Tentative Subdivision Map

HARRIS RANCH SUBDIVISION

Community Services Department
Planning and Development
TENTATIVE SUBDIVISION MAP
APPLICATION

Community Services Department
Planning and Development
1001 E. Ninth St., Bldg A
Reno, NV 89520

Telephone: 775.328.3600

TABLE OF CONTENTS

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Development staff at 775.328.3600.

Project Information	**Staff Assigned Case No.:** _____
Project Name: HARRIS RANCH SUBDIVISION	
Project Description: 610 LOT TENTATIVE SUBDIVISION MAP AS A COMMON OPEN SPACE DEVELOPMENT ON PARCELS TOTALING 610.34 ACRES WITH LDS ZONING. This proposed tentative map will replace the existing Harris Ranch Tentative Map (Case No. TM05-016).	
Project Address: Pyramid Highway and Alamosa Drive	
Project Area (acres or square feet): 610.34 acres	
Project Location (with point of reference to major cross streets **AND** area locator): at the north end of Spanish Springs Valley east of Pyramid Highway between Alamosa Drive on the north and Horizon View Avenue on the south.	

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No(s):	Parcel Acreage:
534-600-01	480	534-600-02	76.36
		076-290-44	53.98

Section(s)/Township/Range: 11 and 13, T21N, R20E
Indicate any previous Washoe County approvals associated with this application: Case No.(s). TM05-016

Applicant Information (attach additional sheets if necessary)

Property Owner:		**Professional Consultant:**	
Name: Spanish Springs Associates L.P.		Name: C&M Engineering and Design	
Address: 550 W. Plumb Lane, # B-505		Address: 5488 Reno Corporate Drive #200 B	
Reno, NV	Zip: 89509	Reno, NV	Zip: 89511
Phone: 775-425-4422	Fax: 775-329-8591	Phone: 775-856-3312	Fax: 775-856-3318
Email: jesse@hawcoproperties.com		Email: lmenante@candmengineering.com	
Cell: 775-560-6922	Other:	Cell:	Other:
Contact Person: Jesse Haw		Contact Person: Lisa Menante	
Applicant/Developer:		**Other Persons to be Contacted:**	
Name: Same as Owner		Name: Robert M. Sader	
Address:		Address: 8600 Technology Way, Suite 101	
	Zip:	Reno, NV	Zip: 89521
Phone:	Fax:	Phone: 775-329-8310	Fax: 775-329-8591
Email:		Email: rmsader@robertmsaderltd.com	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person: Robert M. Sader	

For Office Use Only

Date Received:	Initial:	Planning Area:	
County Commission District:		Master Plan Designation(s):	
CAB(s):		Regulatory Zoning(s):	

Property Owner Affidavit

Applicant Name: SPANISH SPRINGS ASSOCIATES LIMITED PARTNERSHIP

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
)
COUNTY OF WASHOE)

I, JESSE HAW,
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Development.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 076-290-44, 534-600-01 and 534-600-02

Printed Name SPANISH SPRINGS ASSOCIATES LIMITED PARTNERSHIP
BY HAWCO DEVELOPMENT COMPANY, GENERAL PARTNER

Signed
JESSE HAW, PRESIDENT

Address 550 W. Plumb Lane, # B-505

Reno, NV 89505

Subscribed and sworn to before me this 12th day of July, 2016.

Notary Public in and for said county and state

My commission expires: July 7, 2019

(Notary Stamp)

CHRISTIN WHITLOCK
NOTARY PUBLIC
STATE OF NEVADA
Appt. No. 15-2317-2
My Appt. Expires July 7, 2019

*Owner refers to the following: (Please mark appropriate box.)

- ☑ Owner
- ☐ Corporate Officer/Partner (Provide copy of recorded document indicating authority to sign.)
- ☐ Power of Attorney (Provide copy of Power of Attorney.)
- ☐ Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- ☐ Property Agent (Provide copy of record document indicating authority to sign.)
- ☐ Letter from Government Agency with Stewardship

Tentative Subdivision Map Application
Supplemental Information

(All required information may be separately attached)

Chapter 110 of the Washoe County Code is commonly known as the Development Code. Specific references to tentative subdivision maps may be found in Article 608, Tentative Subdivision Maps.

1. What is the location (address or distance and direction from nearest intersection)?

Harris Ranch Subdivision is located at the intersection of Alamosa Drive and Pyramid Highway (SR 445). Alamosa Drive is the primary access road. The subdivision lots in this common open space community will be clustered within APN 534-600-01 and a small portion of 534-600-02, southeast of the intersection.

2. What is the subdivision name (proposed name must not duplicate the name of any existing subdivision)?

Harris Ranch Subdivision

3. Density and lot design:

a. Acreage of project site	610.34 acres
b. Total number of lots	610
c. Dwelling units per acre	1
d. Minimum and maximum area of proposed lots	10,000 s.f. min to 50,855 s.f. max.
e. Minimum width of proposed lots	80 feet
f. Average lot size	14,866 + s.f.

4. Utilities:

a. Sewer Service	Washoe County Department of Water Resources
b. Electrical Service	NV Energy
c. Telephone Service	AT&T
d. LPG or Natural Gas Service	NV Energy
e. Solid Waste Disposal Service	Waste Management
f. Cable Television Service	Charter Communications
g. Water Service	Washoe County Department of Water Resources

5. For common open space subdivisions (Article 408), please answer the following:

   a. Acreage of common open space:

   358.24 acres

   b. Development constraints within common open space (slope, wetlands, faults, springs, ridgelines):

   The property slopes from west to east, with the eastern side (approximately 229 acres) to be undisturbed common open space, due to the steep slope. Other common open space areas north, south and west of the lotted area are not constrained, but are buffers from adjacent homes, most of which are built on 10-acre parcels.

   c. Range of lot sizes (include minimum and maximum lot size):

   10,000 s.f. to 50,855 s.f.

