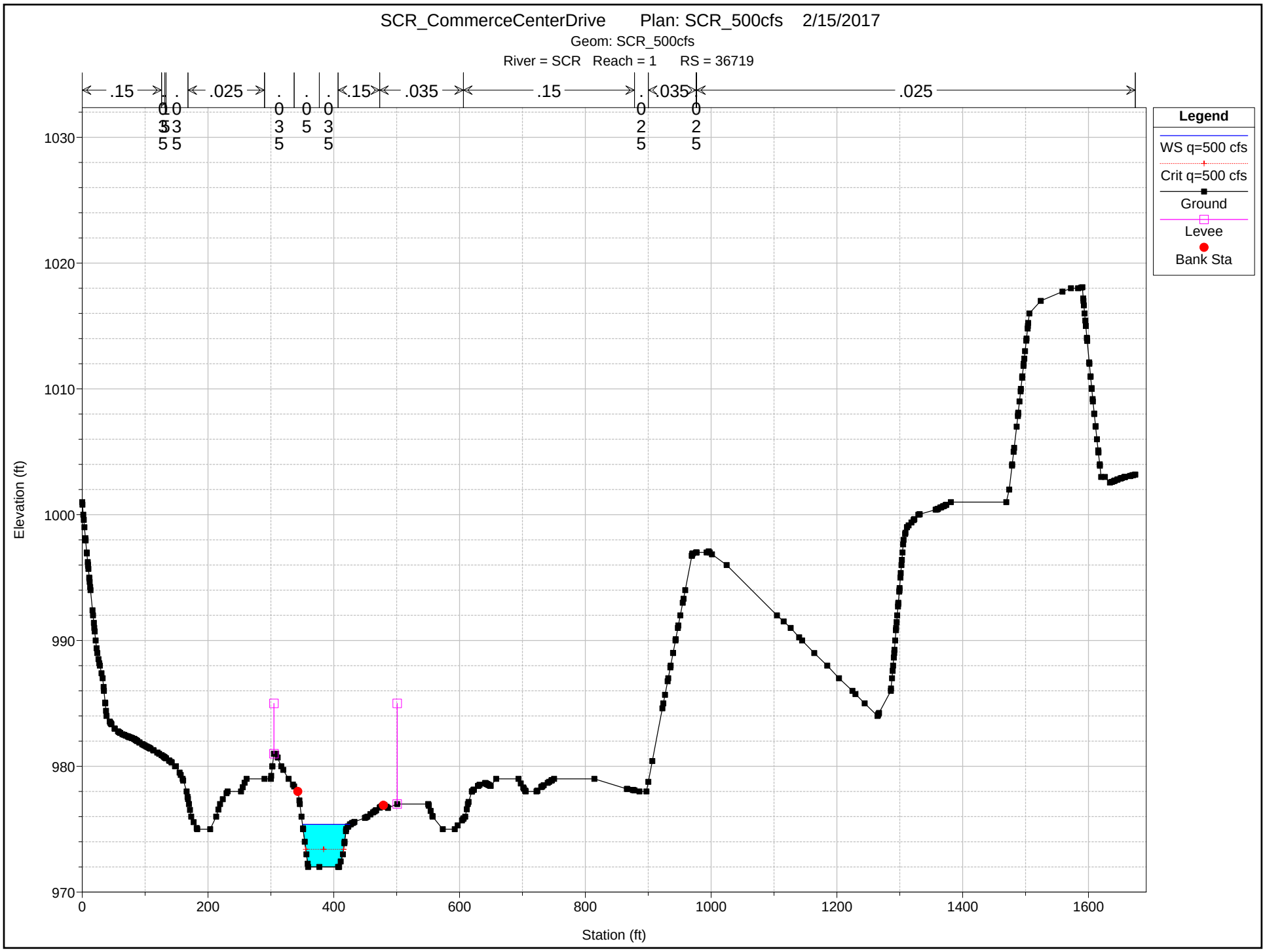

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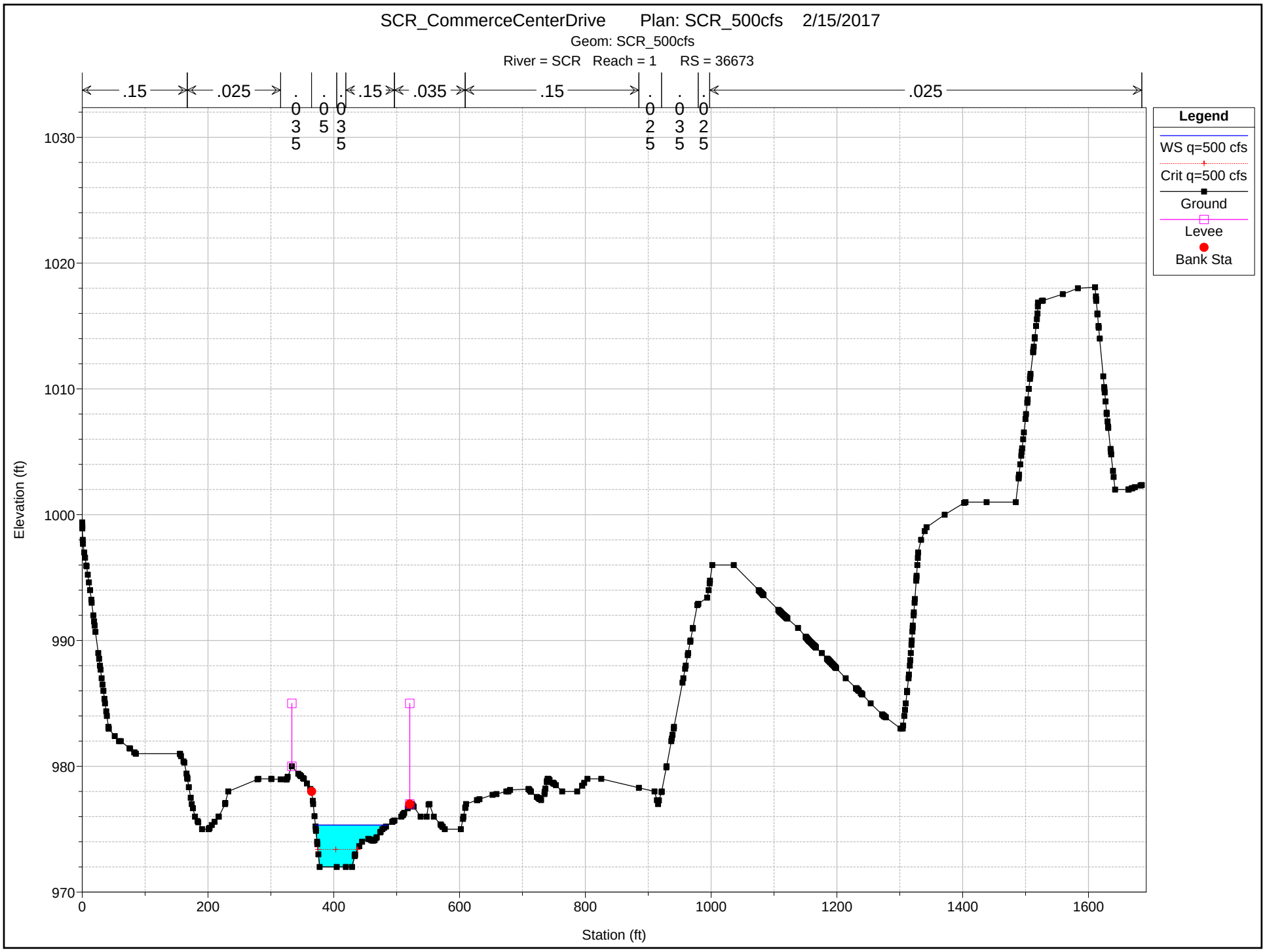

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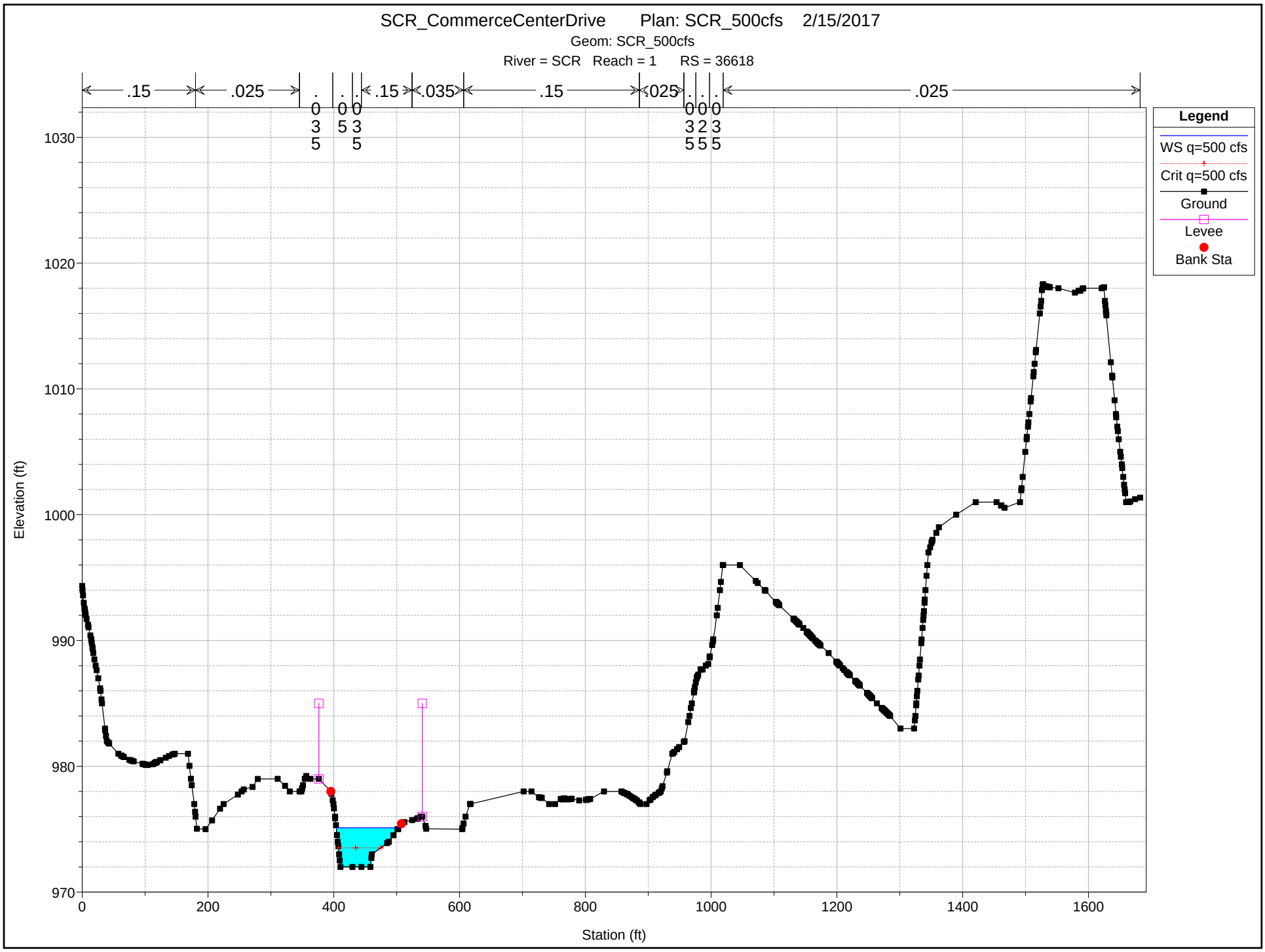

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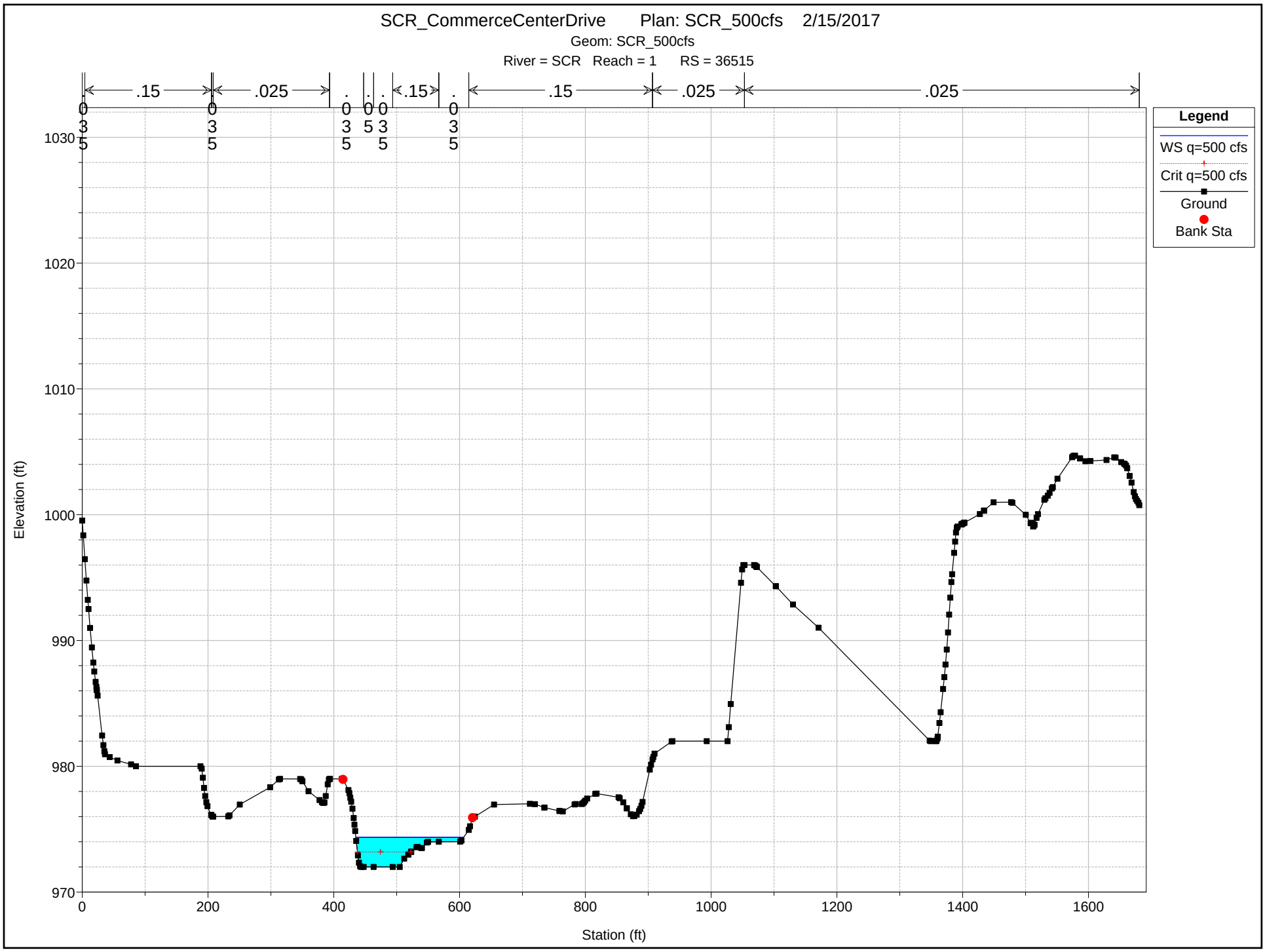

