

The attached document was submitted to the  
**Washoe County Board of Commissioners** during  
the meeting held on September 18, 2018.  
by WC School District  
for Agenda Item No. 10  
and included here pursuant to NRS 241.020(8).



File Code: 5590

Date:

SEP 17 2018

Pete Etchart  
Chief Operating Officer  
Washoe County School District  
425 East Ninth Street  
Reno, NV 89512

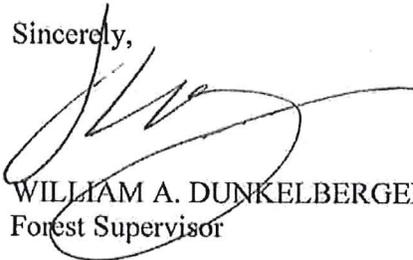
Dear Mr. Etchart,

Per your request, this letter is to confirm that the Forest Service is finalizing our decision to approve conveyance of National Forest System lands adjacent to Arrowcreek Parkway to the Washoe County School District that have been requested under the Education Land Grant Act for school facilities. This decision will be published in the very near future.

In the interim I understand that the school district is applying for a special use permit from Washoe County to authorize grading of the subject lands. The Forest Service has no objection to Washoe County approving this permit as long as conditions stipulating that no ground disturbance may occur until transfer of the lands to the school district have been formally approved are included in the permit.

Please let me know if you need more information. I can be reached directly at 775-355-5310.

Sincerely,

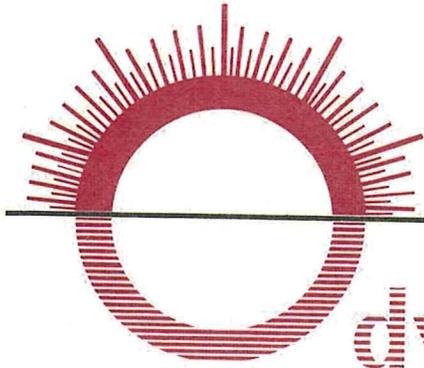


WILLIAM A. DUNKELBERGER  
Forest Supervisor

cc: Marsha Berkbigler, Bob Lucey, Washoe County Board of Commissioners



BCC 9-18-18 #10  
WC School District



895 Roberta Lane, Suite 104, Sparks, NV 89431  
(775) 359-3303 Fax (775) 359-3329

**odyssey** ENGINEERING  
INCORPORATED

September 17, 2018

Adam T. Searcy, P.E.  
Chief Facilities Management Officer  
Washoe County School District  
425 E. Ninth Street  
Reno, NV 89512

Re: Response to Thiel Engineering Letter to the Washoe County Board of Commissioners

Dear Adam,

The following discussion is a response to the Thiel Engineering analysis (dated August 25, 2018) regarding the Arrow Creek Middle School civil improvement plans and the associated preliminary hydrologic analysis conducted by Odyssey Engineering, Inc.

In an attempt to address the relevant points made in the Thiel Engineering analysis, the responses follow each claim (in quotes) and are in bold text.

If you have any questions, please call me at 775-359-3303.

Sincerely,

Frank Bidart, P.E.  
Odyssey Engineering, Inc.

cc: Charles Dettling, P.E. – Odyssey Engineering

BCC 9-18-18 #10  
WC School District

## **Thiel Analysis Response**

**Just to be fair, the Thiel Analysis was based on information provided by Odyssey Engineering, Inc. (Odyssey). Odyssey provided a conceptual analysis based on the Rational Method. However, a short time after the meeting with Mr. Meckley and Mr. Thiel, Washoe County Engineering requested that Odyssey use the U.S. Army Corp of Engineer's Hydrologic Engineering Center (HEC) HEC-1 Flood Hydrograph Package to determine both the 5-year and 100-year peak flow events for both existing and proposed conditions. Therefore, there are discrepancies in the data presented in this analysis.**

Routing, conceptual design of the detention facilities, and interception of sheet flows from various water shed to a concentrated flow to the Meckley property are the issues addressed in the "Thiel Engineering analysis" by Thiel engineering. As stated on page 1, "Of concern to the Meckley's is the routing, conceptual design of the detention facilities, and interception of sheet flows from various water sheds to a concentrated flow to their property. Of consideration are the method of discharge and the lack of routing to drainage easements that have been recorded per the final map of record in Washoe County."

**The Preliminary Hydrologic Analysis for Arrow Creek Middle School utilized approved analysis methods from the Truckee Meadows Regional Drainage Manual to determine the minor (5-year) and major (100-year) peak flow events. An industry standard method was employed, the U.S. Army Corp of Engineer's Hydrologic Engineering Center (HEC) HEC-1 Flood Hydrograph Package to determine both the 5-year and 100-year peak flow events for both existing and proposed conditions. The proposed conditions are not concentrated to the Meckley property, the flows are concentrated at the proposed detention facility, which provides an engineered peak flow release less than in the existing conditions. In the existing conditions, the Meckley property receives estimated peak flows of 8.7 cfs in the 5-year and 26.8 cfs in the 100-year peak flow events. During 5-year and 100-year peak flow events, the proposed detention facility will receive 29.2 cfs and 67.7 cfs, respectively, and will discharge 4.7 cfs in the 5-year event and 11.3 cfs in the 100-year event. Thereby, reducing the flows directed towards the Meckley property by 4.0 cfs in the 5-year event and 15.5 cfs in the 100-year event.**

**According to the existing topographic data, the existing ephemeral drainage that convey flows to the Meckley property does not directly discharge into the existing drainage easement, approximately 175 feet upstream from the drainage easement the ephemeral drainage begins to fan out and the flow spreads out as it travels towards the Meckley property.**

As stated in the Thiel Analysis, Section 303.1 "The "Reasonable Use Rule" is defined for drainage planning purposes as permitting the use of an economic and hydraulically efficient drainage system which is demonstrated not to adversely impact adjacent and downstream properties within reason. This "Reasonable Use of Drainage" therefore allows development to occur while preserving the rights of adjacent property owners.