   d. Average lot size:

   14,866 s.f.

   e. Proposed yard setbacks if different from standard:

   Minimum setbacks are:
   Front - 20'
   Rear - 20'
   Side - 8'

   f. Justification for setback reduction or increase, if requested:

   Minimum setbacks will match or exceed standard setbacks for all lot sizes proposed.

   g. Identify all proposed non-residential uses:

   Sites for an elementary school and an adjacent neighborhood park are set aside as indicated on the subdivision map Sheet S-1, pursuant to the requests of the WCSD and Washoe County, respectively. Both of these civic uses are allowed in the LDS zone with applicable discretionary permits. The majority of the acreage (358.24 ac.) will be common open space.

h. Improvements proposed for the common open space:

Common open space will be left as undeveloped open space, except for access and utility improvements which may be constructed to 10-acre parcels to the west owned by others, and surface water retention basins constructed in the west buffer area to control runoff from the subdivision. If any of the access roads are built to the 10-acre parcels, the CC&Rs will have to provide that the road will no longer be common open space, in order to comply with Section 110.408.45(d).

i. Describe or show on the tentative map any public or private trail systems within common open space of the development:

A regional trail alignment is located within the common open space on the southern boundary of the subdivision. An easement will be provided to the county upon request prior to the construction of the trail. A trail connection will be provided at the terminus of Kings River Road to the regional trail for access by subdivision residents and members of the public.

j. Describe the connectivity of the proposed trail system with existing trails or open space adjacent to or near the property:

The regioinal trail connects the Sugarloaf Peak open space to Pyramid Highway, then continuing across the valley to BLM land at Stormy Canyon, as shown on the county parks and trails master plan. The trail connection between Kings River Road and the regional trail will allow non-motorized vehicular and pedestrian access to and from the proposed elementary school and park sites within the subdivision.

k. If there are ridgelines on the property, how are they protected from development?

N/A

l. Will fencing be allowed on lot lines or restricted? If so, how?

Allowed. In order to screen the Donovan Aggregate Pit haul road on the southern boundary of the property, a 6 foot high solid wooden fence on the southern lot boundary will be constructed by the homebuilder prior to the issuance of a certificate of occupancy for each home on Lots 240-244 and 356-368.

m. Identify the party responsible for maintenance of the common open space:

Harris Ranch Homeowners Association.

6. Is the project adjacent to public lands or impacted by "Presumed Public Roads" as shown on the adopted April 27, 1999 Presumed Public Roads (see Washoe County Engineering website at http://www.washoecounty.us/pubworks/engineering.htm). If so, how is access to those features provided?

NO

7. Is the parcel within the Truckee Meadows Service Area?

☑ Yes	☐ No

8. Is the parcel within the Cooperative Planning Area as defined by the Regional Plan?

☑ Yes	☐ No	If yes, within what city?

9. Will a special use permit be required for utility improvement? If so, what special use permits are required and are they submitted with the application package?

NO

10. Has an archeological survey been reviewed and approved by SHPO on the property? If yes, what were the findings?

There are no known archeological sites on the property. No survey has been performed.

11. Indicate the type and quantity of water rights the application has or proposes to have available:

a. Permit #	see below	acre-feet per year	
b. Certificate #		acre-feet per year	
c. Surface Claim #		acre-feet per year	
d. Other #		acre-feet per year	

e. Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

Spanish Springs Associates Limited Partnership and Hawco Development Company have water rights banked with the Truckee Meadows Water Authority for use on this property. See attached letter, Appendix 9. Additional water rights will either be acquired by the applicant or purchased from TMWA for full build out of all 610 homes. TMWA holds available water rights for its customers use in the TMWA system.

12. Describe the aspects of the tentative subdivision that contribute to energy conservation:

Aspects of the model energy code will be applied including property insulation, energy efficient appliances, energy efficient windows and water saving shower heads, faucets, and toilets. Large lot sizes and generous building footprints will afford the project architects the opportunity to place homes on lots to take advantage of solar heating. Roadway widths will comply with minimum county standards for roadway width to reduce energy consumption associated with asphalt and aggregate production.

13. Is the subject property in an area identified by Planning and Development as potentially containing rare or endangered plants and/or animals, critical breeding habitat, migration routes or winter range? If so, please list the species and describe what mitigation measures will be taken to prevent adverse impacts to the species:

NO

14. If private roads are proposed, will the community be gated? If so, is a public trail system easement provided through the subdivision?

N/A - Streets will be public.

15. Is the subject property located adjacent to an existing residential subdivision? If so, describe how the tentative map complies with each additional adopted policy and code requirement of Article 434, Regional Development Standards within Cooperative Planning Areas and all of Washoe County, in particular, grading within 50 and 200 feet of the adjacent developed properties under 5 acres and parcel matching criteria:

Yes. The proposed subdivision is of the same zoning as adjacent existing and planned Low Density Suburban residential lots to the south. Harris Ranch Subdivision is within the unincorporated area and over one mile from the Sparks city limits. Proposed lots and existing lots to the south are of similar size. Both are common open space developments. No subdivisions are located to the north, east or west, and all adjacent parcels are 10 acres or larger. Buffering satisfies all adjacency requirements.

16. Are there any applicable policies of the adopted area plan in which the project is located that require compliance? If so, which policies and how does the project comply?

Harris Ranch Subdivision shall comply with all applicable policies of the Spanish Springs Area Plan.

17. Are there any applicable area plan modifiers in the Development Code in which the project is located that require compliance? If so, which modifiers and how does the project comply?

Proof of water rights (see attached, Appendix 9) is provided pursuant to Section 110.216.45. Proposed drainage improvements shall comply with design parameters of the Spanish Springs Water Detention Facility pursuant to Section 110.216.55. There will be no direct access to Pyramid Highway other than Alamosa Drive pursuant to Section 110.216.05. Common open space wider than 25' will provide a buffer to Pyramid Highway north and south of Alamosa Drive pursuant to Section 110.216.10.