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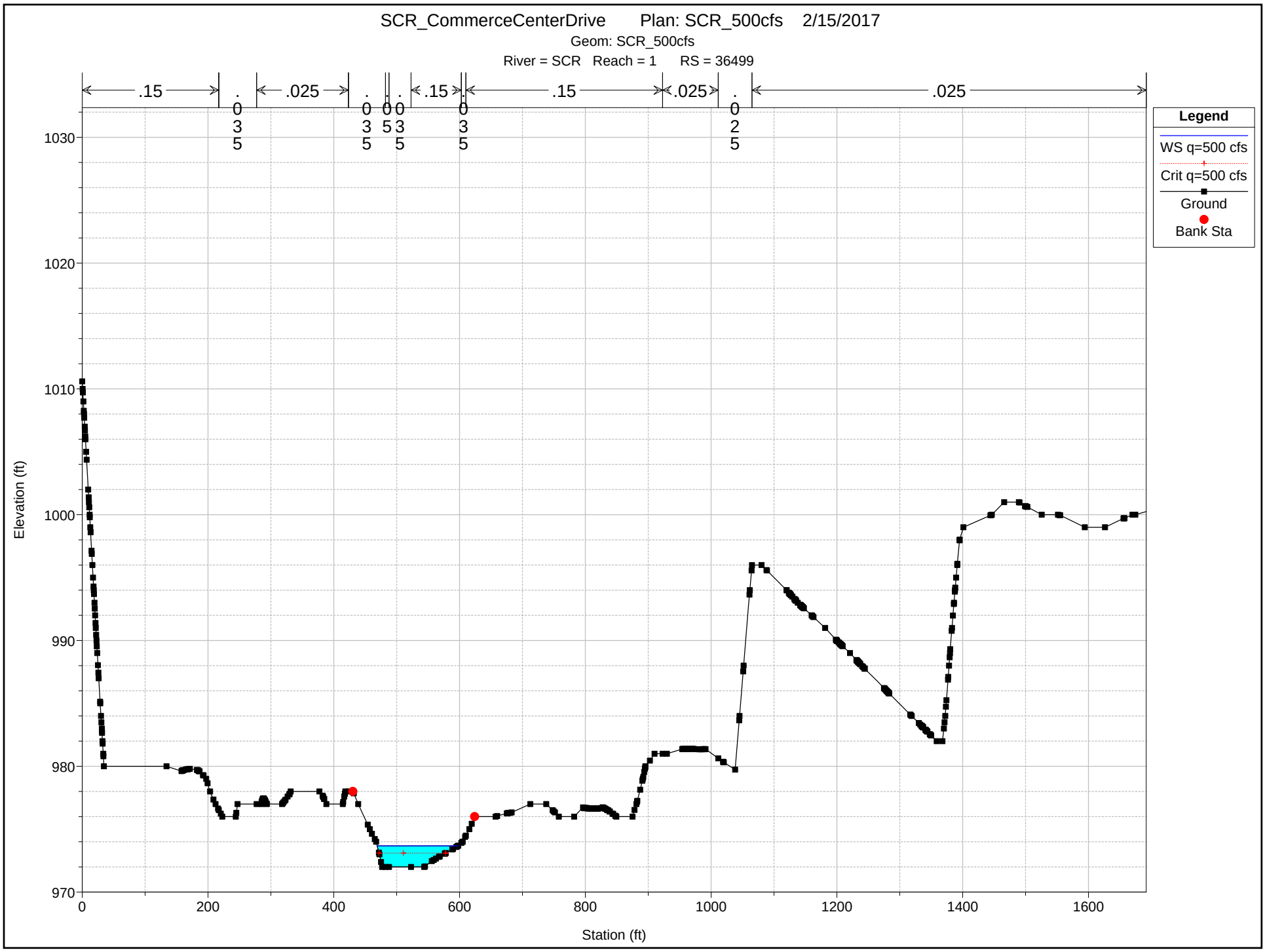

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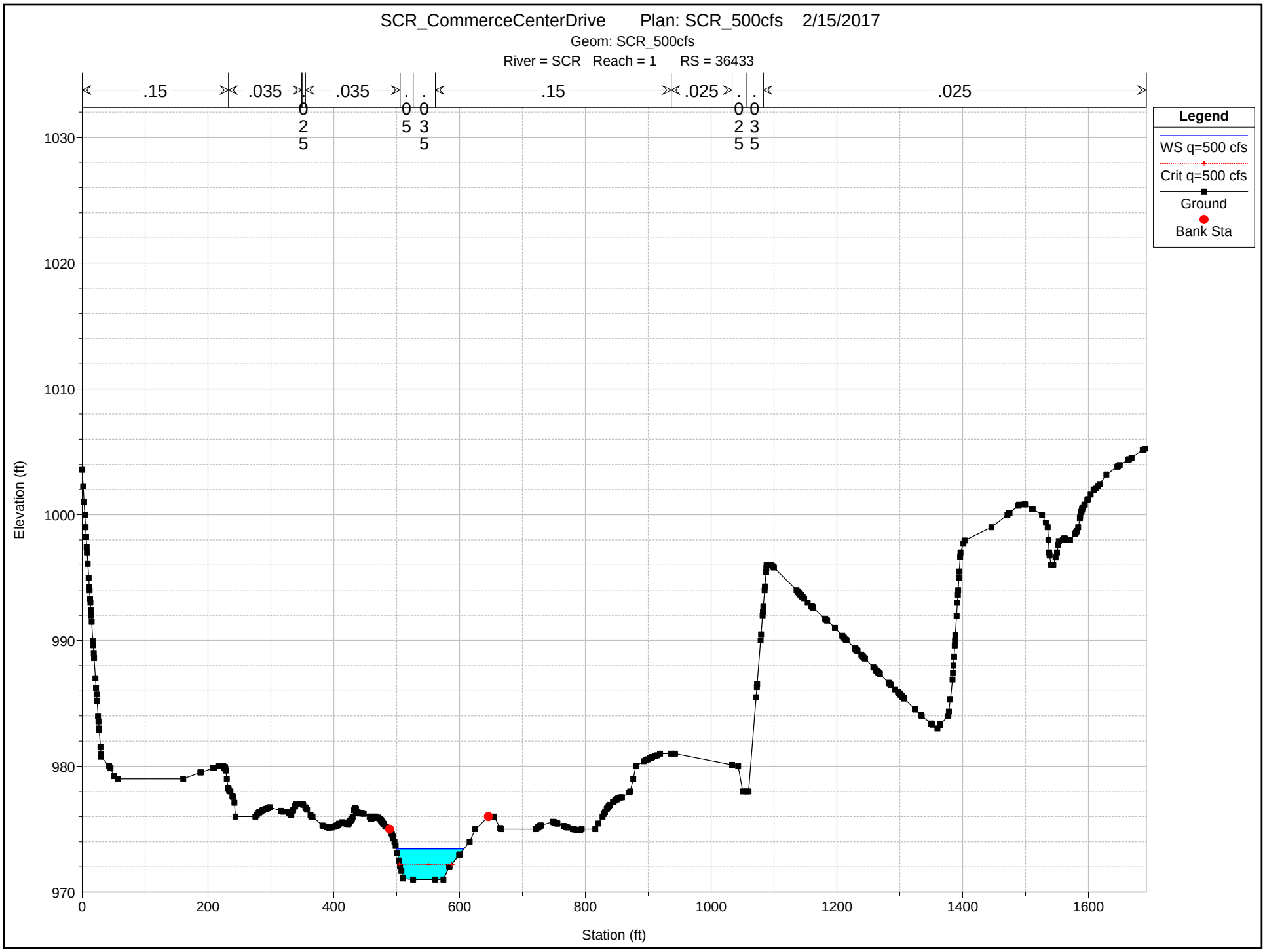

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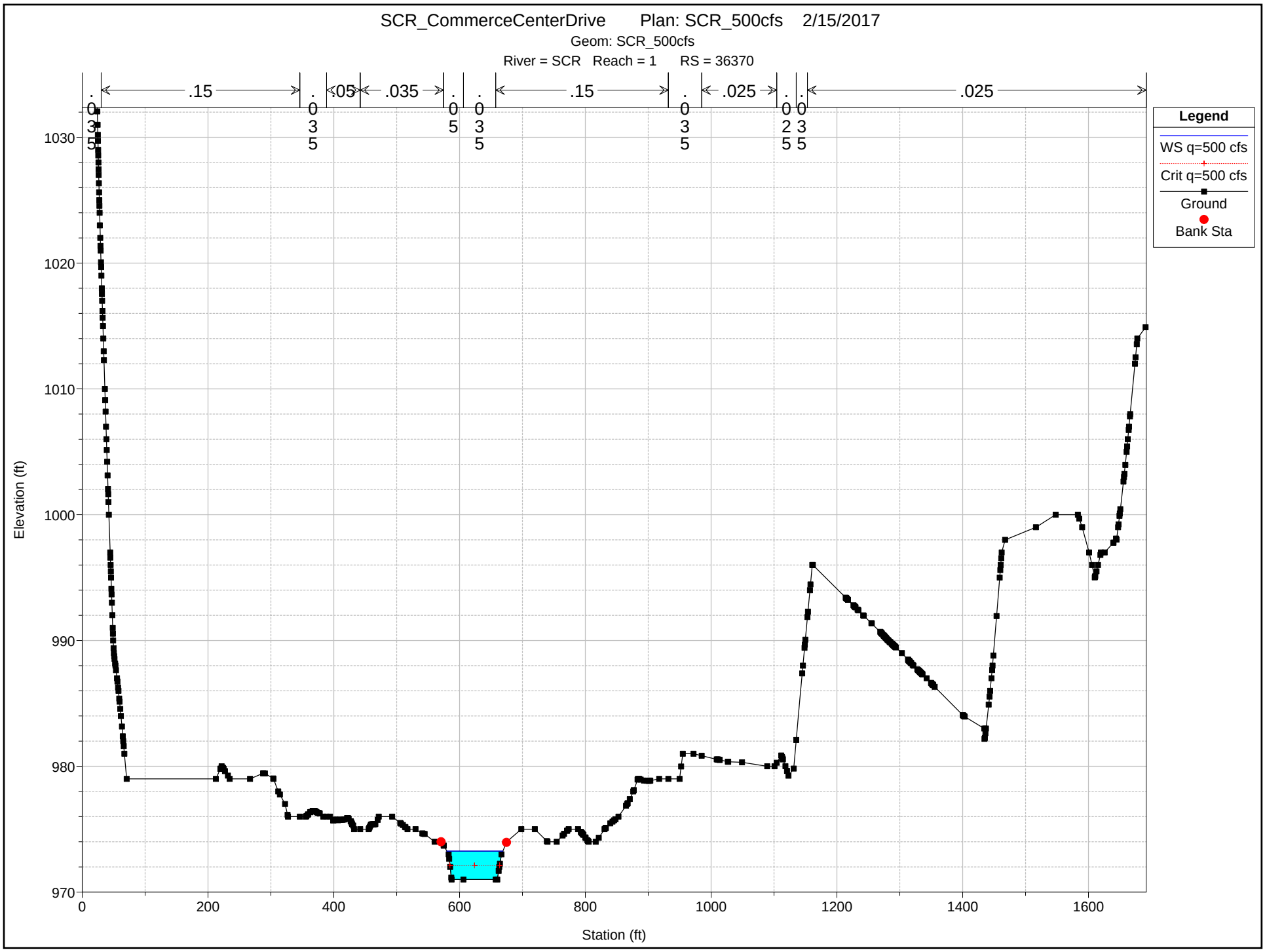

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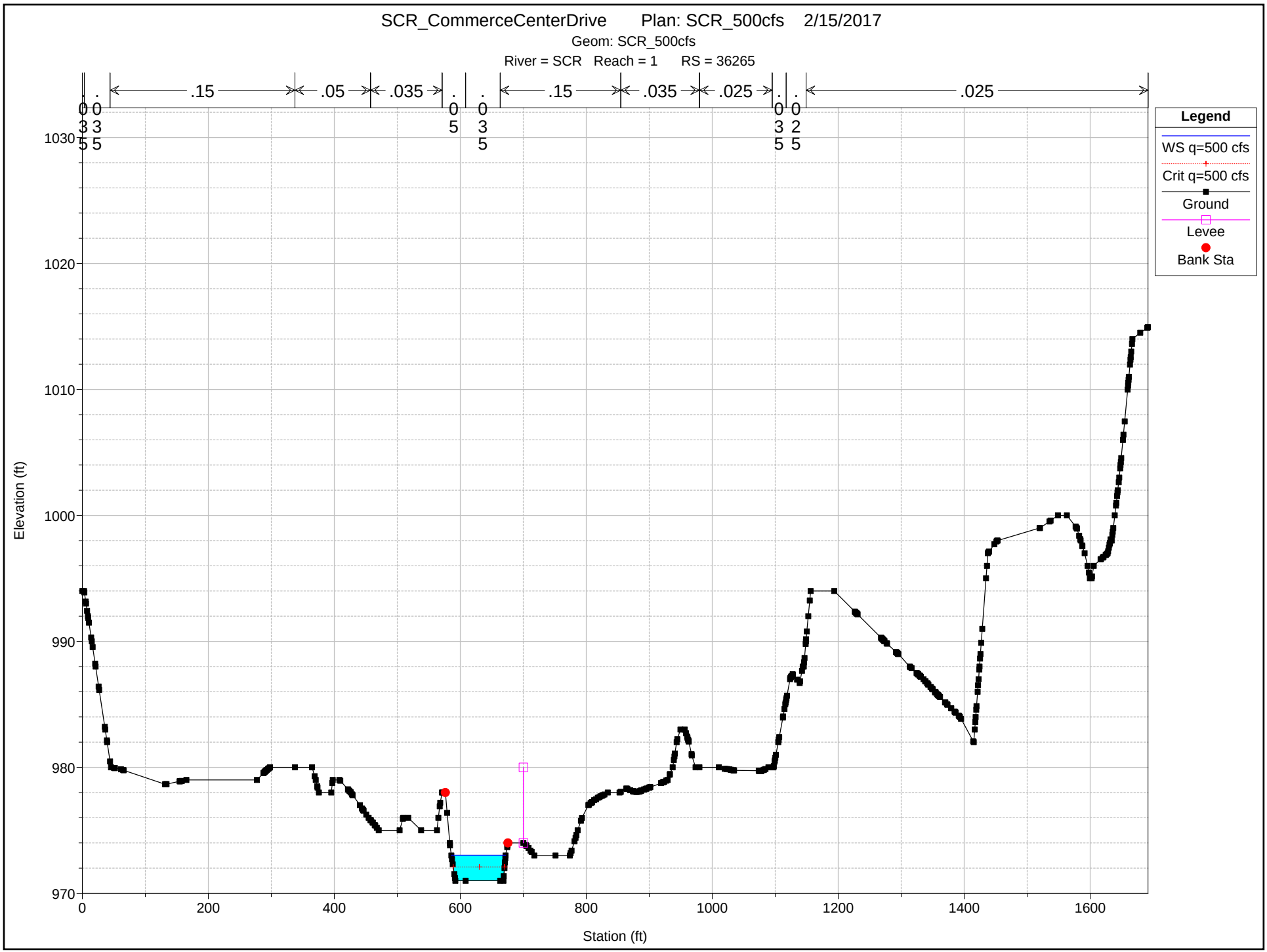