**The methodology used for the proposed civil improvement follows the Reasonable Use Rule explicitly. The proposed Arrow Creek civil improvements limit the proposed rate of flow to less than half of the existing condition flow rates. The proposed detention outlet will discharge the proposed flows onto the existing alluvial fan that is located upstream from the Meckley property. According the HEC-1 analysis, all of the existing drainage patterns remain, however, all of the peak flows are decreased at**

the Points of Discharge. The flows are discharged towards the existing ephemeral drainages and existing civil improvements. There are four existing points of discharge (POD) north of Arrowcreek Parkway, one west of Companion Court (POD-01), one southwest of Companion Court (POD-02), and one south of Companion Court (POD-03). In the existing condition, the 5-year and 100-year peak discharge events are listed below (Table 1) for each POD (Figures 3 and 4, attached). The same PODs were used to determine the proposed peak flow events and are listed in Table 1 below:

**Table 1 – Point of Discharge Comparison between the Existing and Proposed Conditions**

<b>Point of Discharge</b>	<b>5-Year Event (Existing)</b>	<b>100-Year Event (Existing)</b>	<b>5-Year Event (Proposed)</b>	<b>100-Year Event (Proposed)</b>
POD-01	11.9 cfs	39.3 cfs	9.2 cfs	28.1 cfs
POD-02	10.2 cfs	36.2 cfs	0.7 cfs	4.3 cfs
POD-03	15.6 cfs	43.9 cfs	5.7 cfs	11.3 cfs
POD-04	7.3 cfs	21.7 cfs	7.0 cfs	20.7 cfs
POD-05	8.7 cfs	21.7 cfs	8.7 cfs	21.7 cfs

All of the PODs discharging towards the Companion Court have reduced flows in the proposed conditions. This detention facility is considered to be a local detention facility and will provide reduced peak flows to any downstream regional facilities.

As stated in the Thiel Analysis, Section 303.5 - "Drainage Planning Submittal and Review"

The proposed Arrow Creek Middle School Civil improvements will be submitted for review to the appropriate jurisdictional entity and will need to be approved prior to issuance of a permit.

As stated in the Thiel Analysis, Section 303.6 - "Floodplain Management"

The proposed Arrow Creek Middle School Civil improvements will be subject to all appropriate local and regional guidelines and requirements for development.

As stated in the Thiel Analysis, Section 202.7 - "Storm Runoff Detention"

The proposed Arrow Creek Middle School detention facility has been designed to limit the peak flows in the 5-year and the 100-year peak flow events to less than the existing condition for the same peak events. As stated earlier in the response, in the existing conditions, the Meckley property receives estimated peak flows of 8.7 cfs in the 5-year and 26.8 cfs in the 100-year peak flow events. During 5-year and 100-year peak flow events, the proposed detention facility will receive 29.2 cfs and 67.7 cfs, respectively, and will discharge 4.7 cfs in the 5-year event and 11.3 cfs in the 100-year event. Thereby, reducing the flows directed towards the Meckley property by 4.0 cfs in the 5-year event and 15.5 cfs in the 100-year event. The reduced flow will benefit any downstream properties, downstream storm drain, and downstream regional facilities.

As Stated in the Thiel Analysis “Section 400 – Drainage Law”

**Odyssey will leave that to the lawyers.**

As Stated in the Thiel Analysis “Section 502 – Required Drainage Report Submittals”

**A Conceptual Drainage Report will be submitted and once the final improvement plans are completed, a Technical Drainage Report will be submitted as well.**

As stated in the Thiel Analysis on page 10, “The following exhibit analyzes the pre-development condition, etc....”

**We have no data to substantiate these claims only statements by Mr. Meckley.**

As stated in the Thiel Analysis on page 12, “The Post Development Plan will pick up drainage areas P-05 (X-05), P-06 (X-06), P-02 (X-02), P-03 (X-03-overflow), and discharge the concentrated flow to the Meckley's back property boundary. The area of runoff contributing flow to the Meckley parcel has now increased the water shed boundary from 13.52 acres of sage brush, sandy loam, plant understory) to approximately 58 acres (mostly impervious) of concentrated discharge to the Meckley property. From the drawing supplied by the applicant, a drainage swale intercepts drainage area basins P- 03, P-02, and P-05, P-06 (mostly the impervious area) discharges to the detention basin. The post development flows that contribute to the property; P-03 3.0 cfs (Q5)-19.2 cfs (Q100), P-02 3.1 cfs (Q5)-15.5 (Q100,) P-05 2.8 cfs (Q5)-17.2 cfs (Q100), P-06 20 cfs(Q5)-63.3 cfs (Q100) for a total of 28.9 cfs (Q5) and 115.2 cfs (Q100), for perspective the total flow is equal to 12,926.59 GPM (QS) and 51,706 GPM (Q100).”

**As of receipt of the Thiel Analysis report, the proposed grading has changed slightly so some of the areas that are referenced in the analysis have changed and the data that was given to Mr. Thiel is the Rational Method. The basins contributing to the proposed detention facility are basins P-02, P-05, P-06, and P-08 and the associated areas are 8.75 acres, 7.61 acres, 22.44 acres, and 3.65 acres, respectively. The total acreage that will contribute to the proposed detention facility is 42.45 acres. As stated in the Thiel Analysis “The area of runoff contributing flow to the Meckley parcel has now increased the water shed boundary from 13.52 acres of sagebrush, sandy loam, plant understory) to approximately 58 acres (mostly impervious) of concentrated discharge to the Meckley property.” This is incorrect, just to clarify, Basin P-02 and P-05 will remain unchanged and P-08 will consist of native areas and graded and re-vegetated slopes. Basin P-06 which is the basin where the proposed school will be constructed will have 10.40 acres of landscaping and Low Impact Development (Pervious) and 12.04 acres of developed (Impervious) asphalts, concrete, and buildings. An overall analysis of the Pervious/Impervious areas concluded that approximately 72% of the basins contributing to the detention basin will be pervious compared to 28% being impervious. As stated earlier, these flows are conveyed to the proposed detention facility and are greatly reduced.**

As Stated in the Thiel Analysis, “Earthquake Hazard-Mount Rose Fault”:

**Odyssey will work with staff to determine the potential hazards. There are several approved and constructed detention facilities around Reno, Sparks, the Truckee Meadows, and Washoe County.**

Findings:

1. "The injurious flow of water is reasonably necessary for drainage;"

"As provided in this review of the Preliminary Drainage Report provided by the School Districts engineer it was found that the grading plan alters the water shed to discharge all pre and post development flows to the south boundary of the Meckley parcel. This is an unreasonable condition and is not mitigated by the proposed grading or the suggested improvements. The construction of the drainage swale intercepts flows that were not contributing to runoff onto the subject property. Storm water discharges from the School District site is not routed to existing county easements and rights of way, nor to natural drainage courses."