18. Will the project be completed in one phase or is phasing planned? If so, please provide that phasing plan:

The project will likely be developed in several phases, with the most probable phasing pattern from north to south.

19. Is the project subject to Article 424, Hillside Development? If yes, please address all requirements of the Hillside Ordinance in a separate set of attachments and maps.

☐ Yes	☑ No	If yes, include a separate set of attachments and maps.

20. Is the project subject to Article 418, Significant Hydrologic Resources? If yes, please address Special Review Considerations within Section 110.418.30 in a separate attachment.

☐ Yes	☑ No	If yes, include separate attachments.

Grading

Please complete the following additional questions if the project anticipates grading that involves: (1) Disturbed area exceeding twenty-five thousand (25,000) square feet not covered by streets, buildings and landscaping; (2) More than one thousand (1,000) cubic yards of earth to be imported and placed as fill in a special flood hazard area; (3) More than five thousand (5,000) cubic yards of earth to be imported and placed as fill; (4) More than one thousand (1,000) cubic yards to be excavated, whether or not the earth will be exported from the property; or (5) If a permanent earthen structure will be established over four and one-half (4.5) feet high:

21. How many cubic yards of material are you proposing to excavate on site?

785,000 cy

22. How many cubic yards of material are you exporting or importing? If exporting of material is anticipated, where will the material be sent? If the disposal site is within unincorporated Washoe County, what measures will be taken for erosion control and revegetation at the site? If none, how are you balancing the work on-site?

The grading plan submitted with this application anticipates no importing or exporting of material, but over 25,000 s.f. not covered by streets, building and landscaping will be disturbed.

23. Can the disturbed area be seen from off-site? If yes, from which directions, and which properties or roadways? What measures will be taken to mitigate their impacts?

Disturbed areas during construction will be visible from adjacent parcels and from Pyramid Highway. Over half of the property will remain common open space and not be disturbed. Areas of mass grading will be kept to a minimum by phasing, with distributed areas being covered by subdivision improvements and finished lots for single family dwellings.

24. What is the slope (Horizontal:Vertical) of the cut and fill areas proposed to be? What methods will be used to prevent erosion until the revegetation is established?

Maximum slope will be 3:1 cut and fill, but where adjacent lots are too sloped for a 3:1 grade between them, rock or retaining walls will be built.

Revegetation is not anticipated to be needed, since disturbed areas will be paved for streets and lots will be improved with single family dwellings, landscaping, etc.

25. Are you planning any berms and, if so, how tall is the berm at its highest? How will it be stabilized and/or revegetated?

No berms are planned.

26. Are retaining walls going to be required? If so, how high will the walls be, will there be multiple walls with intervening terracing, and what is the wall construction (i.e. rockery, concrete, timber, manufactured block)? How will the visual impacts be mitigated?

Certain lots in the interior of the subdivision will require retaining walls on or near lot lines. Most walls will be 6 feet or lower. Walls may be built from rockery, concrete, timber, manufactured block or other materials. See G-1 - G-4 for details. Most walls will not be visible from subdivision streets.

27. Will the grading proposed require removal of any trees? If so, what species, how many, and of what size?

There are very few trees on the property, which has typical high-desert vegetation. Pinion pine and juniper are the species and exist mostly in the common open space areas, which will be undisturbed. The applicant will replace any trees anticipated to be destroyed in disturbed areas of the subdivision on a 2 for 1 basis. A Tree Preservation Plan is included in this application showing the location of trees on the property.

28. What type of revegetation seed mix are you planning to use and how many pounds per acre do you intend to broadcast? Will you use mulch and, if so, what type?

If revegetation is required, areas will be treated with a native seed mix comprised of native shrubs and grasses per Washoe County requirements. However, no revegetation is planned.

29. How are you providing temporary irrigation to the disturbed area?

Use of water trucks or temporary sprinkler irrigation lines.

30. Have you reviewed the revegetation plan with the Washoe Storey Conservation District? If yes, have you incorporated their suggestions?

N/A

Tahoe Basin

Please complete the following additional questions if the project is within the Tahoe Basin:

31. Who is the Tahoe Regional Planning Agency (TRPA) project planner and what is his/her TRPA extension?

N/A

32. Is the project within a Community Plan (CP) area?

❑ Yes	❑ No	If yes, which CP?

33. State how you are addressing the goals and policies of the Community Plan for each of the following sections:

a. Land Use:

N/A

b. Transportation:

N/A

c. Conservation:

N/A

d. Recreation:

N/A

e. Public Services:

N/A

34. Identify where the development rights for the proposed project will come from:

N/A

35. Will this project remove or replace existing housing?

☐ Yes	☑ No	If yes, how many units?

36. How many residential allocations will the developer request from Washoe County?

N/A

37. Describe how the landscape plans conform to the Incline Village General Improvement District landscaping requirements:

N/A

Request to Reserve New Street Name(s)

The Applicant is responsible for all sign costs.

Applicant Information

Name: Spanish Springs Associates L.P.

Address: 550 W. Plumb Lane, # B-505

Reno, NV 89505

Phone : (775) 425-4422 Fax: (775) 329-8591

☑ Private Citizen ☐ Agency/Organization

Street Name Requests

(No more than 14 letters or 15 if there is an "i" in the name. Attach extra sheet if necessary.)

See attached email list of new street	
names reserved	

If final recordation has not occurred within one (1) year, it is necessary to submit a written request for extension to the coordinator prior to the expiration date of the original

Location

Project Name: HARRIS RANCH SUBDIVISION

☐ Reno ☐ Sparks ☑ Washoe County

Parcel Numbers: 534-600-01 and 02, 076-290-44

☑ Subdivision ☐ Parcelization ☐ Private Street

Please attach maps, petitions and supplementary information.