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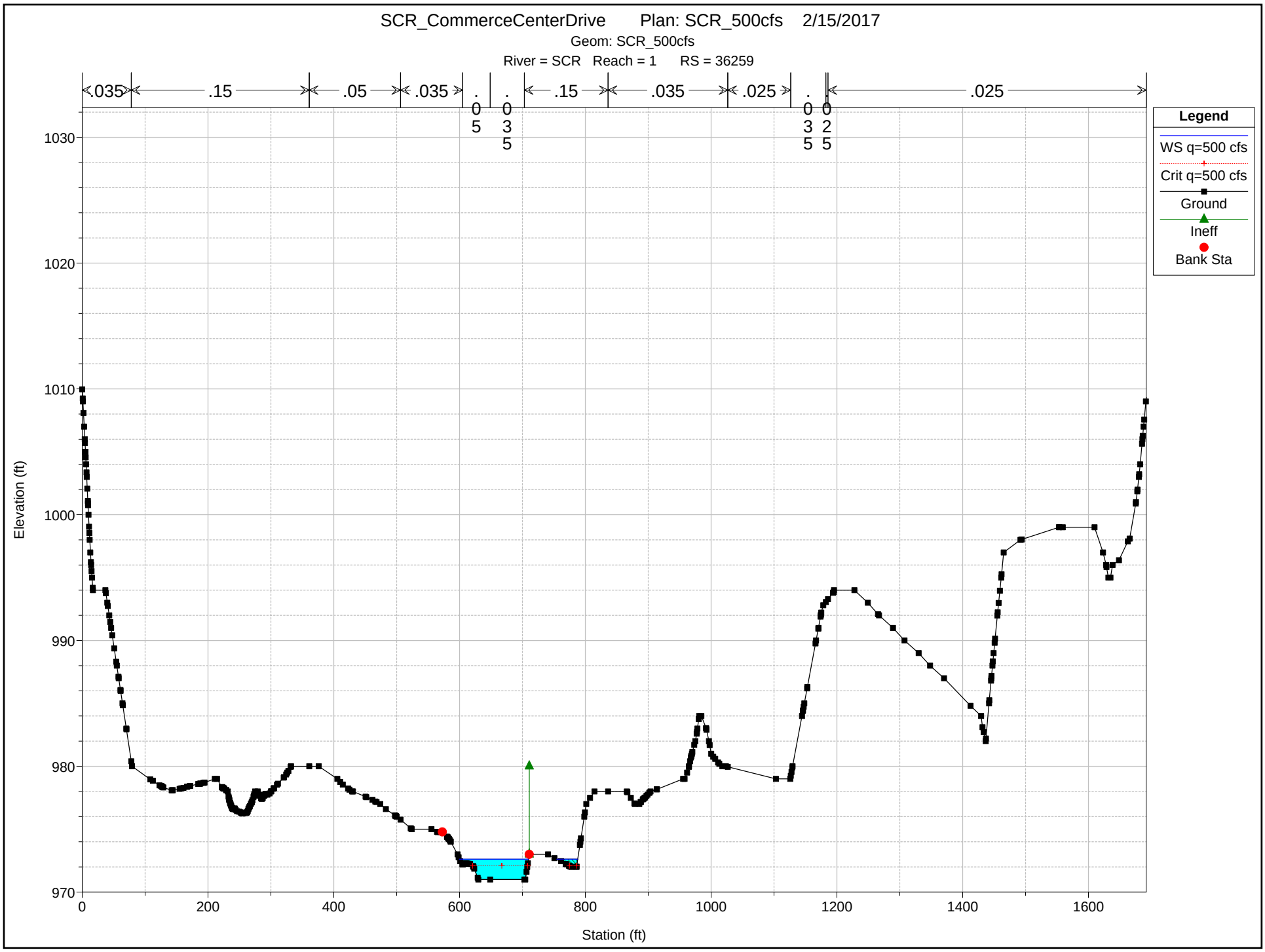

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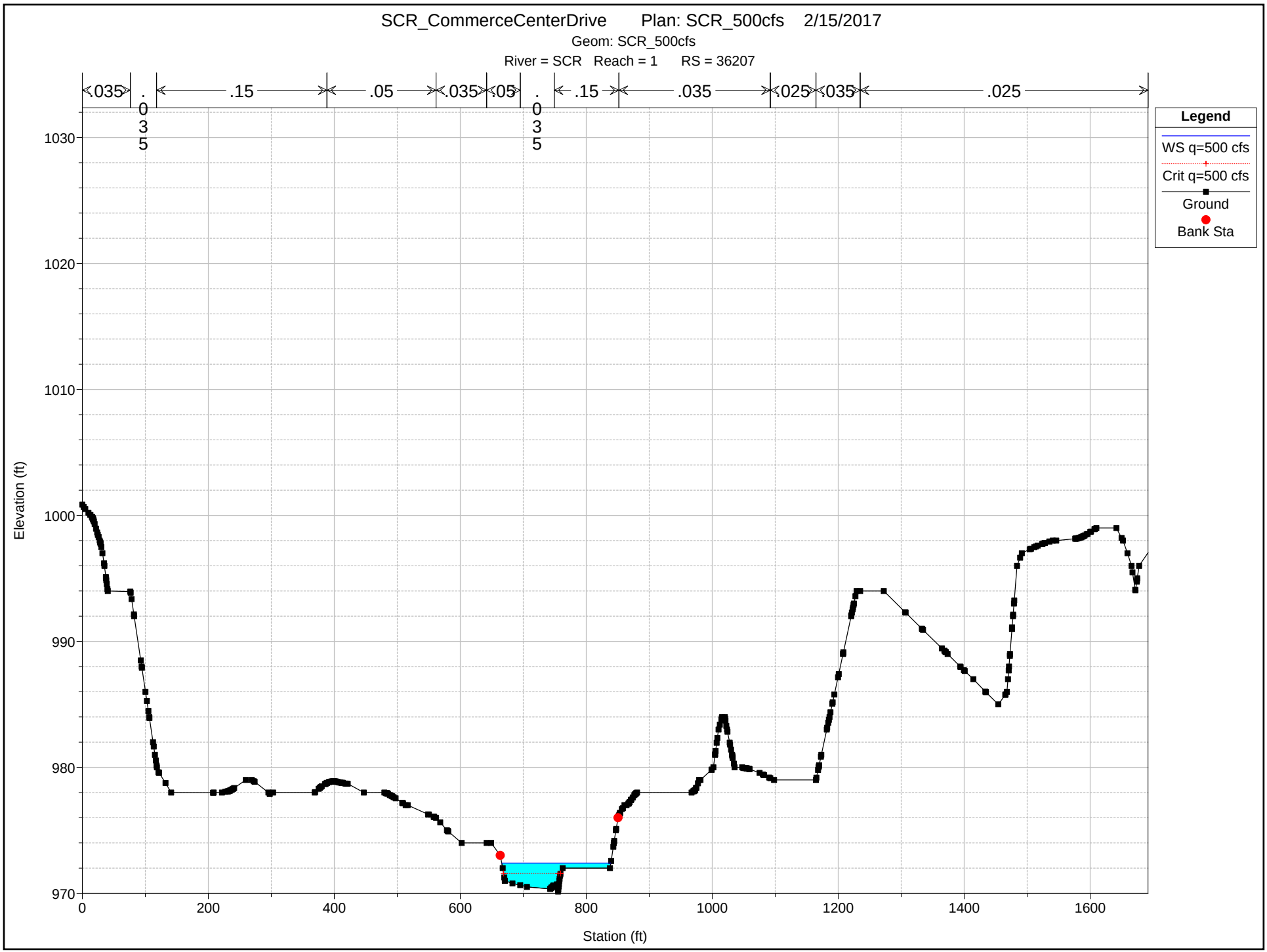

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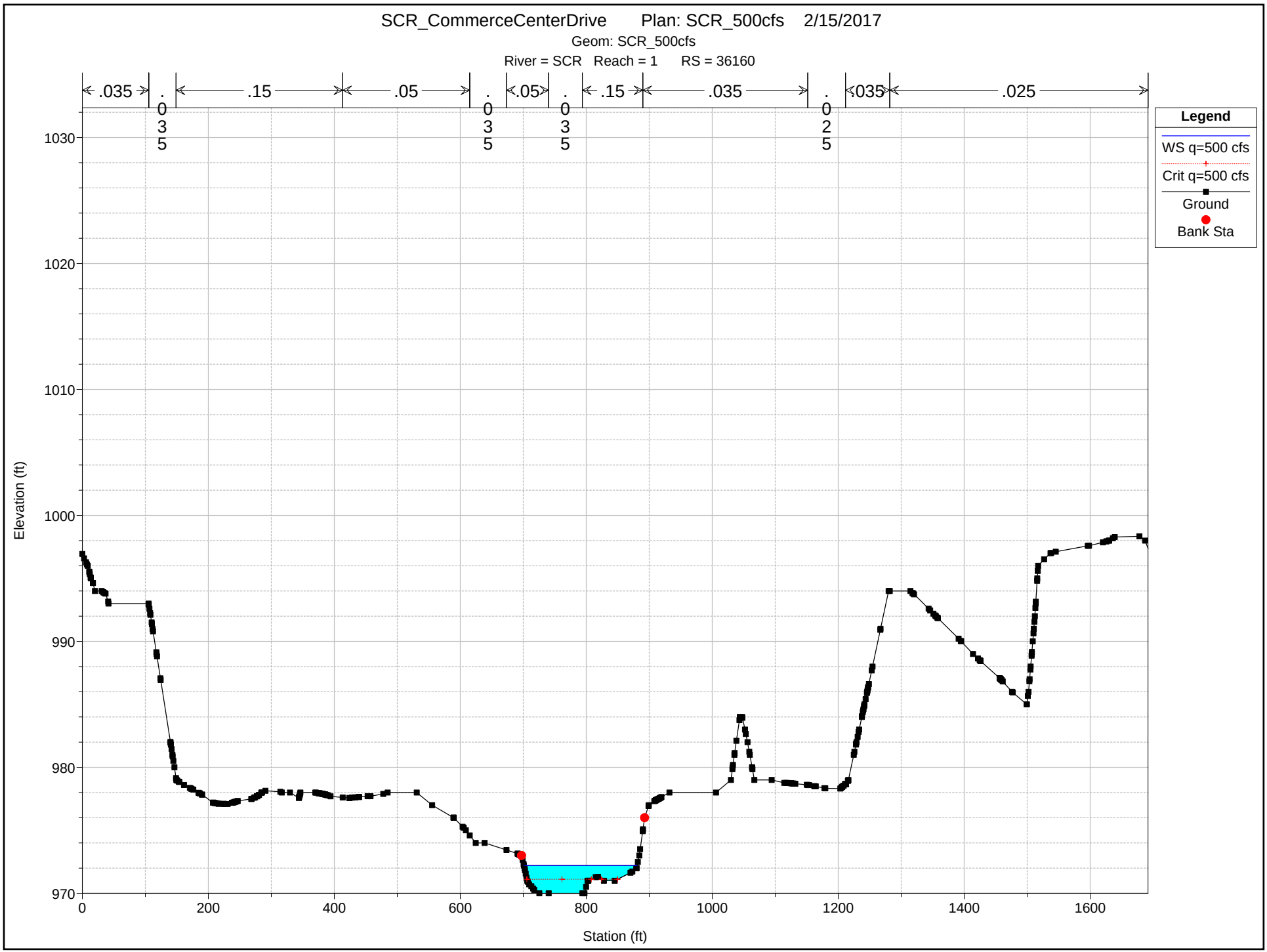

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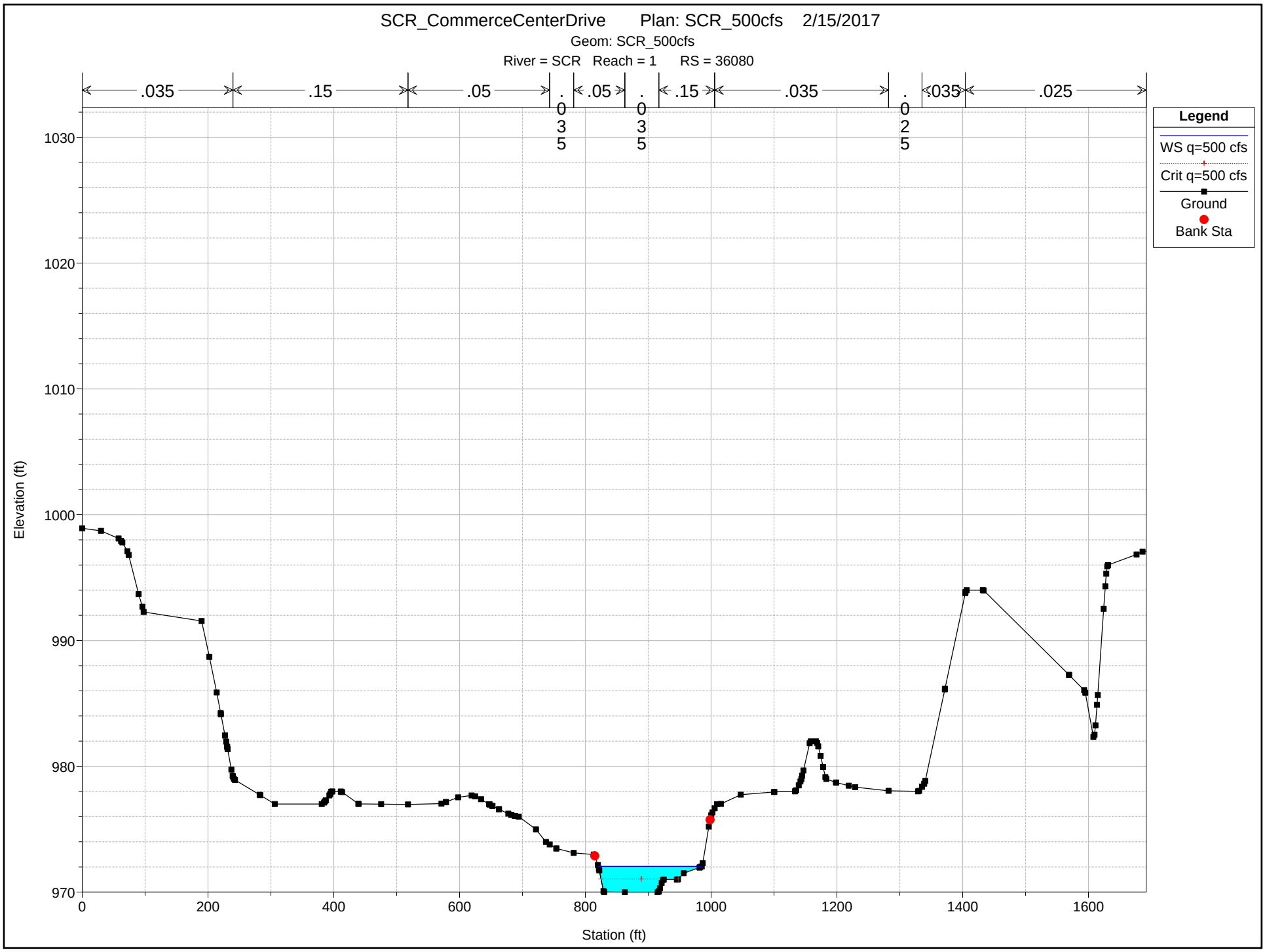