**This statement is not true, the proposed conditions are not concentrated to the Meckley property, the flows are concentrated at the proposed detention facility, which provides an engineered peak flow release less than in the existing conditions. In the existing conditions, the Meckley property receives estimated peak flows of 8.7 cfs in the 5-year and 26.8 cfs in the 100-year peak flow events. During 5-year and 100-year peak flow events, the proposed detention facility will receive 29.2 cfs and 67.7 cfs, respectively, and will discharge 4.7 cfs in the 5-year event and 11.3 cfs in the 100-year event. Thereby, reducing the flows directed towards the Meckley property by 4.0 cfs in the 5-year event and 15.5 cfs in the 100-year event.**

2. "Reasonable care is taken to avoid unnecessary injury;"

"By concentrating the flow to the Meckley residence, the district has disregarded the potential property damage and injury created by the premature grading plan and request for a Special Use Permit by requesting, without a detailed analysis, the impacts caused by consolidating the post development water sheds which creates an unreasonable solution to the proposed school site development. The development of the property, without properly analyzing the site hydrology, will cause severe property damage, potential injury or death to the Meckleys. The construction of the levee on a fault of recent activity and with potential for shaking and displacement of physical features is a hazard to the construction of the levee and the containment of water. Any seismic activity may cause structural defects in the levee and should a rupture of the levee occur when full of water, the destruction of downstream properties and the potential loss of life would be significant."

**As stated earlier, Odyssey will work with staff to determine the potential hazards. There are several approved and constructed detention facilities around Reno, Sparks, the Truckee Meadows, and Washoe County.**

3. "The benefit to the drained land outweighs the gravity of harm inflicted on the flooded land;"

"The School District should be required to move without significant harm to the Meckley property, the School District has the ability to develop a solution that will ameliorate the concerns of adjacent property owners by completing the proper infrastructure in the proper easements to perpetuate historic points of discharge through easements to County properties for flood control purposes. Based upon

common practices this School District must be required to complete discharge infrastructure to protect the public health, safety and welfare. The mitigation to drainage impacts must be constructed in conformance with the natural pre-existing water sheds to discharge areas through other properties or discharged to County Roadways and drainage facilities.”

**According to the existing topographic data, the existing ephemeral drainage that convey flows to the Meckley property does not directly discharge into the existing drainage easement, approximately 175 feet upstream from the drainage easement the ephemeral drainage begins to fan out and the flow spreads out as it travels towards the Meckley property. The proposed detention outlet facilities will discharge the peak flows at the fan apex.**

4. “The drainage is accompanied, where practicable, by the reasonable improvement and aiding of normal and natural systems of drainage in accordance with their reasonable carrying capacity; and;”

“Involved in the findings provided in the analysis of the Preliminary Hydrology report and by investigating existing easements the county has the ability to provide reasonable improvements to the construction of the drainage infrastructure including piping, the construction of on-site detention and perpetuating the natural drainage courses through easements created for the express purposes of perpetuating discharges from the adjacent properties, the school district must not be allowed to discharge all of the surface waters to the Meckley property.”

**Once again, not all of the flows are discharged towards the Meckley property. The basins contributing to the proposed detention facility are basins P-02, P-05, P-06, and P-08 and the associated areas are 8.75 acres, 7.61 acres, 22.44 acres, and 3.65 acres, respectively.**

5. “Where no natural system of drainage are available, the drainage is accompanied by the use of reasonable, artificial system of drainage.”

“Based upon the foresight of the County to require drainage easements for the Thomas Creek Estates Unit 2-8, infrastructure may be constructed by the School District to route flood waters along the existing lot lines of the community. This condition must be met and is reasonable considering the potential harm to the community.”

**See response to “Findings #3” for existing drainage easement issue posed by Thiel Engineering. Additionally, Based on Standard Engineering Practices (HEC-1 modeling) and the TMRDM, the existing conditions, the Meckley property receives estimated peak flows of 8.7 cfs in the 5-year and 26.8 cfs in the 100-year peak flow events. During 5-year and 100-year peak flow events, the proposed detention facility will receive 29.2 cfs and 67.7 cfs, respectively, and will discharge 4.7 cfs in the 5-year event and 11.3 cfs in the 100-year event. Thereby, reducing the flows directed towards the Meckley property by 4.0 cfs in the 5-year event and 15.5 cfs in the 100-year event.**

**In conclusion, the Thiel Analysis continued to state that all of the proposed flows were directed to the Meckley property and claims that the basins are mostly impervious, both of which are not true. Additionally, the previous responses demonstrate that the proposed civil improvements will not only discharge the proposed peak flows at flow rates equal to existing conditions but in actuality, the proposed peak flows will be approximately one-half of the existing condition peak flows. In our opinion, Washoe County School District is going above and beyond what is required based on jurisdictional requirements.**

The attached document was submitted to the  
**Washoe County Board of Commissioners** during  
the meeting held on 9.18.18.  
by Angela Fuss - Lumes & Assoc  
for Agenda Item No. 10  
and included here pursuant to NRS 241.020(8).