Approved: _____ Date: _____

Regional Street Naming Coordinator

☐ Except where noted

Denied: _____ Date: _____

Regional Street Naming Coordinator

Washoe County Geographic Information Services

Post Office Box 11130 - 1001 E. Ninth Street

Reno, NV 89520-0027

Phone: (775) 328-2325 - Fax: (775) 328-6133

RMSader

From: Lisa Menante <lmenante@candmengineering.com>
Sent: Wednesday, July 06, 2016 4:43 PM
To: rmsader; Jesse@hawcoproperties.com
Subject: ALL Street name approvals for Harris Ranch

These street names have been accepted and reserved into the Washoe County Master Street Directory Reservation table as of the submittal date 7/6/2016:

Location: Washoe County Parcel Numbers: 534-600-01, 534-600-02, 076-290-44

Reservations		
Date Submitted	**Fullname**	**Description**
7/6/2016	BULL FROG	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/6/2016	BULL RUN	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/6/2016	FORTIFICATION	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/6/2016	JUNCTION HOUSE	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/6/2016	KINGS RIVER	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/6/2016	QUINN RIVER	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/6/2016	RED HORSE	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)

These street names have been accepted and reserved into the Washoe County Master Street Directory Reservation table as of the submittal date of 7/5/2016:

Location: Washoe County Parcel Numbers: 534-600-01, 534-600-02, 076-290-44

Reservations		
Date Submitted	**Fullname**	**Description**
7/5/2016	BELTED	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/5/2016	MAJUBA	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/5/2016	HALFPINT	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)

These street names have been accepted and reserved into the Washoe County Master Street Directory Reservation table as of the submittal date of 7/5/2016:

Location: Washoe County Parcel Numbers: 534-600-01, 534-600-02, 076-290-44

Reservations		
Date Submitted	Fullname	Description
7/5/2016	DOLLY VARDEN	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
7/5/2016	HUNTOON	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)

These street names have been accepted and reserved into the Washoe County Master Street Directory Reservation table as of the submittal date of 6/30/2016:

Location: Washoe County Parcel Numbers: 534-600-01, 534-600-02

Reservations		
Date Submitted	Fullname	Description
6/30/2016	BEDELL FLAT	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/30/2016	KUMIVA PEAK	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/30/2016	NUGENT HOLE	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/30/2016	SHEEP PASS	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/30/2016	VINEGAR PEAK	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/30/2016	WILDCAT PEAK	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)

These street names have been accepted and reserved into the Washoe County Master Street Directory Reservation table as of 6/13/2016:

Area: Washoe County Parcels: 076-360-02, 076-360-03

Reservations		
Date Submitted	Fullname	Description
6/13/2016	BAR S	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	CORRAL CREEK	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	CROSBY RANCH	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)

Reservations		
Date Submitted	Fullname	Description
6/13/2016	GRIFFITH CANYON	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	HUNGRY RIDGE	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	NEFF RANCH	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	PAH RAH RIDGE	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	RANCH HAND	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	SAVAL RANCH	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	SPANISH RANCH	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)
6/13/2016	SUGARLOAF PEAK	Harris Ranch Subdivision (C and M Engineering - Lisa Menante for Spanish Springs Associates)

Lisa C Menante, PE
C&M Engineering and Design, LTD
5488 Reno Corporate Drive, Suite 200B
Reno, NV 89511
(775) 856-3312