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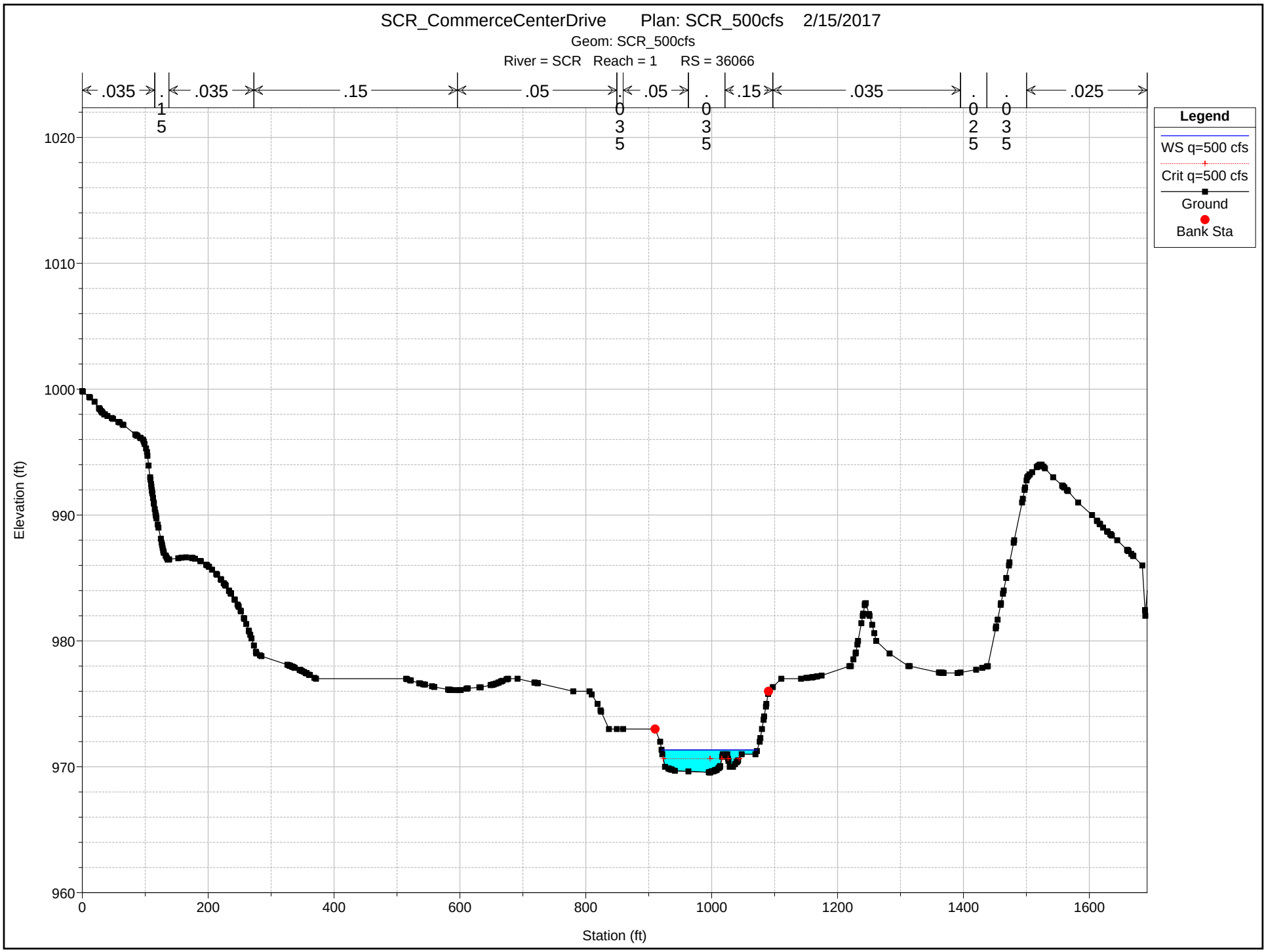

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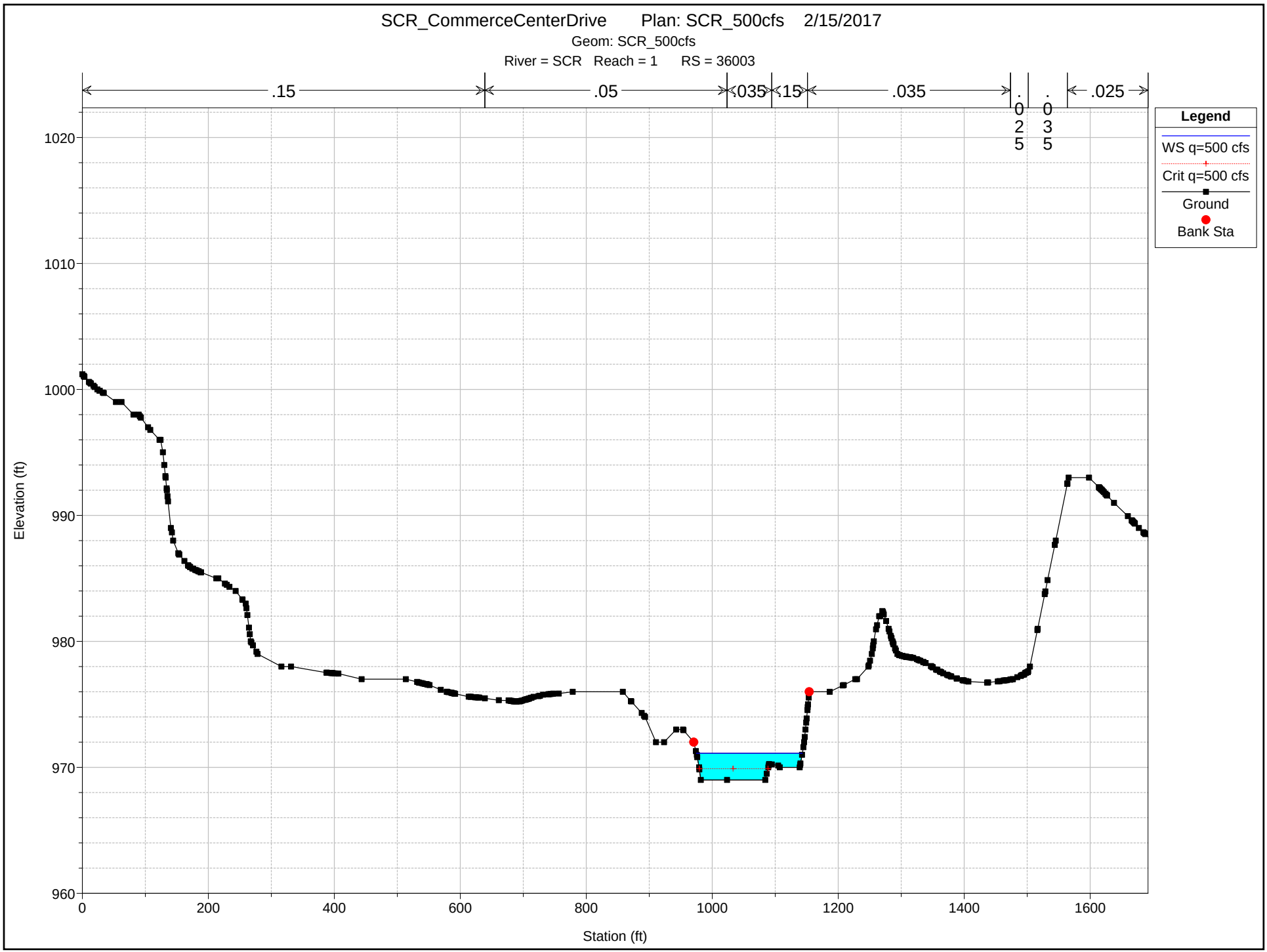

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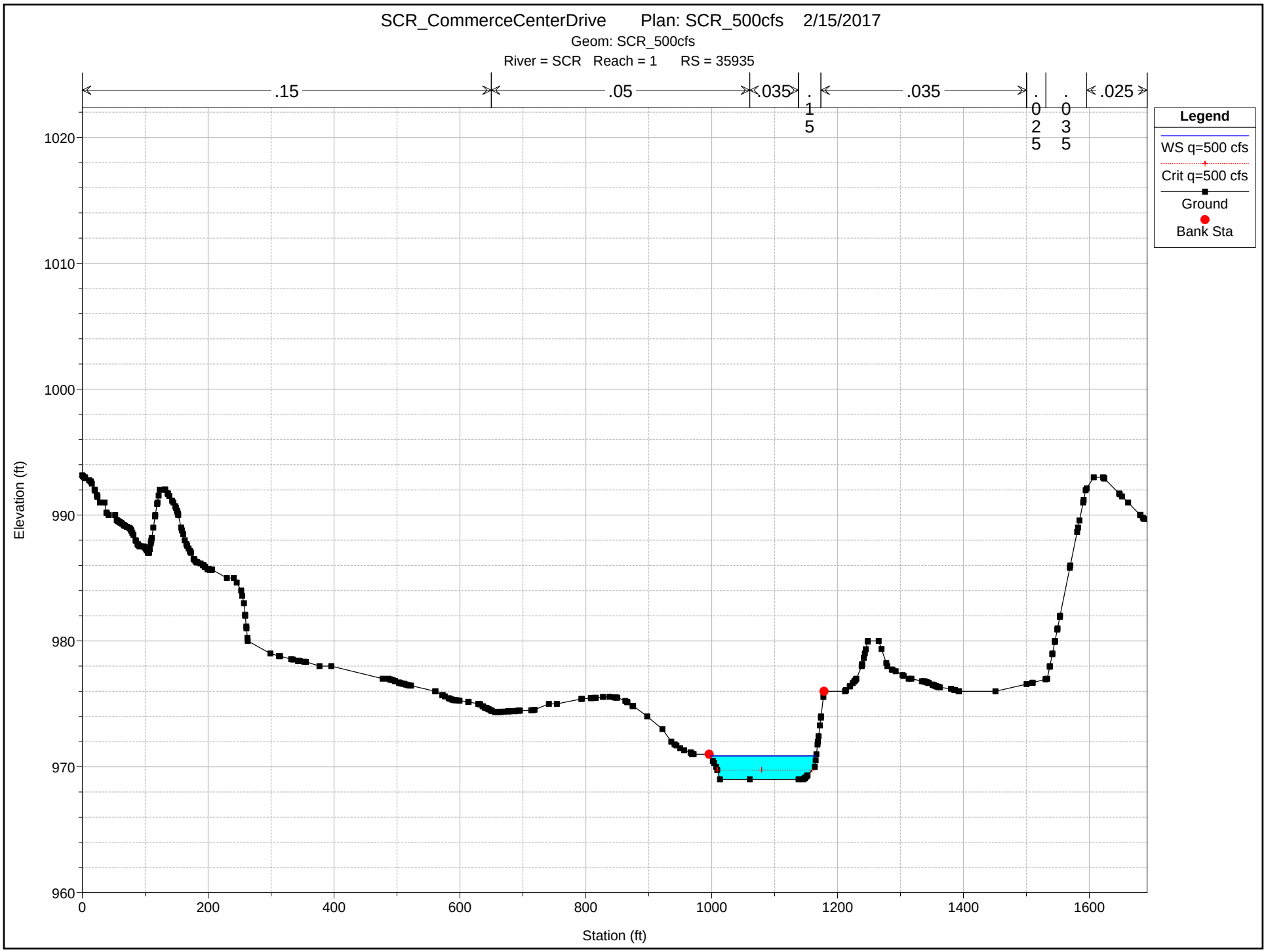
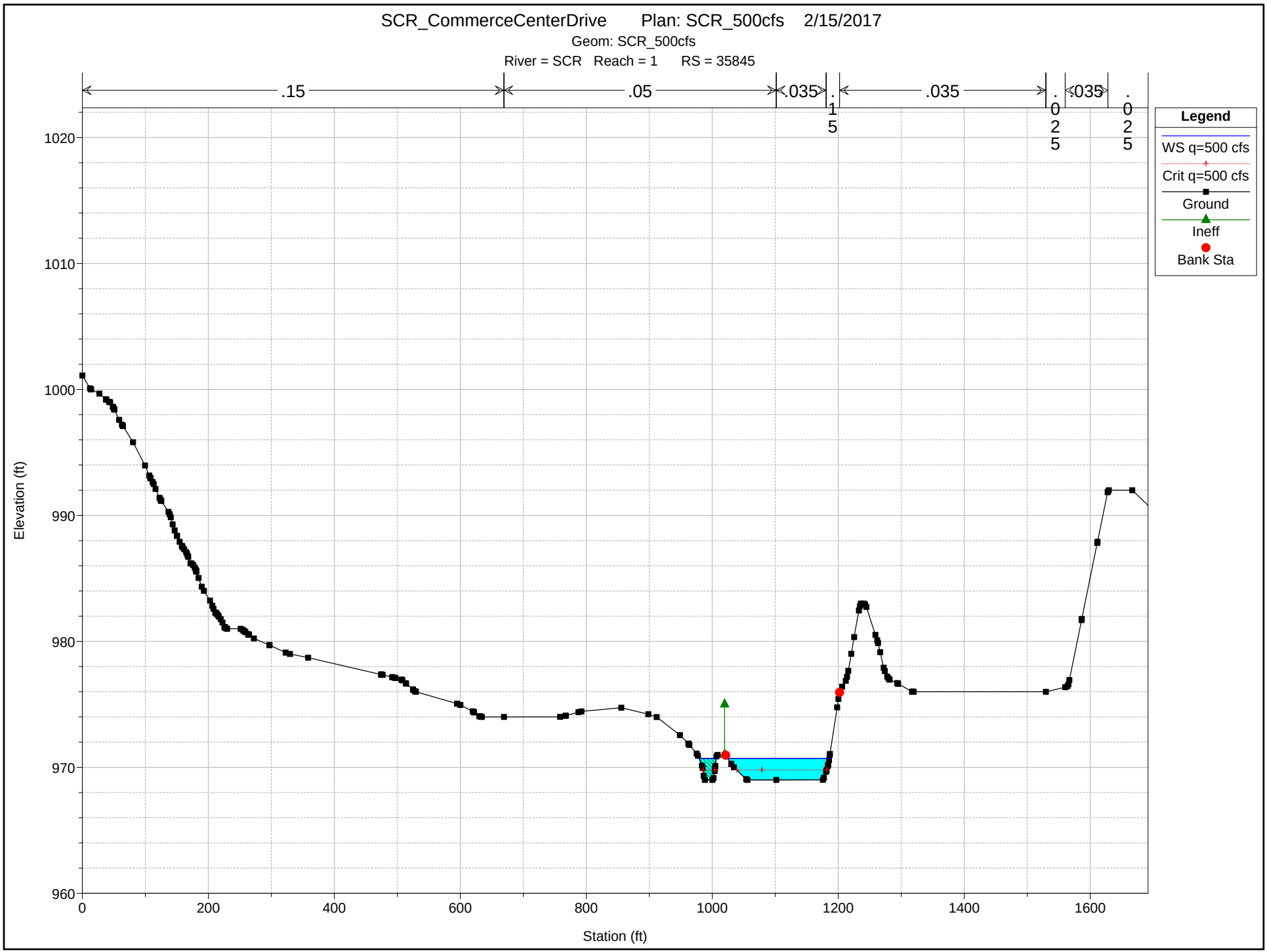
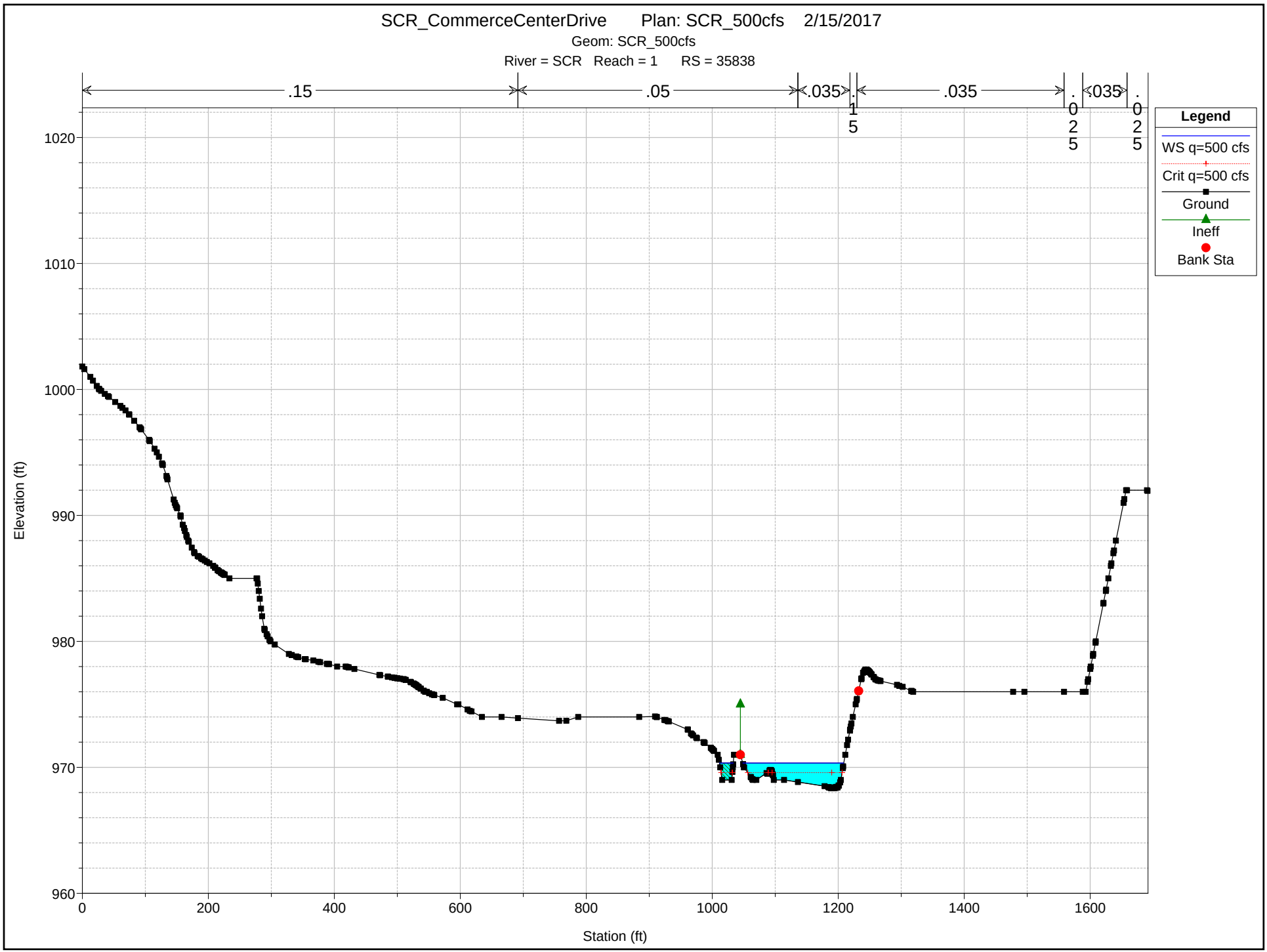