Washoe County  
School District

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and Face, To Graduation



# Middle School at Arrowcreek Special Use Permit

September 18, 2018



## Direction from August 28<sup>th</sup> BCC Hearing

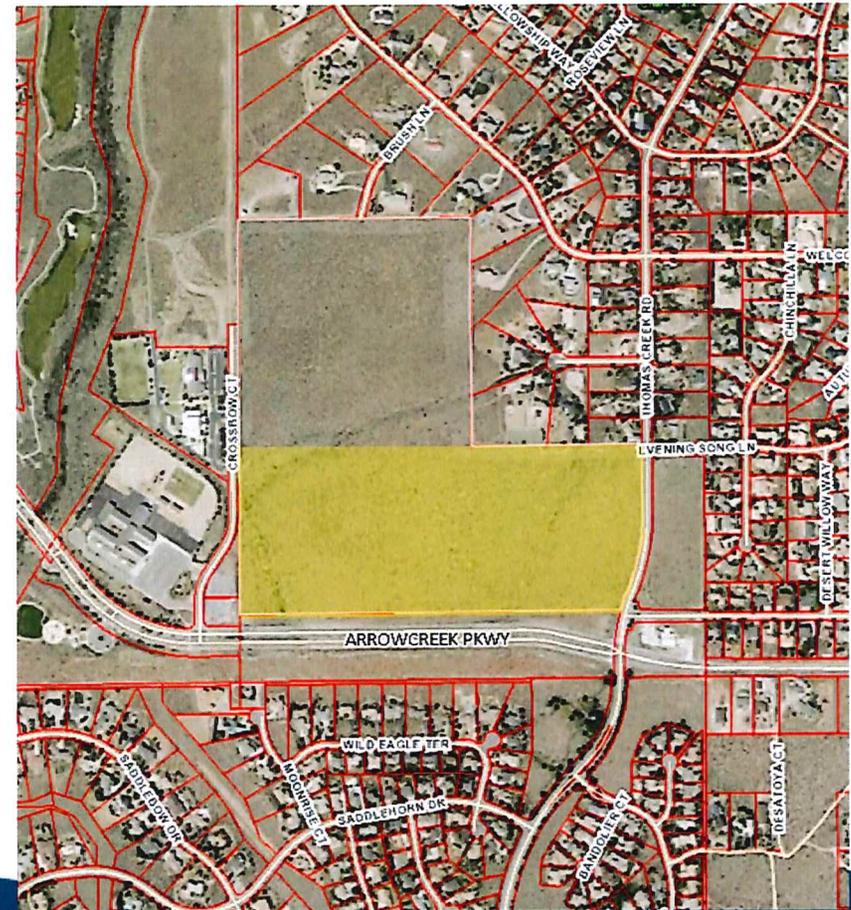
- Timing of WCSD parcel ownership
- Meeting with the neighbors
- Provide new graphics of the detention basin
- Address traffic mitigation improvements





# Land Acquisition

- **USFS – Education Land Grant Act**
  - WCSD has been pursuing this site on and off since 2004
  - This site was shown as a potential location during the WC-1 initiative
- Environmental Assessment process
- Public input process
  - 3 community meetings
- USFS has completed their review and appeal process, and are moving forward with final transfer
- Recommend adding **Condition of Approval** tied to the building permit



# Community Meetings



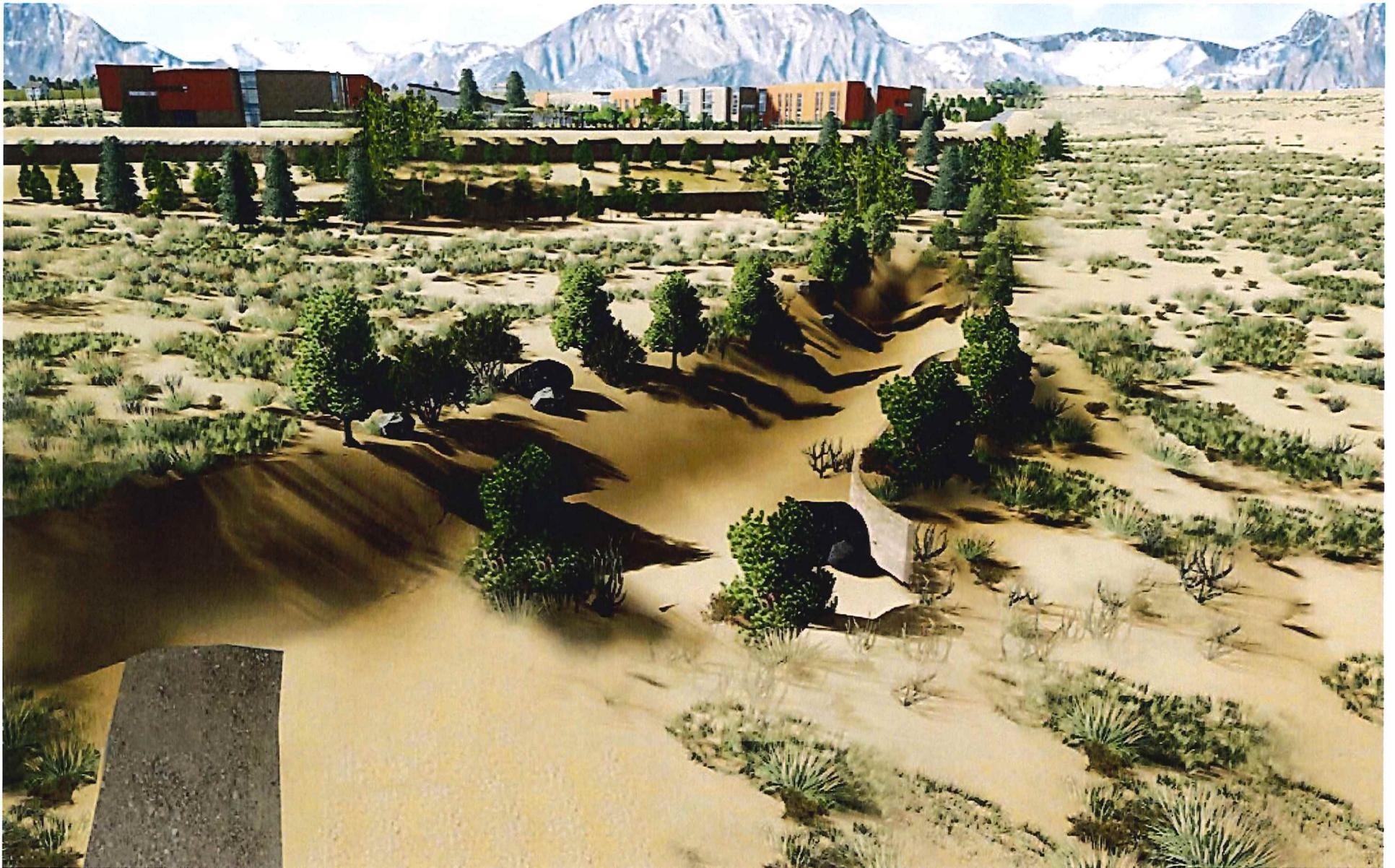
Date	Lead	Location	Notice	Attendees	Summary
10/11/07	USFS	Hunsberger ES	public	150-200	USFS public mtg associated with ELGA process
Fall 2018	USFS	Washoe Tribe & Reno-Sparks Colony	private	N/A	Tribal consultation in accordance with regulations
12/7/18	WCSD	WCSD Brown Center	private	4	Jim Verner & Dave Keyes with meeting with WCSD staff
Feb/March 2018	USFS	30 day public comment period	public	approx 350	Public comments requested and received online
2/22/18	USFS	South Valleys Library	public	75-100	USFS public mtg associated with ELGA process
Feb-May 2018	USFS	State Historical Preservation Office	semi-public	N/A	Pursuant to Section 106 of the National Historic Preservation Act, the Forest Service consulted with the Nevada State Historic Preservation Office (SHPO). A cultural survey report was completed and submitted to the SHPO on February 20, 2018, with the recommendation received from the SHPO on May 9, 2018, stating the parcel and subsequent construction of the school will have no adverse effects to historic properties resulting from the conveyance.
3/29/18	WCSD	WCSD Administration Bldg	public	15-20	Capital Funding Protection Committee mtg where project status discussed and public comment received on the record
Apr-18	WCSD	WCSD Administration Bldg	public	15-20	WCSD School Board mtg where project status discussed and public comments received on the record
5/2/18	WCSD	WCSD Brown Center	private	3	Dave Keyes meeting with WCSD staff
5/3/18	County	South Valleys Library	public	35-50	Citizen's Advisory Board
6/14/18	WCSD	Adjacent Homeowner residence	private	10-May	Craig Meckley property site visit with George Thiel, County Staff, WCSD staff & consultants
6/15/18	County	County Commission Chambers	public	25-35	Board of Adjustment - SUP Hearing
7/19/18	WCSD	WCSD Brown Center	private	5	Dave Keyes meeting with WCSD staff & consultants
7/19/18	WCSD	WCSD Administration Bldg	public	15-20	Capital Funding Protection Committee mtg where project status discussed and public comment received on the record
Aug-18	USFSS	30 day public comment period	public	approx 100	Public comments requested and received online
8/9/18	USFS	Hunsberger ES	public	250-300	USFS public mtg associated with ELGA process
8/14/18	WCSD	WCSD Administration Bldg	public	15-20	WCSD School Board mtg where project status discussed and public comments received on the record
8/17/18	WCSD	Adjacent Homeowner residence	private	5	Mary Love Family meeting with WCSD staff & consultants
8/22/18	County	County CSD	private	6	Meeting with Craig Meckley, George Thiel, Dwayne Smith, Walt West, WCSD staff & consultants
8/28/18	County	County Commission Chambers	public	30-50	BCC Appeal Hearing of Grading SUP
9/5/18	WCSD	Sage Ridge School	private	3	Meeting with Tobin Bechtel, Pat Casey & Adam Searcy
9/12/18	County	County CSD	public	20-30	County initiated outreach meeting resulting from Commissioner comments on Aug 28