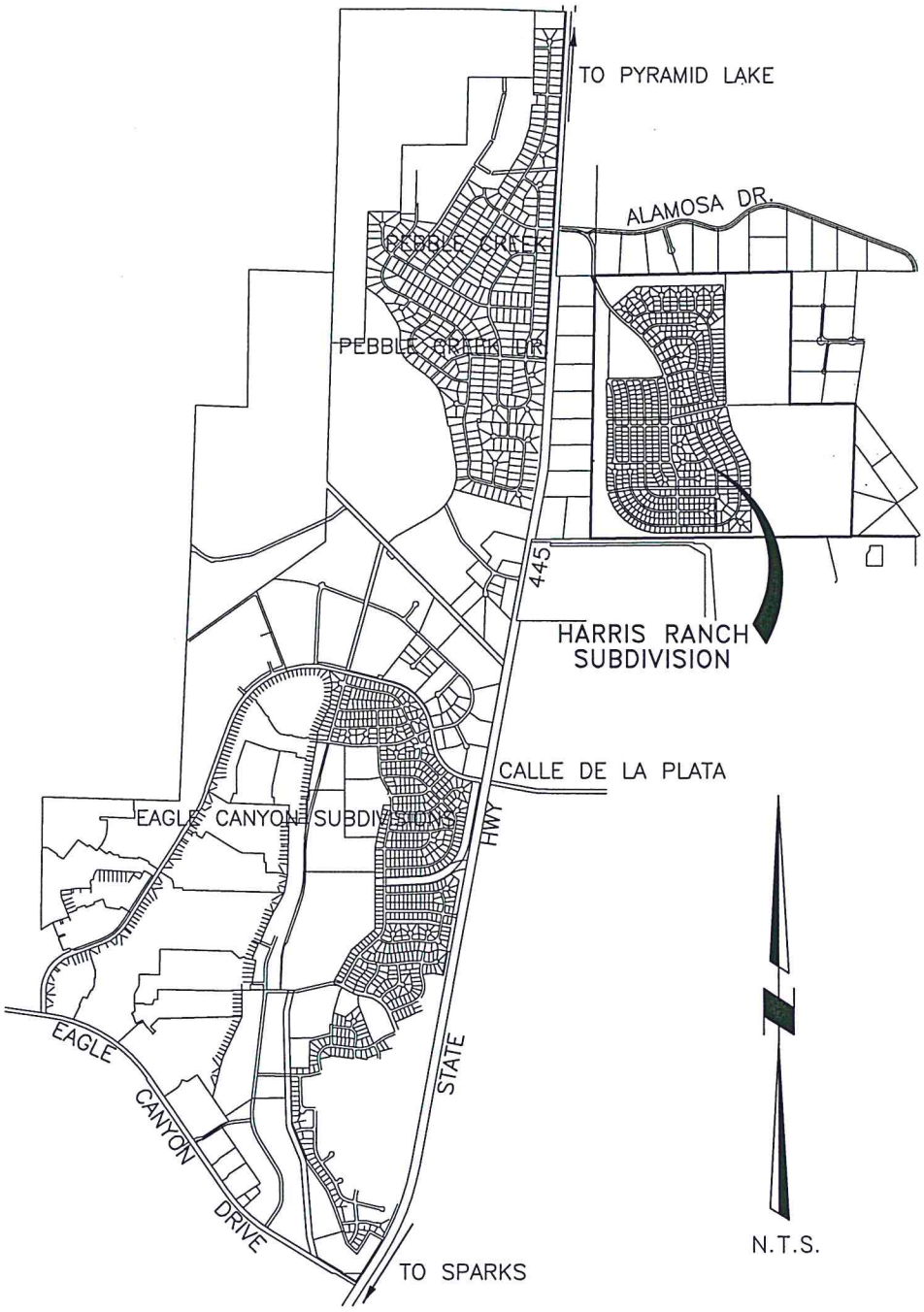


FIGURE 1

VICINITY MAP

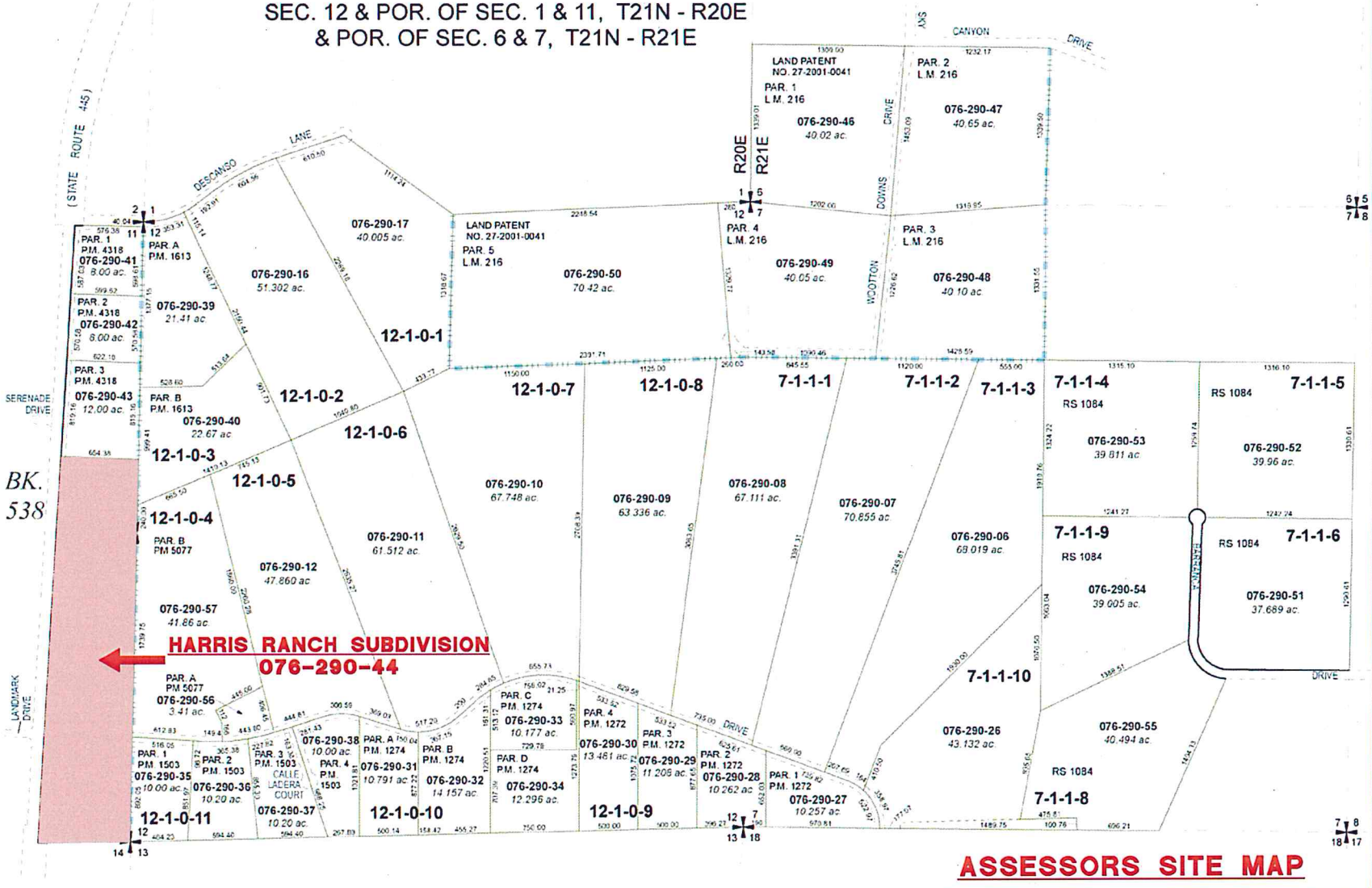
HARRIS RANCH SUBDIVISION

C & M ENGINEERING AND DESIGN, LTD
9498 DOUBLE R BLVD., SUITE B RENO, NV 89521
PHONE: (775) 856-3312 FAX: (775) 856-3318

File: P:\04-009.32 Harris Ranch\docs\hydro\ VicMap.dwg
<gfong> Tue, 12 Jul 2016 - 3:07pm