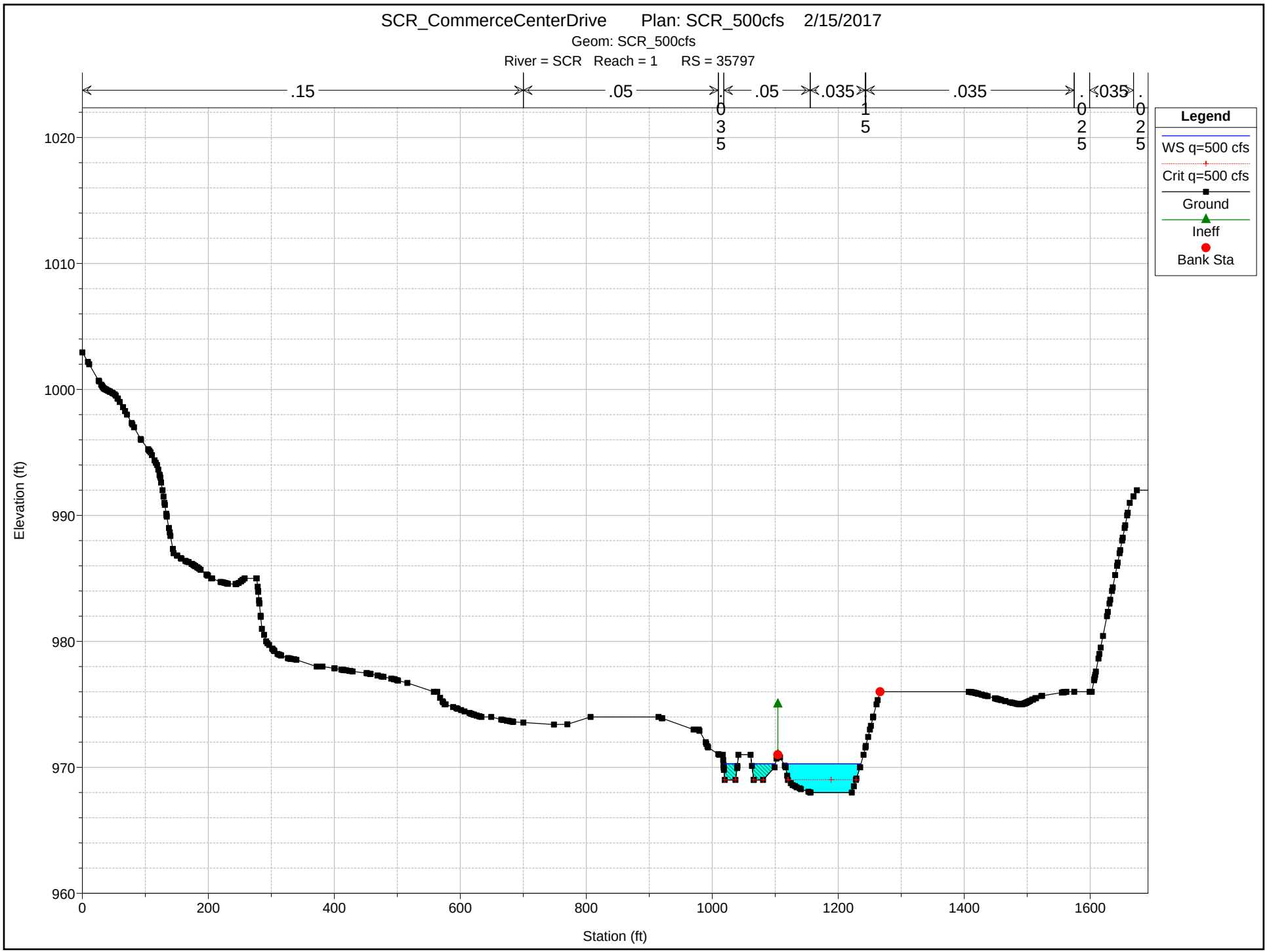
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



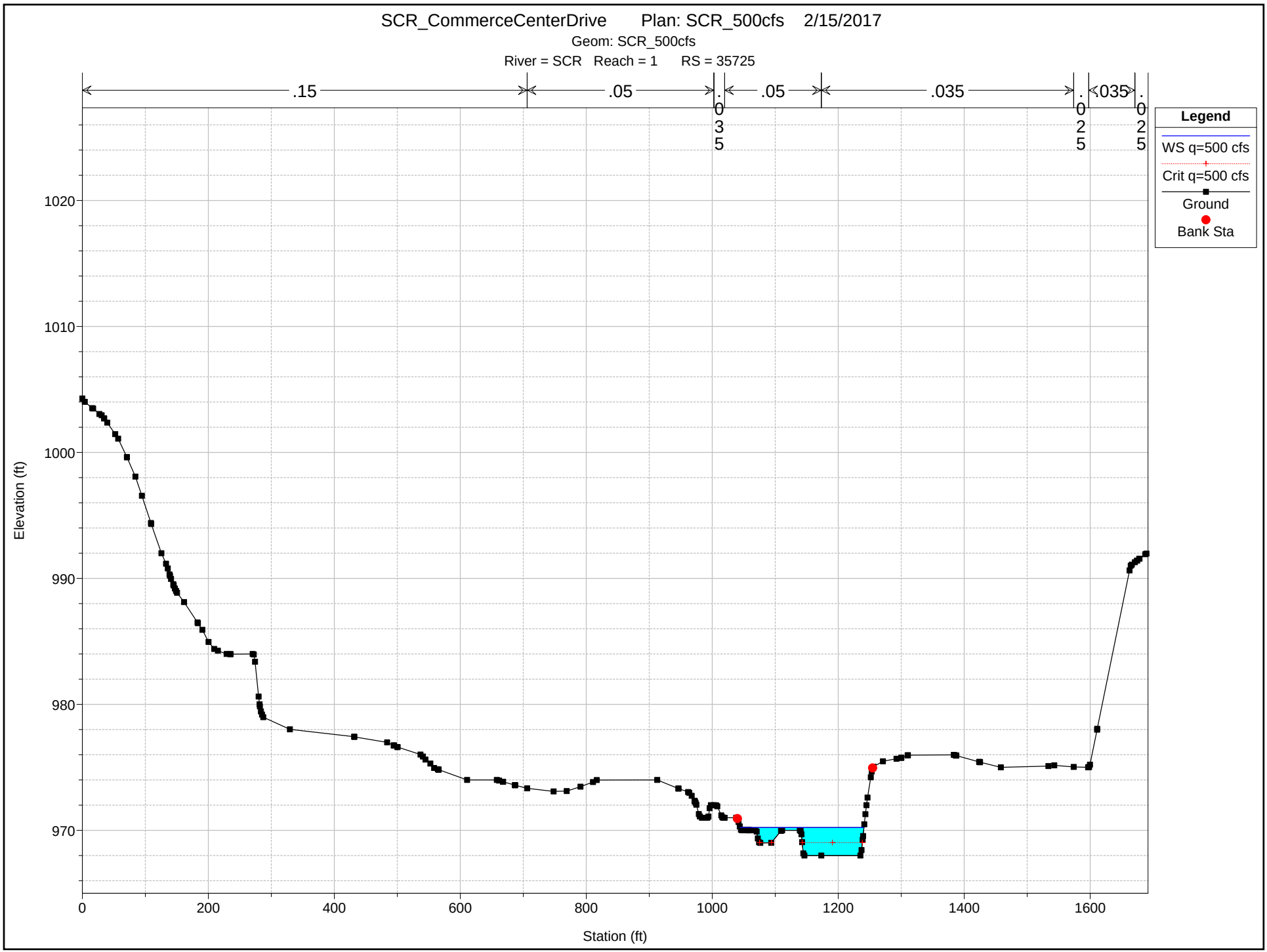
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