# Landscape Design



# Rendering of Detention Basin





# Example of Similar Detention Basin

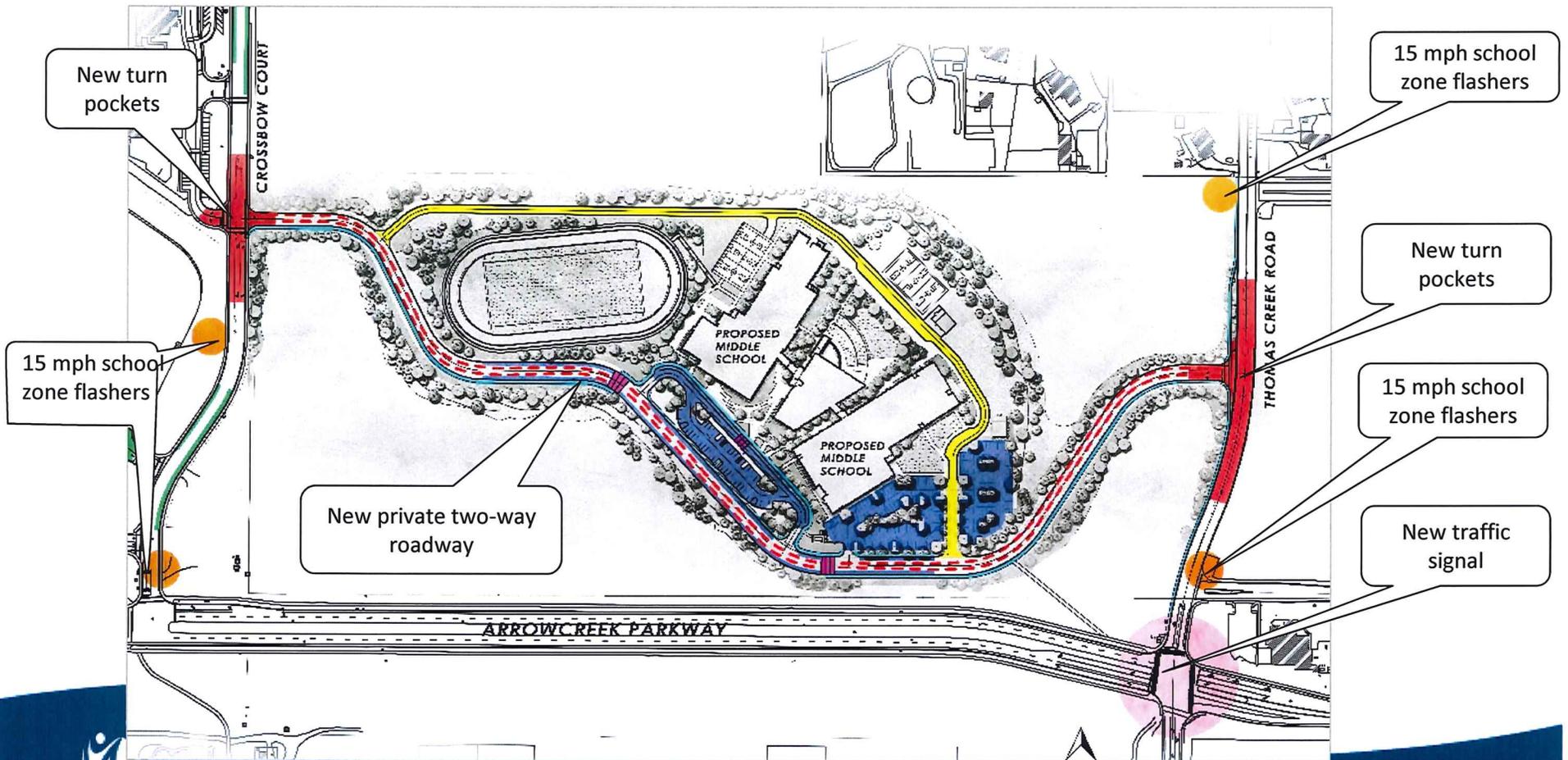


Detention basin located off of Mt. Rose Highway





# Traffic Considerations





# Fire Station Considerations



- New traffic light
- “Do Not Block” striping in front of Fire Station #36
- Traffic preemption device
- Coordination with TMFPD