MAP OF DIVISION INTO LARGE PARCELS # 20
SPANISH SPRINGS VALLEY RANCHES - UNIT 1

SEC. 12 & POR. OF SEC. 1 & 11, T21N - R20E
& POR. OF SEC. 6 & 7, T21N - R21E



ASSESSORS SITE MAP

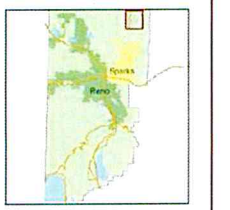
Assessor's Map Number
076-29

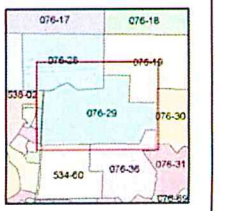
STATE OF NEVADA
WASHOE COUNTY
ASSESSOR'S OFFICE
Joshua G. Wilson, Assessor

1001 East Ninth Street
Building D
Reno, Nevada 89512
(775) 328-2231

Feet
0 200 400 600 800

1 inch = 800 feet





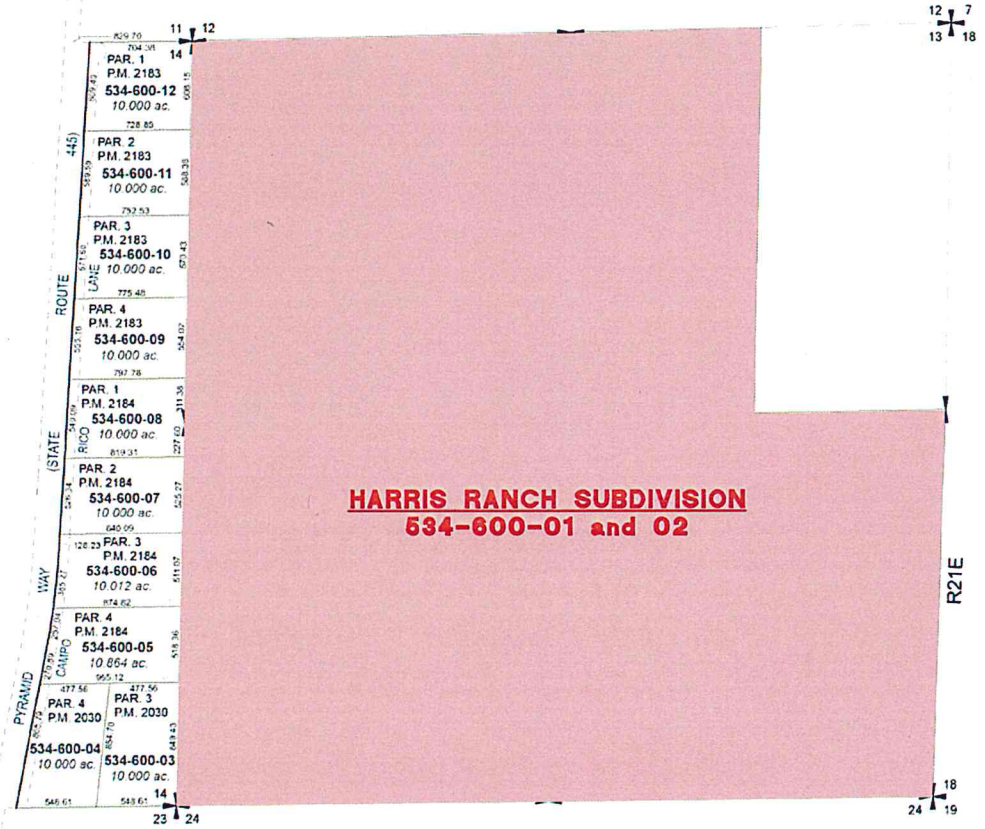
created by: TWT 6/10/2011
last updated: KSB 6/12/12 KSB 10/22/12

area previously shown on map(s)

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

MAP OF DIVISION INTO LARGE PARCELS # 20

SPANISH SPRINGS VALLEY RANCHES - UNIT 1



ASSESSORS SITE MAP

Assessor's Map Number

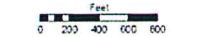
534-60

STATE OF NEVADA

WASHOE COUNTY
ASSESSOR'S OFFICE

Joshua G. Wilson, Assessor

1001 East Ninth Street
Building D
Reno, Nevada 89512
(775) 328-2231



1 inch = 800 feet

created by: TWT 9/14/2011

last updated:

area previously shown on map(s)

076-36

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

TENTATIVE MAP FOR
HARRIS RANCH SUBDIVISION

OWNER/DEVELOPER

SPANISH SPRINGS ASSOCIATES LIMITED PARTNERSHIP
550 W. PLUMB LANE, SUITE B, #505
RENO, NEVADA 89509

LEGEND

- NEW PAVEMENT
- NEW SLOPE(AS SHOWN)
- NEW RETAINING WALL
- NEW CURB & GUTTER
- EXISTING 5' CONTOUR
- DIRECTION OF FLOW
- NEW STORM DRAIN W/MANHOLE
- NEW SANITARY SEWER W/MANHOLE
- NEW CATCH BASIN/MANHOLE
- NEW WATER LINE
- EXISTING WATER LINE W/VALVE
- EXIST. SPOT ELEVATION
- ROCK RIPRAP
- LOT NUMBER
- LOT SQUARE FOOTAGE
- PAD ELEVATION(ADD 4600- EXCEPT FOR LOTS 371-600 THAT ARE LESS THAN 100 WHERE 4500 IS ADDED)

LEGEND FOR NON-ANNOTATED FEATURES:

- INDEX CONTOUR
- APPROXIMATE INDEX
- INDEX DEPRESSION
- INTERMEDIATE CONTOUR
- APPROXIMATE INTERMEDIATE
- INTERMEDIATE DEPRESSION
- EDGE OF PAVEMENT
- DIRT ROAD
- JEEP/FOOT TRAIL
- CURB LINE GUTTER/CONCRETE EDGE
- GUARD-RAIL
- MEDIAN WALL
- FENCE
- RETAINING WALL
- FENCE ON RW
- BLOCK WALL
- STONE WALL
- TRENCH/STOPE
- SHEET BOUNDARIES
- TAILINGS/TOE
- PIPELINE
- WATER EDGE
- INTERMITTENT DRAINAGE
- DITCH
- TREELINE
- BRUSHLINE