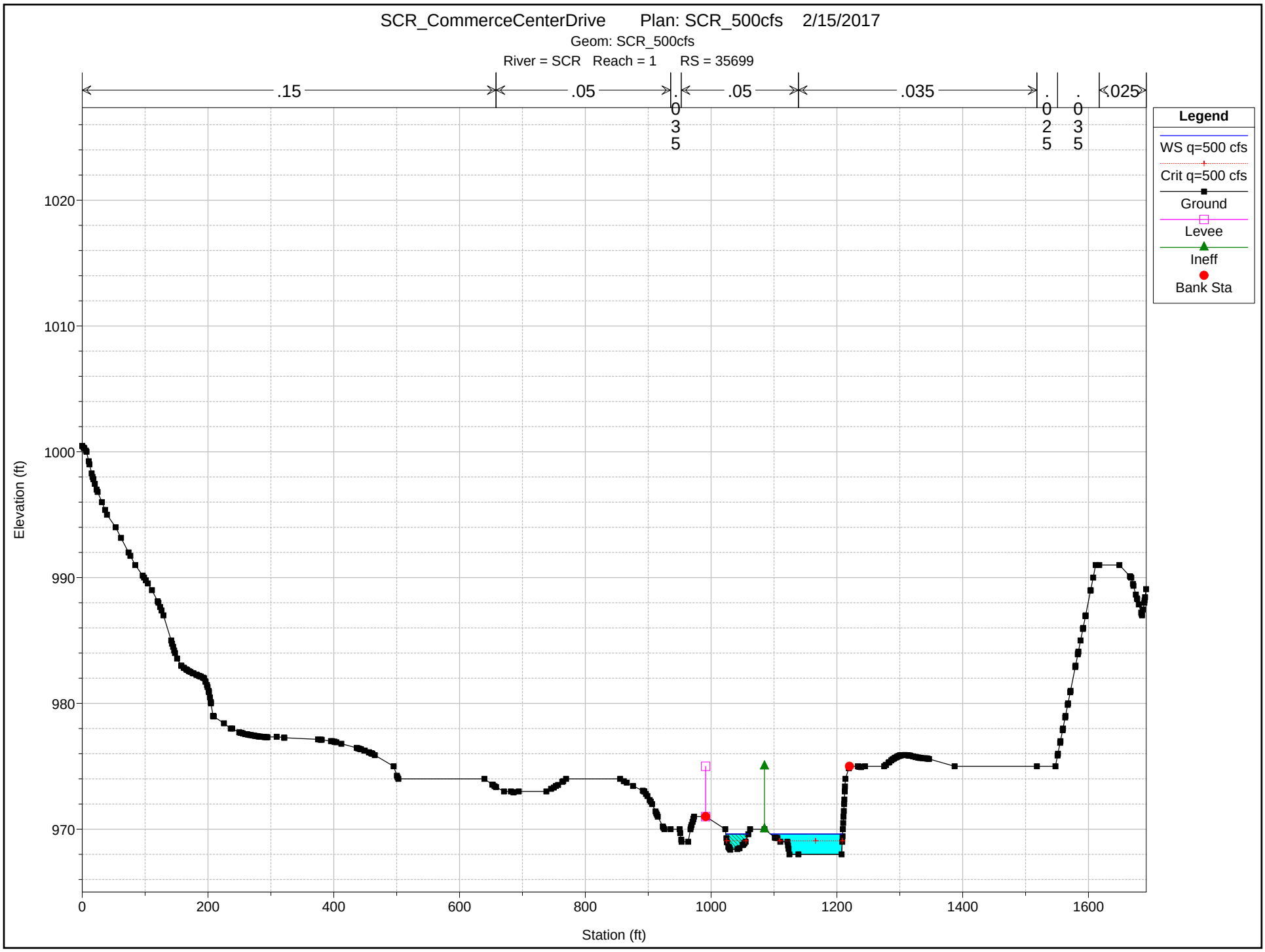
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



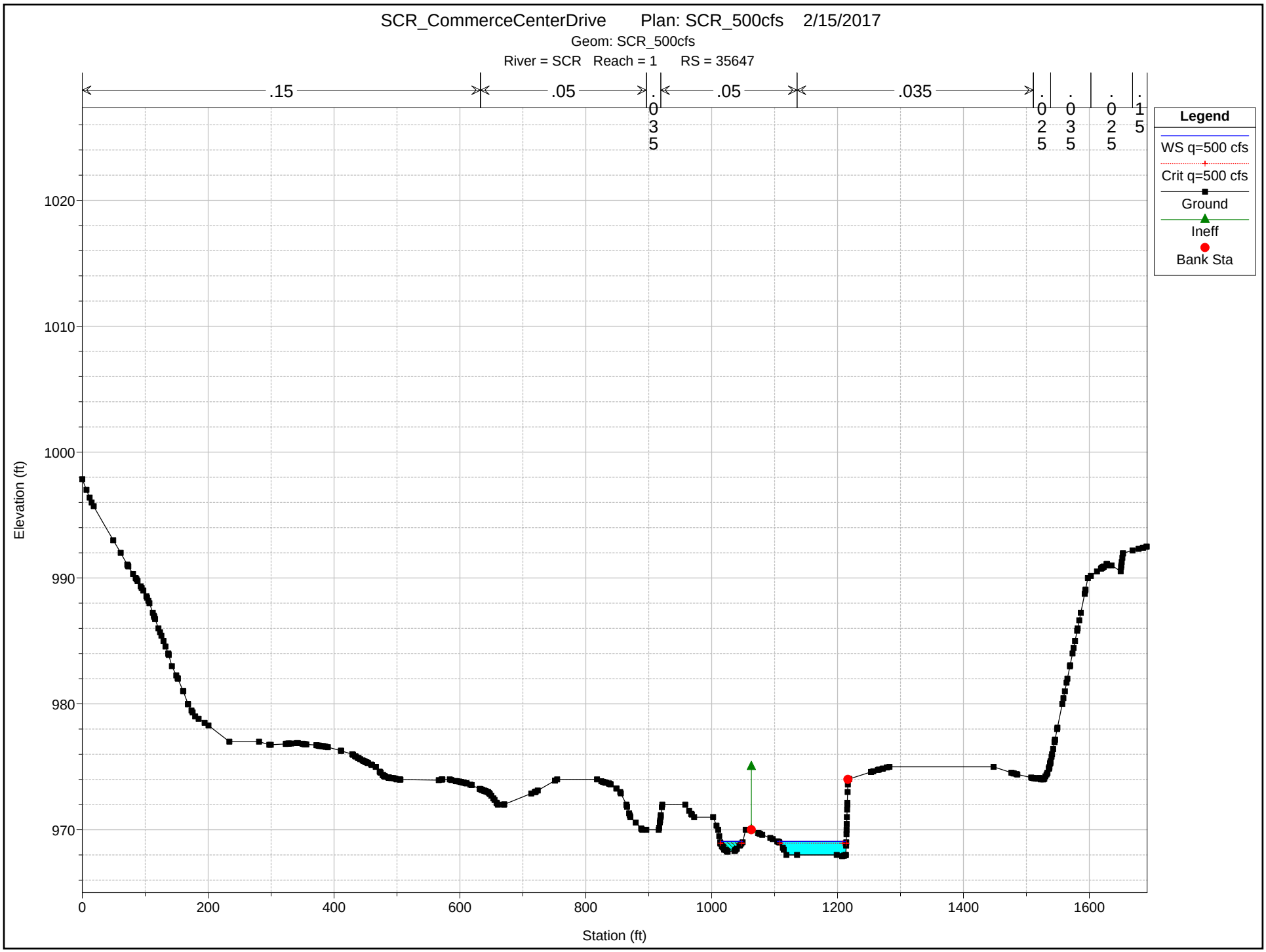
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



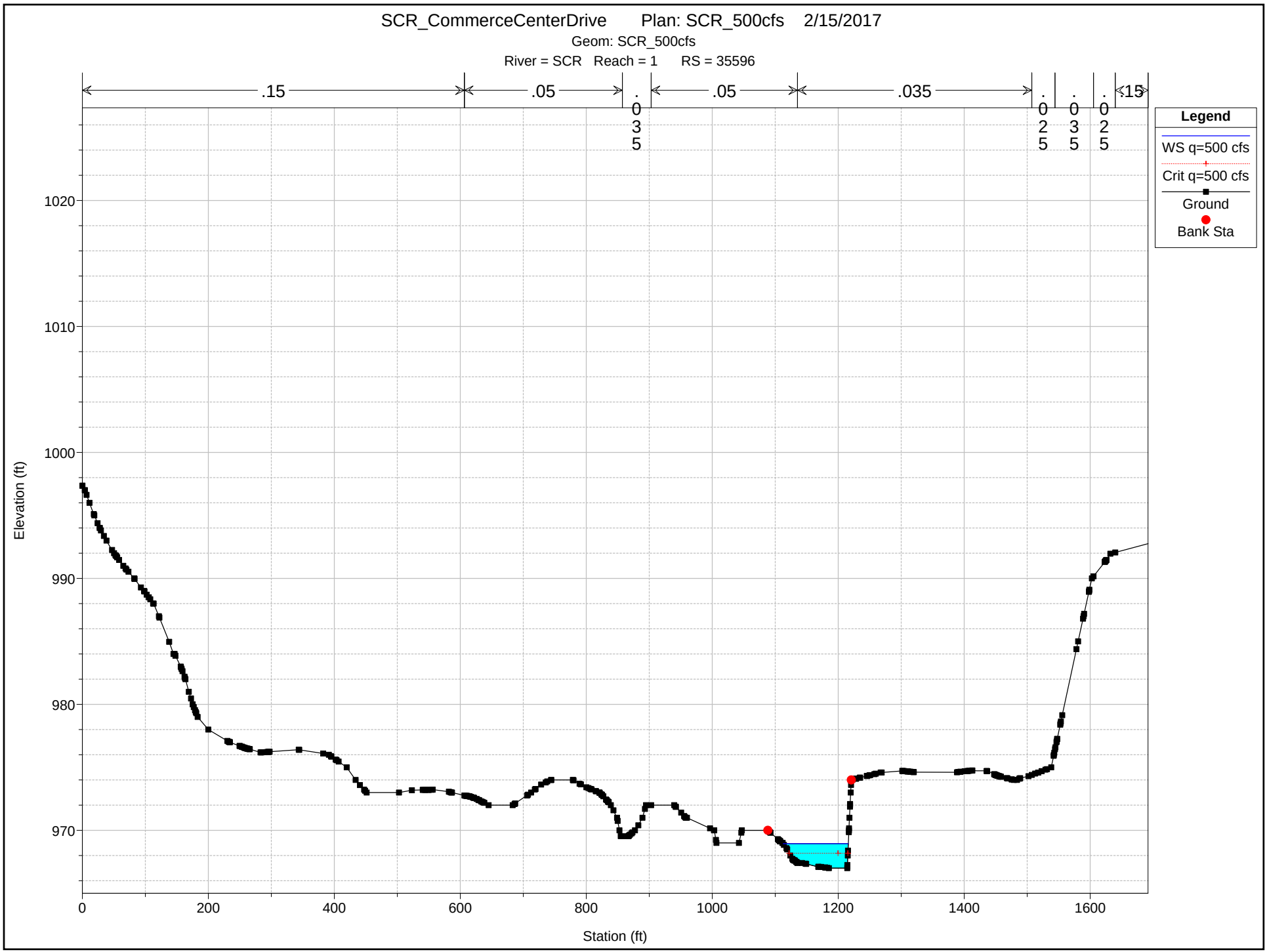
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



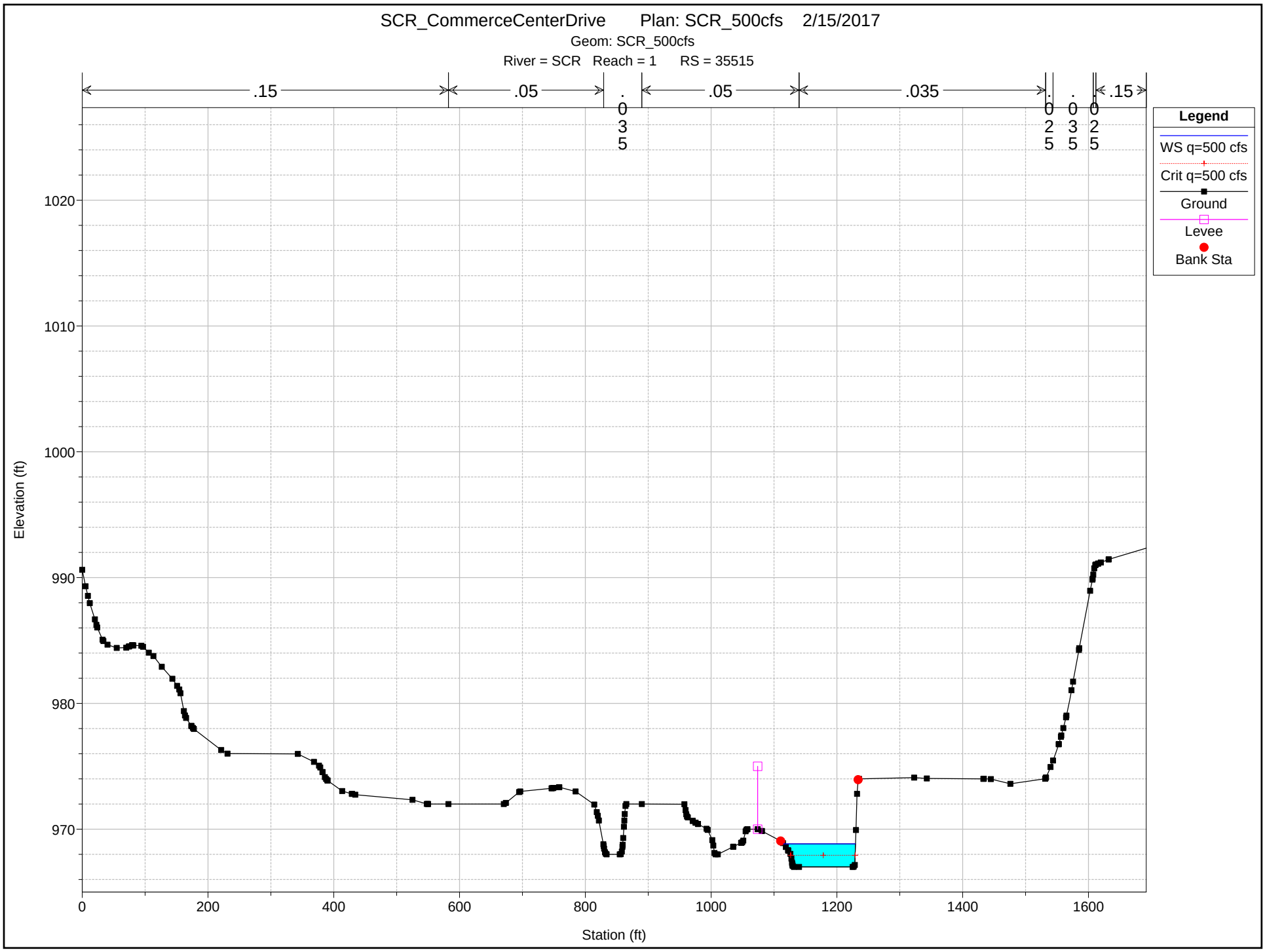
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