# Conditions of Approval

## New Conditions:

- m. If any blasting is required during the project grading, a blasting mitigation plan will be submitted with the grading plan(s). The blasting mitigation plan will be completed by a qualified contractor.
- n. If construction hours are varied for the pouring of concrete slabs, a plan will be submitted to Washoe County for approval by the Planning and Building Director.
- o. Construction noise will not exceed 65 dB at the property line and 'hush' alarms will be installed to construction vehicles to mitigate noise.
- p. **No building permits shall be issued by Washoe County until the property is under Washoe County School District ownership.**

## Amendment to Condition H:

- **Existing:** All boulders recovered during grading on site or exposed on site shall be placed on cut and filled slopes among the required landscaping.
- **Proposed:** **When feasible,** boulders recovered during grading on site or exposed on site shall be placed on cut and filled slope among the required landscaping, **and subject to the Planning Director review and approval.**



# Findings

1. **Consistency** – The proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the applicable area plan;
2. **Improvements** – Adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven;
3. **Site Suitability** – The site is physically suitable for the type of development and for the intensity of development;
4. **Issuance Not Detrimental** – Issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area;
5. **Effect on a Military Installation** – Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.



# Thank you



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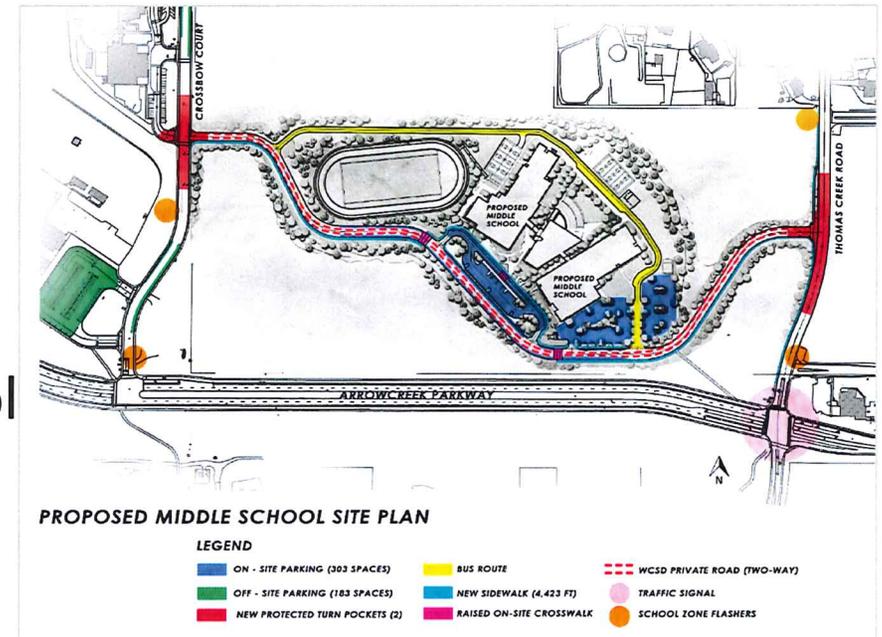
# Project Owner/Applicant Names

Type of Application	Project Title	Description	Property Owner	Applicant	Date Approved	County Case Number
Administrative Review Permit	Miller Family Trust - Accessory Dwelling Unit	Request to construct a new accessory dwelling unit	Miller Family Trust	Advanced Design and Construction	Staff approval - August 2, 2018	WDADAR18-0005
Special Use Permit	Madole Construction Special Use Permit	Request to construct a new office building and associated grading	Gurnea Family Trust	Madole Construction	Board of Adjustments - August 2, 2018	WSUP18-00014
Special Use Permit	Lisa Williams Grading Special Use Permit	Request for a new bar and landscaping with grading that exceeds thresholds	Amour Property Management, LLC	Gail Willey Landscaping	Board of Adjustments - February 1, 2018	WSUP17-0023
Tentative Map	Bailey Creek Estates Truckee Meadows Fire Station #14	Tentative map of for 56 single family lots	Charles Maddox	Silver Crest Homes	County Commission - April 11, 2017	WTM16-003
Special Use Permit	Ascente Development	Request for a new fire station	Truckee Meadows Fire Protection District	Washoe County	County Commission - January 24, 2017	SB16-010
Tentative Map & Special Use Permit	Sun Valley Center Sign	Request for 225 single family lots	Gary Nelson and Jeannie Janning	NNV1 Partners LLC	County Commission - August 8, 2017	TM16-009
Administrative Review Permit	Ladera Ranch	Request to construct a new pylon sign	John Desiderio	YESCO	Board of Adjustments - February 1, 2018	WADMIN17-0011
Amendment of Conditions	CSA Pre-K Spanish Springs U-Haul	Amendment to tentative map	Ladera Ranch, LLC	DR Horton	County Commission - July 11, 2017	WAC17-0003
Special Use Permit	Black Rock Storage	Request to allow a preschool use	Sun Valley GID	Kristen Demara (CSA)	Board of Adjustments - October 6, 2016	SB16-009
Special Use Permit	Evans Greenhouses	U-Haul facility	Roger Primm	AMERCO Real Estate	Planning Commission - April 3, 2018	WSUP18-0003
Master Plan & Zoning Map Amendment	Blackstone Estates	Master Plan Amendment to allow commercial uses	Vector Account, LLC	Black Rock Storage, LLC	Planning Commission - May 1, 2018	WDCA17-0008, WMPA18-0002 & WRZA18-0001
Amendment of Conditions	Miller Family Trust - Accessory Dwelling Unit	Request for development of new greenhouses	Don Evans	Brian Bishop-Parise	Board of Adjustments - April 6, 2017	WAC17-0002
Tentative Map	Blackstone Estates	Request for 161 single family lots	Douglas Properties Inc.	SP58, LLC	Planning Commission - November 1, 2016	TM15-001