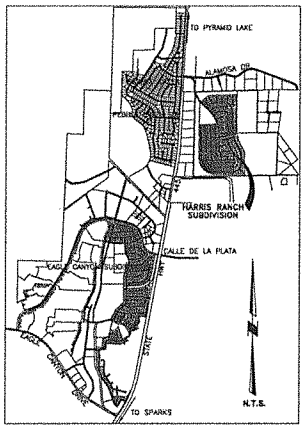
- BUILDING
- DECK
- COVERED AREA
- SHED
- BLDG. UNDER CONSTR.
- MISCELLANEOUS BOUNDARIES
- RAILROAD
- N,E,Z CONTROL POINT
- Z ONLY CONTROL POINT
- SURVEY MONUMENT
- POWER POLES
- POLE ANCHOR
- TRANSMISSION TOWER
- LIGHT POLE
- POST/POLE
- SIGN
- FIRE HYDRANT
- MANHOLE
- VALVE COVER
- TRAFFIC SIGNAL
- RR XING SIGNAL
- MAIL BOX
- MISC. OBJECT
- METER
- MARSH
- EXCAVATION
- SHAFT
- UTIL. VAULT/BOX
- METER BOX

BASIS OF BEARINGS

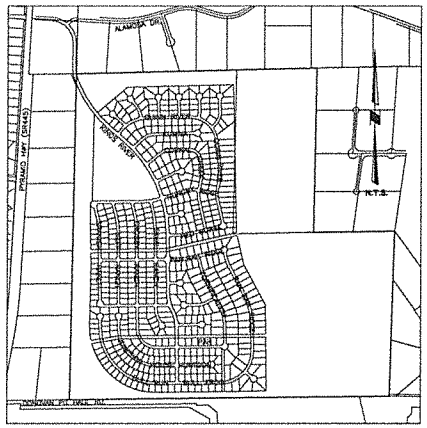
NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE
GRID, NAD83/94

BASIS OF ELEVATION

NEVADA DEPARTMENT OF TRANSPORTATION BENCHMARK
ALUMINUM CAP ON REBAR STAMPED "277066"
ELEVATION=4527.81 (NGVD 1929)

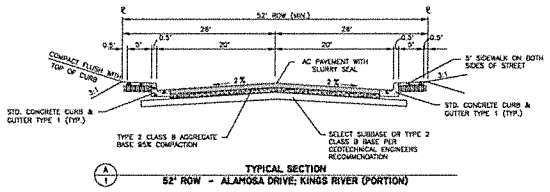


VICINITY MAP

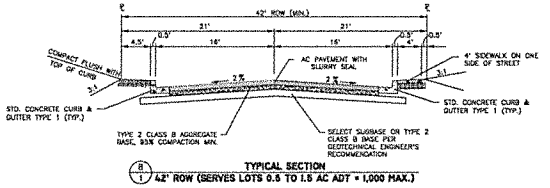


OVERALL LAYOUT

SHEET INDEX



A/1 TYPICAL SECTION
52' ROW - ALAMOSA DRIVE, KINGS RIVER (PORTION)



B/1 TYPICAL SECTION
42' ROW (SERVES LOTS 0.5 TO 1.5 AC ADT = 1,000 MAX.)

CIVIL ENGINEER

C & M ENGINEERING AND DESIGN, LTD.
5488 RENO CORPORATE DRIVE, SUITE 200B
RENO, NEVADA 89511

GENERAL NOTES:

1. BASED ON FLOOD INSURANCE RATE MAPS NOS. 32031C2855G (REV 10/14), 32031C2865G (REV 10/14), AND 32031C2860G (NOT PRINTED) PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), THE PROJECT SITE LIES IN FLOOD ZONE X (UNSHADED) INDICATING AREAS "OUTSIDE THE 500-YEAR FLOODPLAIN".
2. ALL STREETS TO BE PUBLIC UNLESS OTHERWISE NOTED.
3. ALL SLOPES ARE 3:1 MAX. UNLESS OTHERWISE NOTED.
4. MECHANICAL SLOPE STABILIZATION FOR SLOPES STEEPER THAN 3:1 - WHEN ROCK RIPRAP IS USED FOR SLOPE STABILIZATION, IT SHALL CONTAIN A MINIMUM OF FOUR FRACTURED FACES AND BE PLACED TO A MINIMUM DEPTH OF 12 INCHES. A MINIMUM OF 75% OF THE RIPRAP SHALL BE 8 INCH DIAMETER ROCK OR GREATER.
5. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:
   FERTILIZER - (16-20-0) 300#/acre
   GRASS, THE BROADCAST SEEDING RATE SHALL BE 12#/AC. OF SODAR WHEATGRASS AND 8#/AC. OF FAIRWAY CREATE WHEATGRASS. IF DRILLED, THE RATE SHOULD BE 6#/AC. OF SODAR WHEATGRASS AND 5#AC. OF FAIRWAY CREATED WHEATGRASS. STRAW MULCH 3000#/AC. ANCHORED BY A STRAW PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.