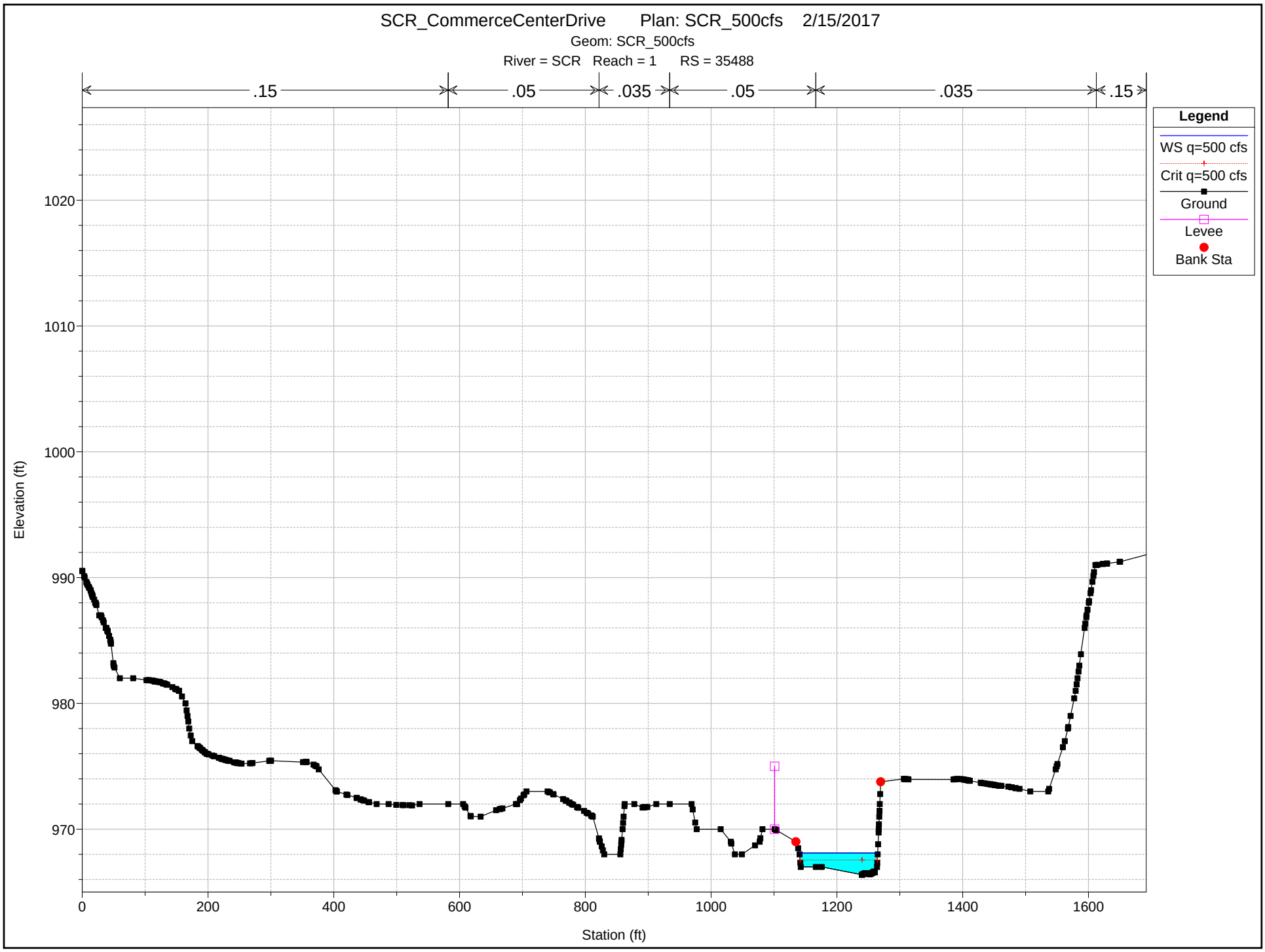
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



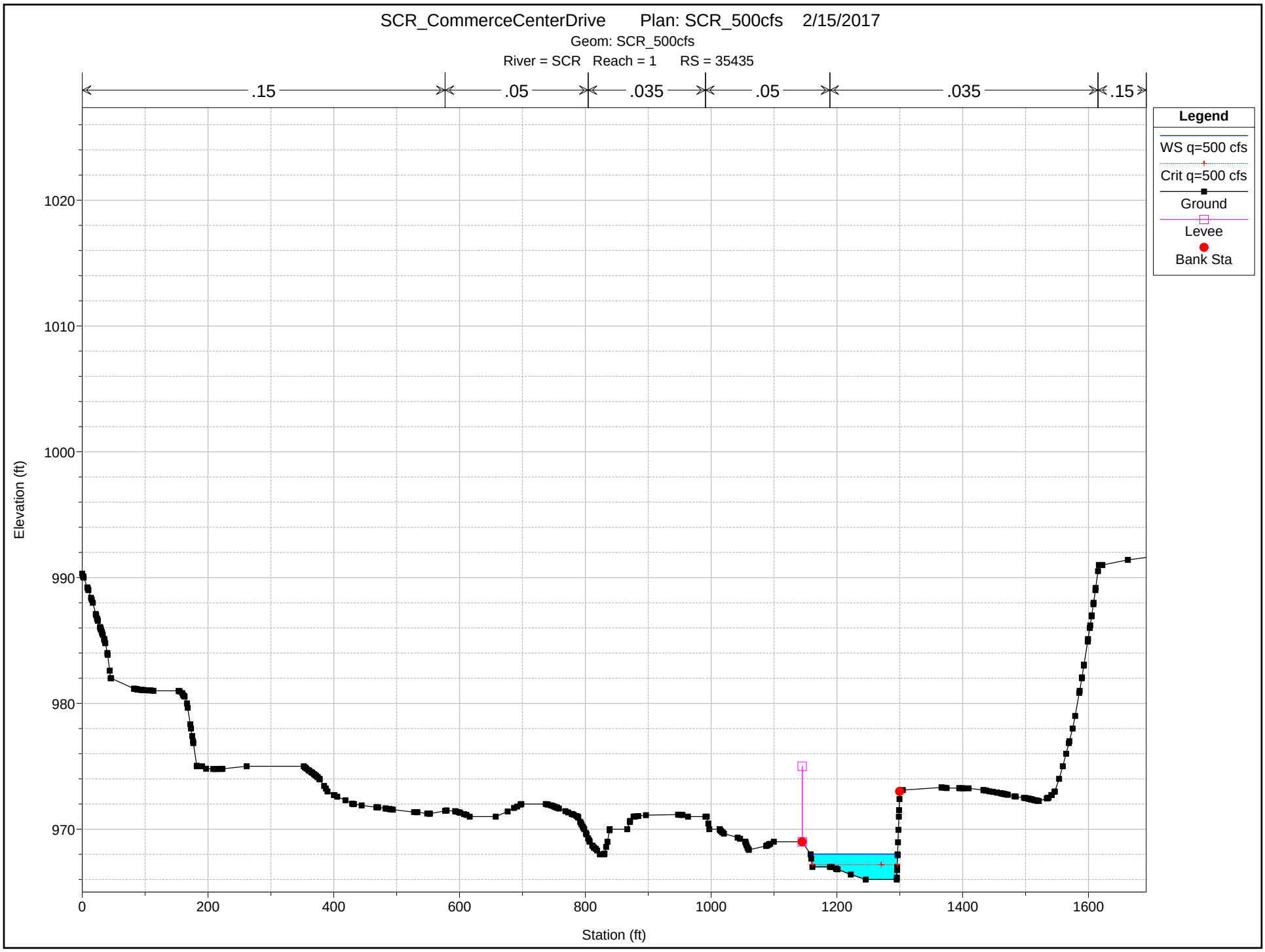
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



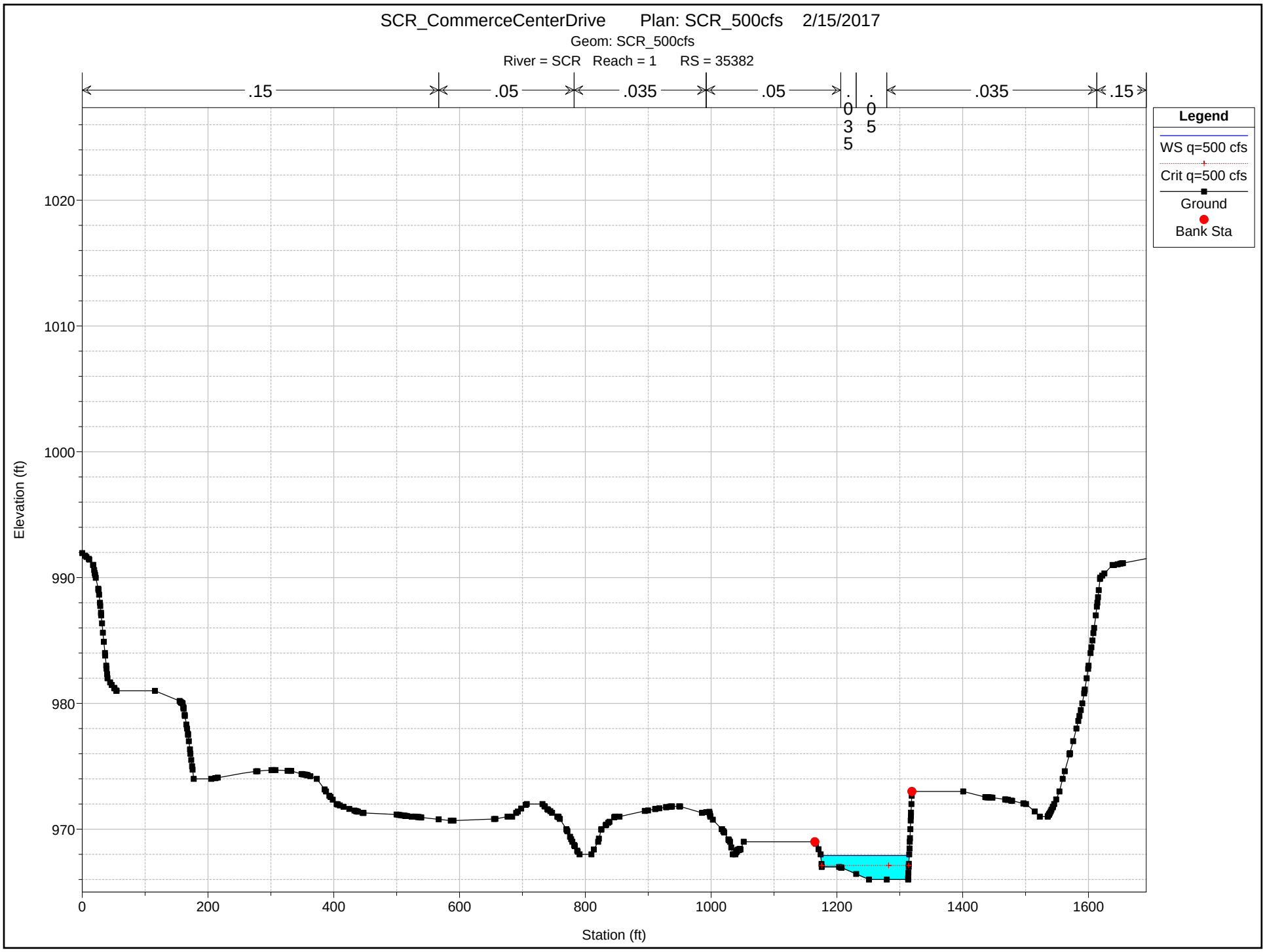
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



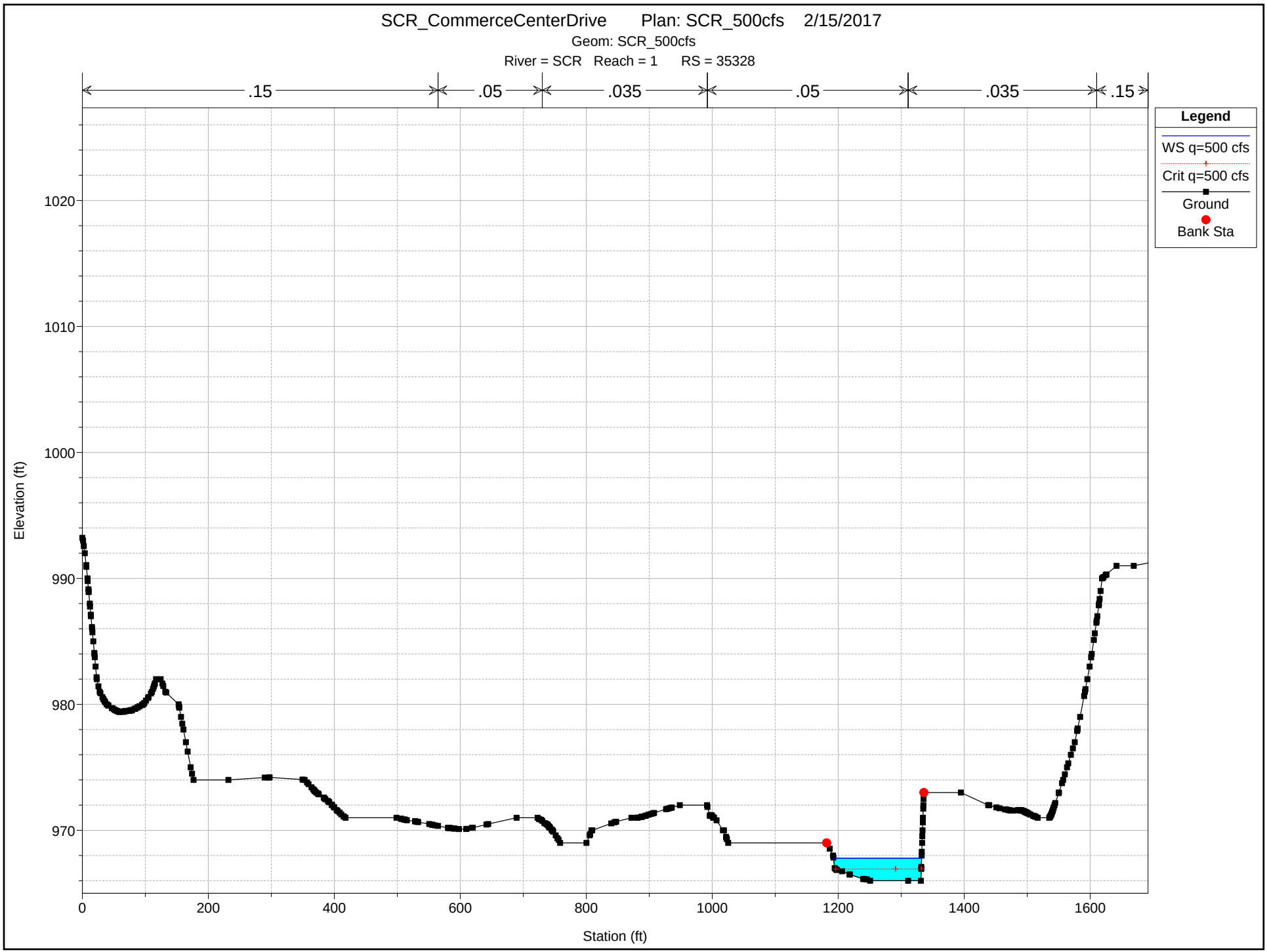
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