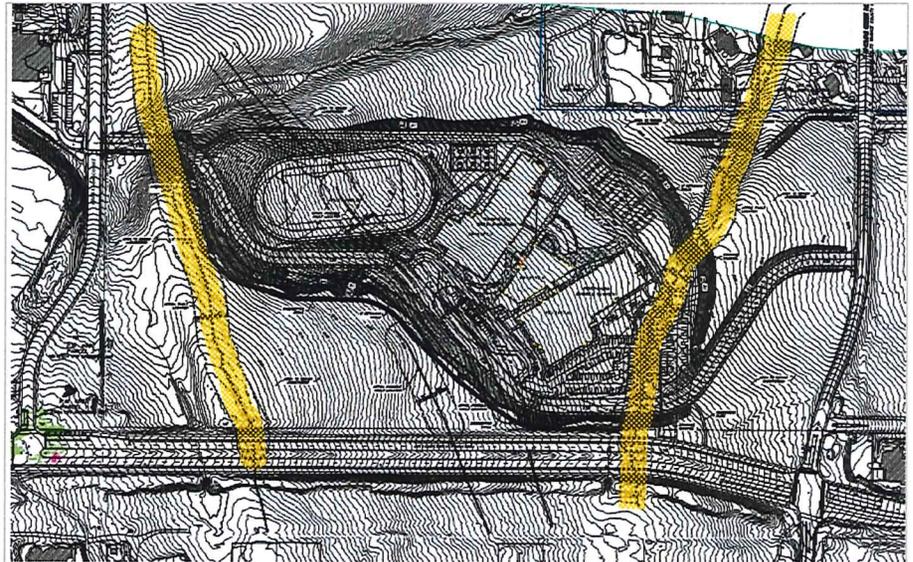
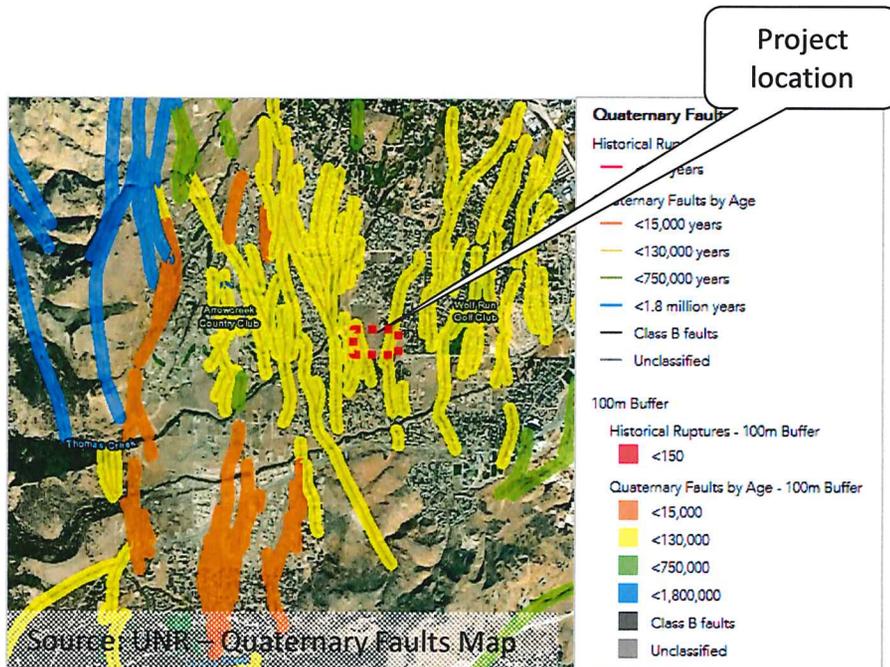
# Site Design Modifications

- Enhanced drainage and traffic engineering
- Modified design:
  - Moved school location and site layout
  - Reduced land transfer area
  - Reduced site plan to one school
  - Added parking
  - Added traffic signal