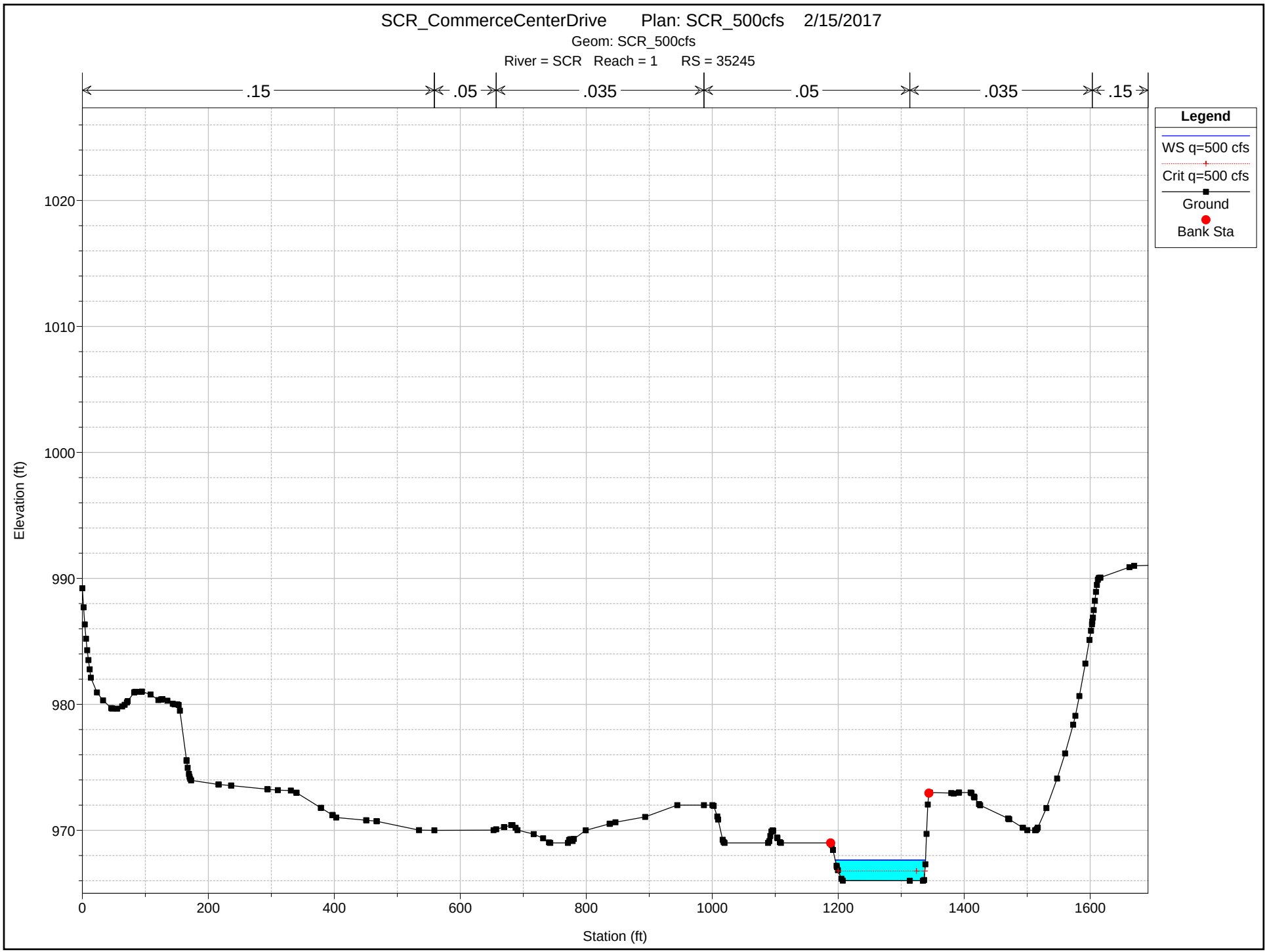
1 in Horiz. = 200 ft 1 in Vert. = 10 ft



1 in Horiz. = 200 ft 1 in Vert. = 10 ft



1 in Horiz. = 200 ft 1 in Vert. = 10 ft



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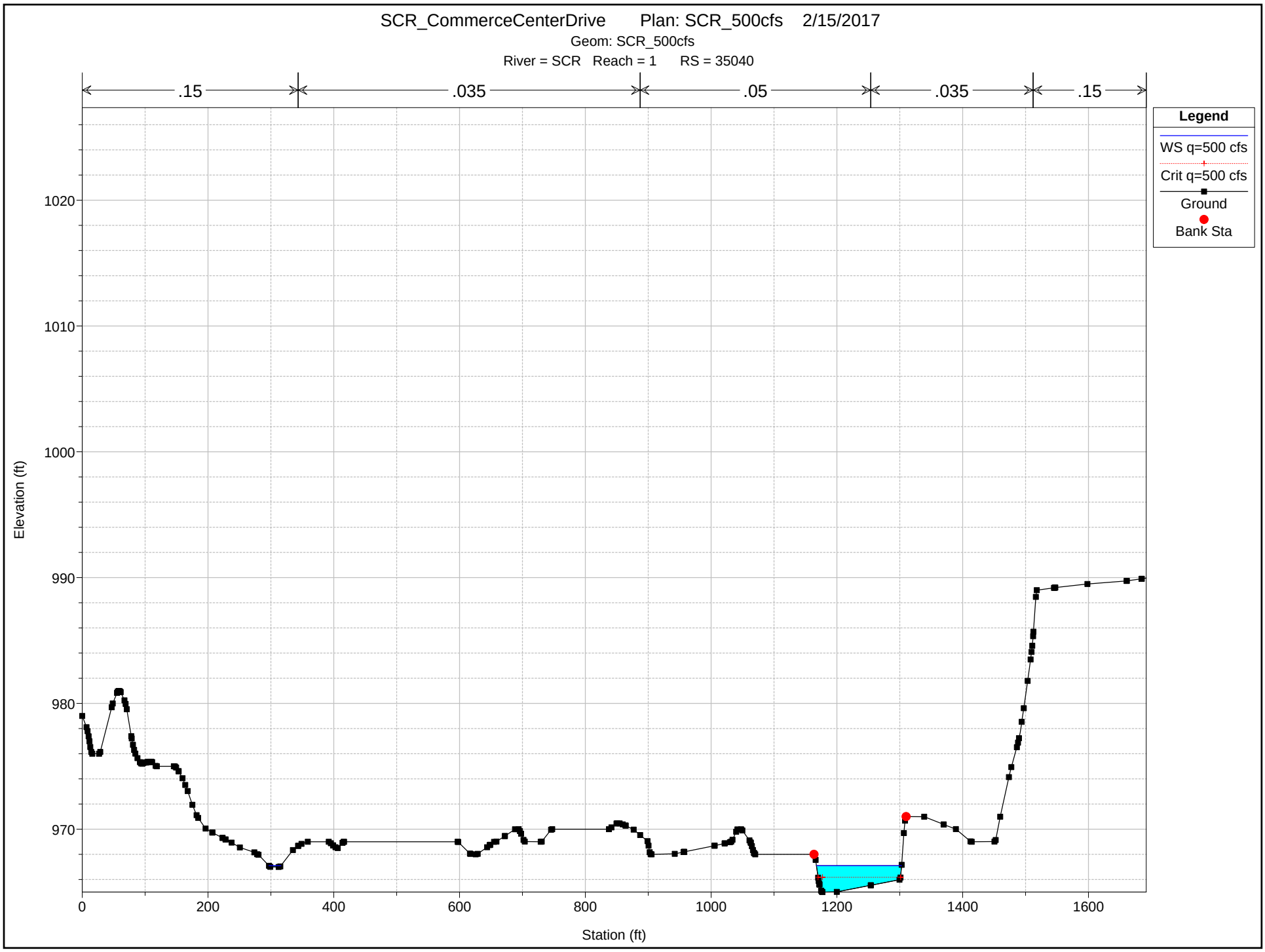
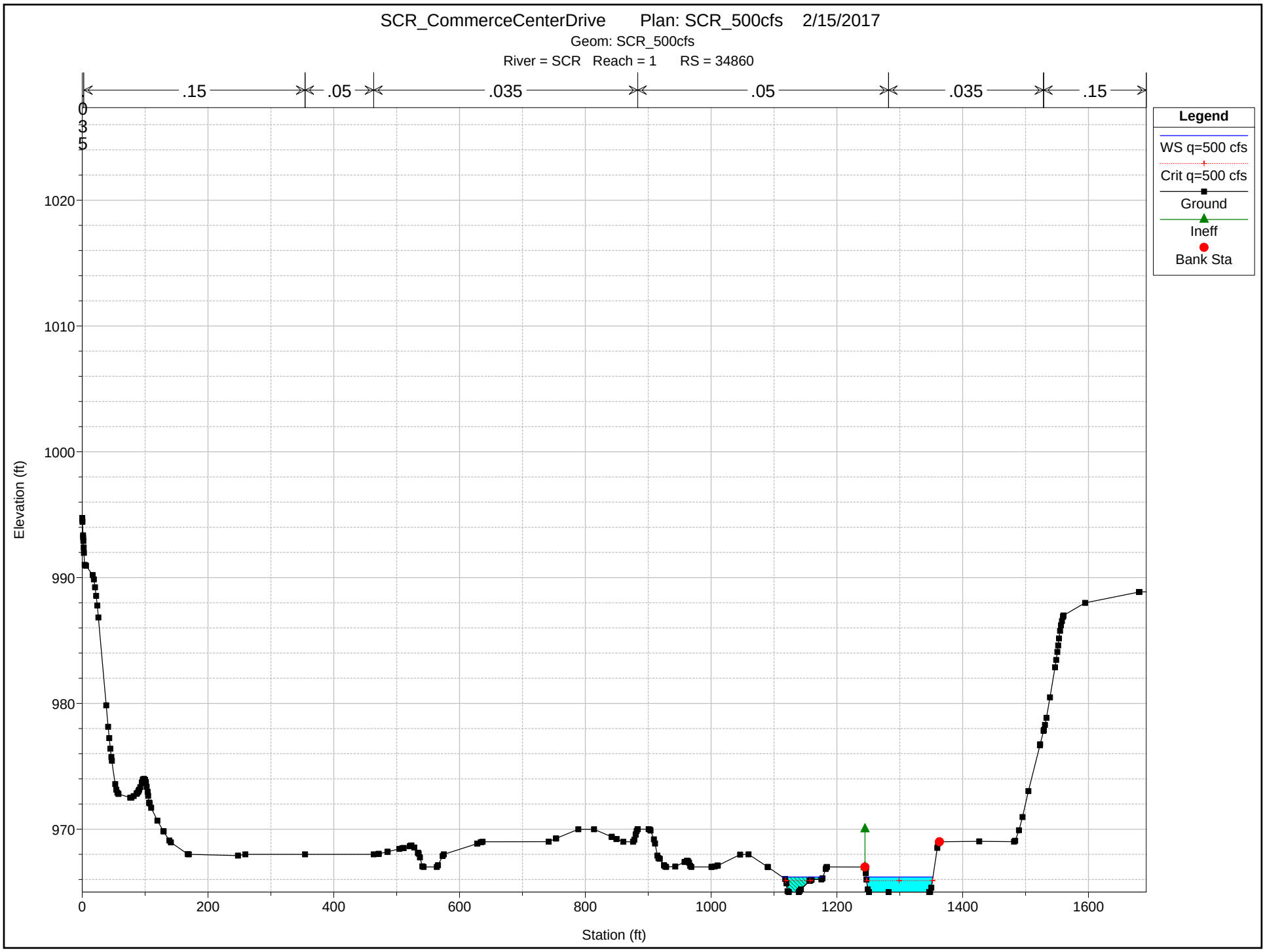


1 in Horiz. = 200 ft 1 in Vert. = 10 ft



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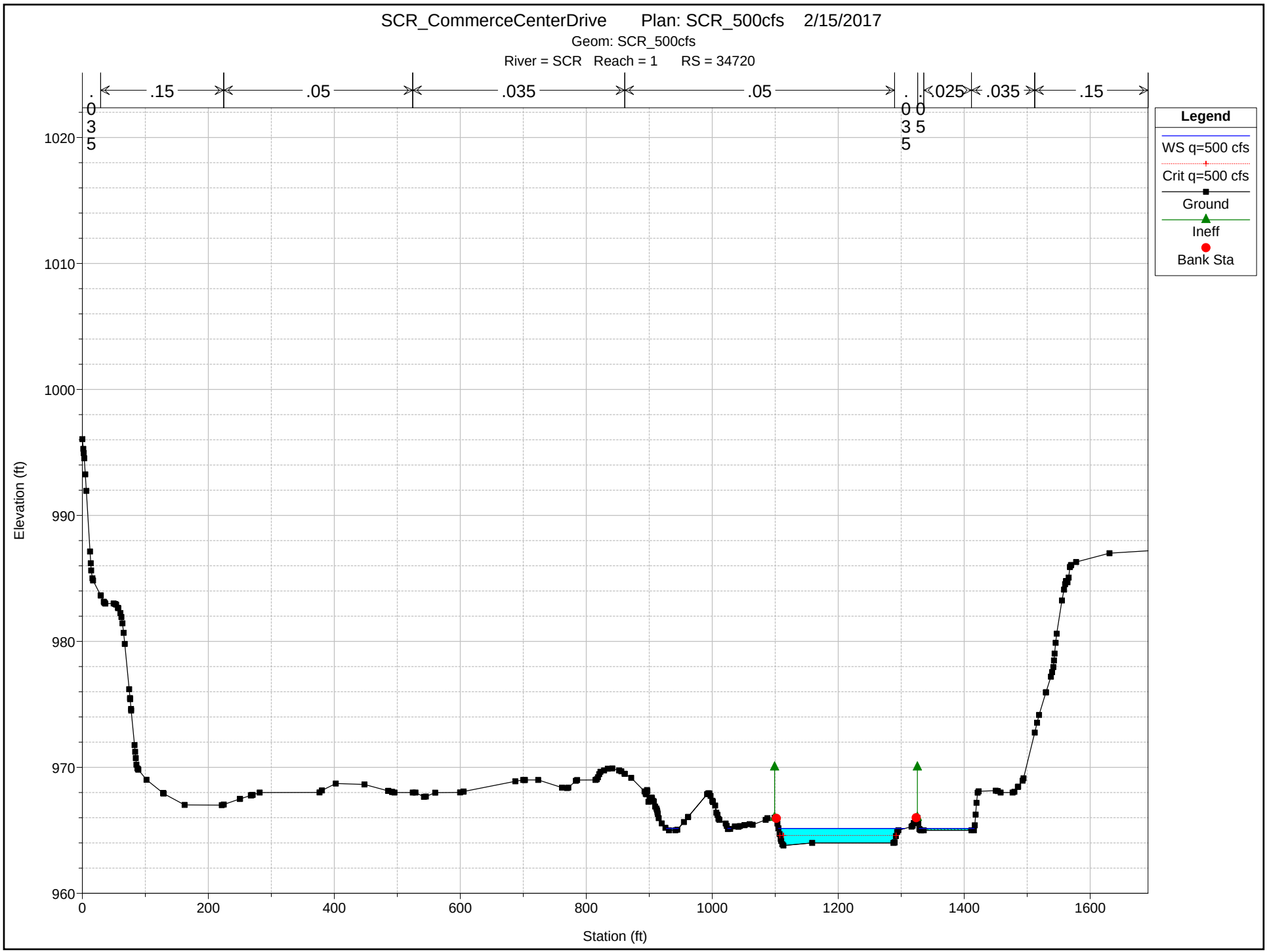

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