# Seismic Considerations

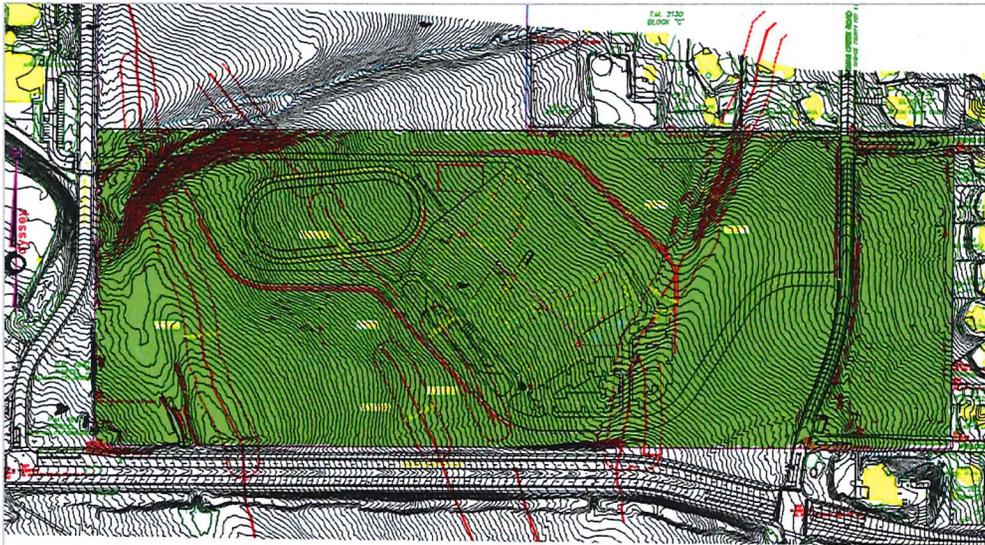


Existing Faults Map

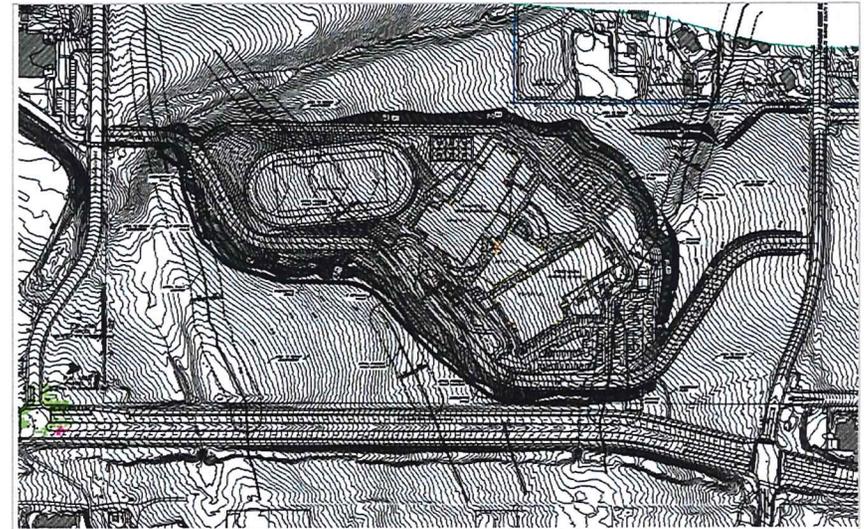
Proposed Site Plan



# Slope Considerations



Existing Slope Map

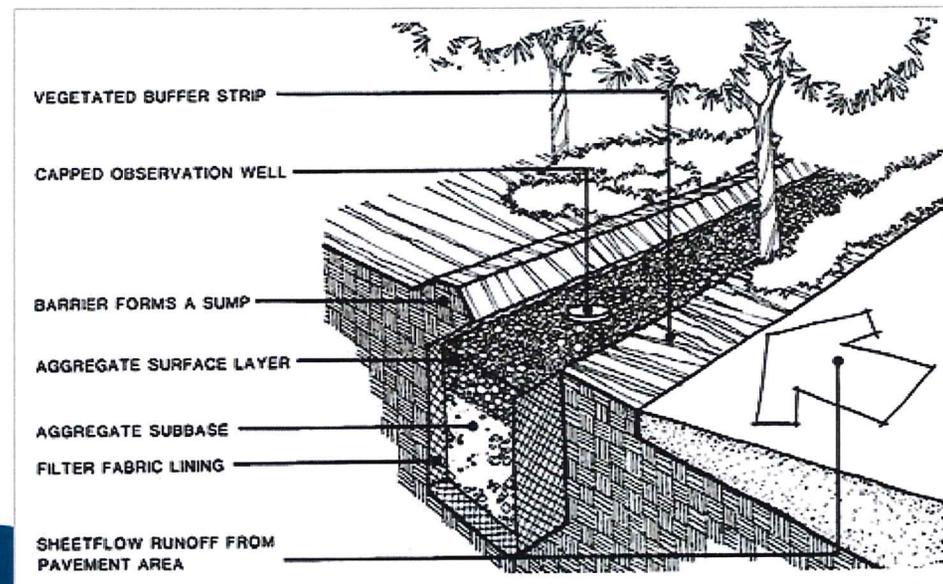


Proposed Grading Plan



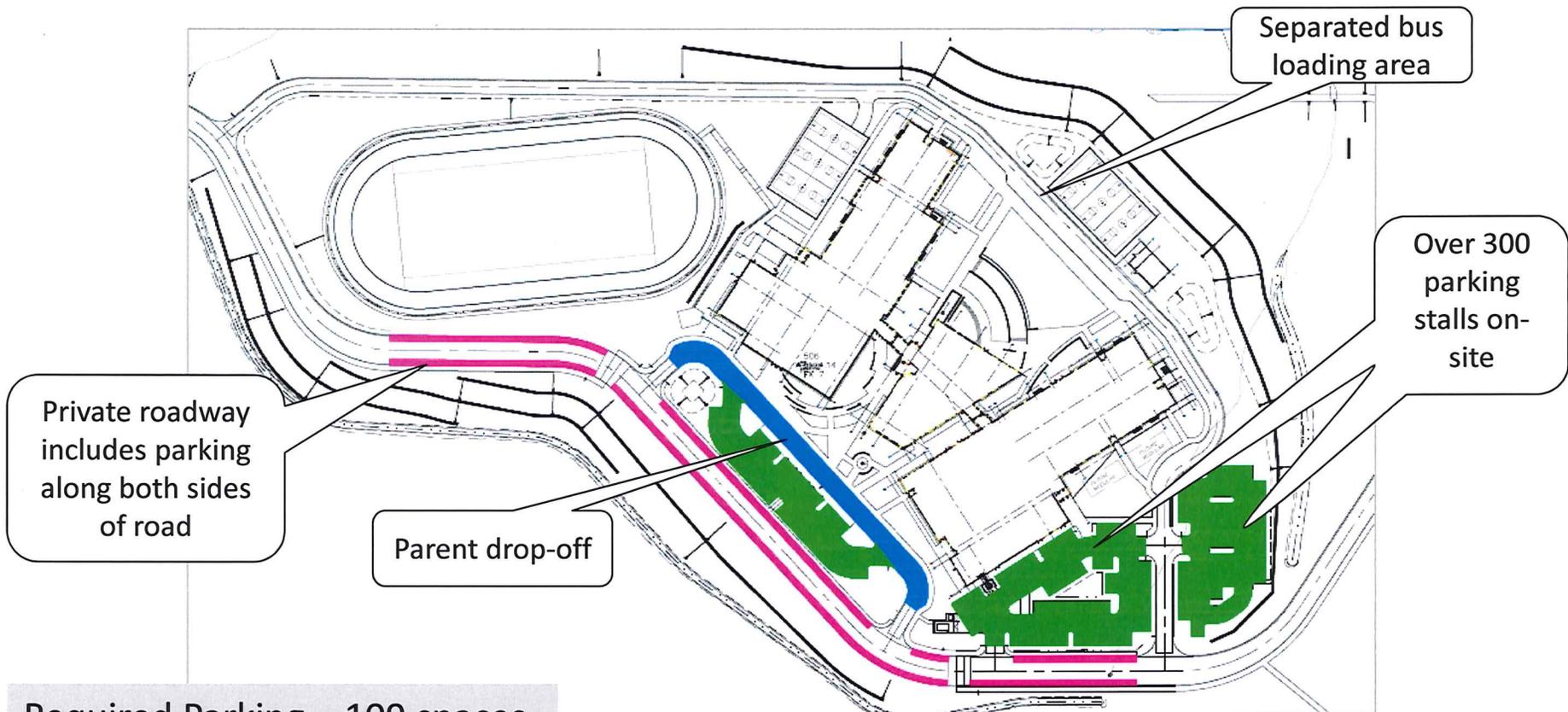
# Drainage Design

- Washoe County Code requirements
  - Design reduces peak flows by more than 75%
- On-site storm water detention basins
- On-site infiltration
  - Playfields
  - Parking lots





# Parking Considerations



Required Parking – 109 spaces  
Provided On-Site – 303 spaces  
Provided Off-site – 240 spaces  
**TOTAL PROVIDED – 543 spaces**



# Landscape Design



- 40% of site will remain native
- Over 500 new trees
- Over 2,500 native shrubs
- All irrigation with recycled water