LAND USE DATA:

1. PRESENT LAND USE CLASSIFICATION: LDS
2. PROPOSED LAND USE CLASSIFICATION: LDS (COMMON OPEN SPACE DEVELOPMENT PER WCDC ARTICLE 408)
3. PROPOSED LAND APNS:
   534-600-01(480 AC), 534-600-02(76.36 AC), &
   076-290-44(53.96 AC) (FOR DENSITY-NO LOTS)
4. TOTAL LAND AREA: 610.34 AC.; LOT AREA: 208.18 AC
   STREETS: 43.92 AC; COMMON AREA: 358.24 AC
5. NUMBER OF UNITS: 610; DENSITY: 0.999 DU/AC
6. AVERAGE LOT SIZE:14,866 SF; MIN. LOT SIZE: 10,000 SF; MAX LOT SIZE SHOWN: 50,855 SF
7. MINIMUM LOT WIDTH: 80' FOR LOTS WITH PROPERTY LINES PARALLEL TO STREET
8. MINIMUM SETBACK:
   FRONT: 20'
   REAR: 20'
   SIDE: 8'

UTILITIES:

CABLE -	CHARTER COMMUNICATIONS
ELECTRICAL -	NEVADA ENERGY
SEWAGE DISPOSAL -	WASHOE COUNTY COMMUNITY SERVICES CITY OF SPARKS
SOLID WASTE -	WASTE MANAGEMENT
TELEPHONE -	AT&T
GAS -	NV ENERGY
WATER -	TMWA

THESE PLANS (SHEETS 1 THROUGH 11) HAVE BEEN PREPARED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE WASHOE COUNTY DEVELOPMENT CODE. THE WASHOE COUNTY DEVELOPMENT CODE SHALL PREVAIL.

File: P:\04-009.33 Harris Ranch\dwg\Tentative\Tentative Maps\04_TITLE.dwg
Plotted by: Tue, 12 Jul 2016 - 12:09pm

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR, SUITE 200B, RENO, NV 89511
PHONE: (775) 856-3312

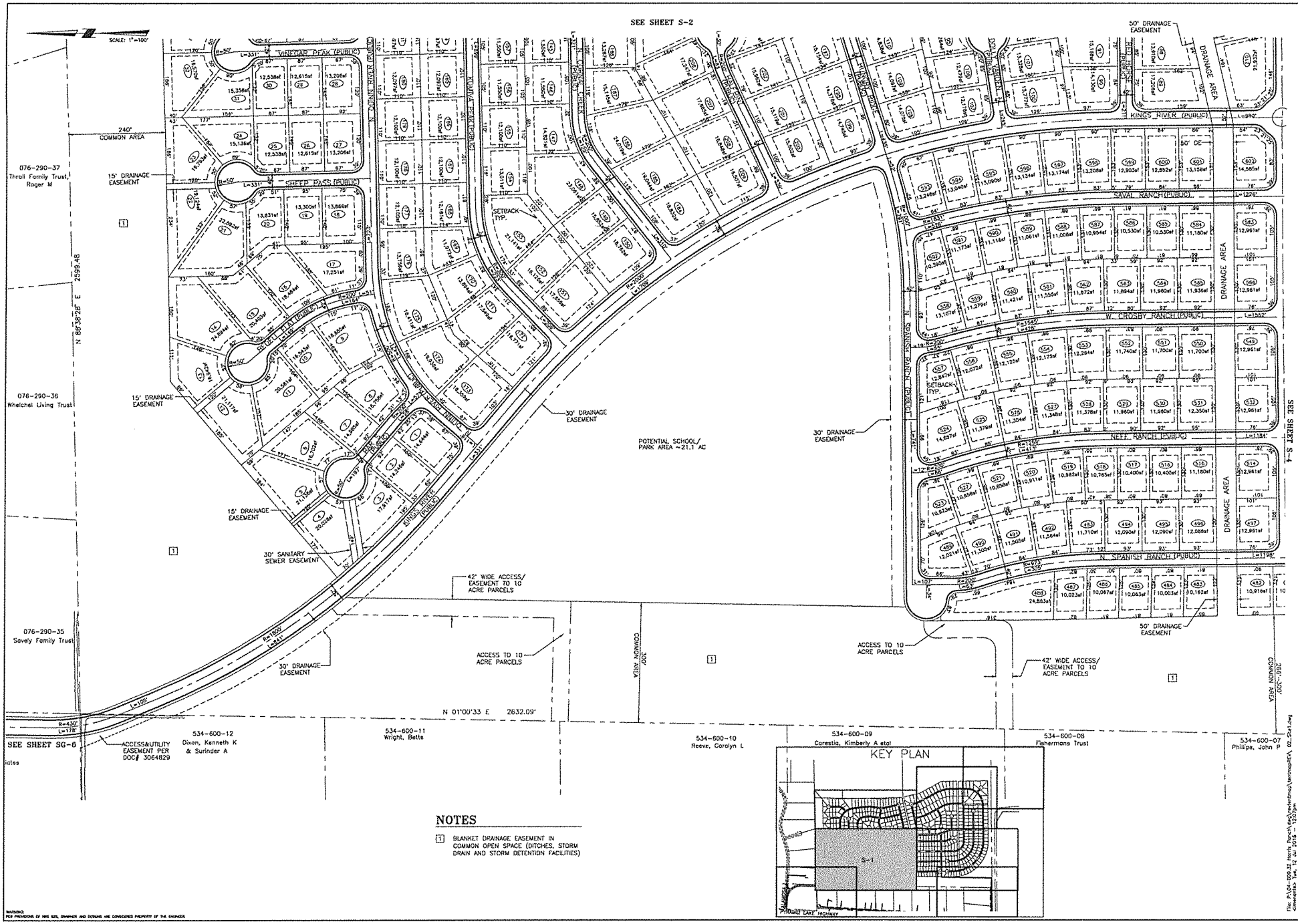
DESIGNED BY: SC, LCM
DRAWN BY: LCM,VI
PROJECT NUMBER: 04-009.33

SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGE UNTIL ALL CONDITIONS ADDRESS SIGN, STAMP, AND APPROVE

MARK	DATE	REVISION DESCRIPTION	BY

HARRIS RANCH SUBDIVISION
TITLE SHEET
WASHOE COUNTY NEVADA

SHEET 1 OF 11



NOTES

[1] BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR. STE. 200B RENO, NV 89511
PHONE: (775) 856-5312

DESIGNED BY: SC
DRAWN BY: LCM/VI
PROJECT NUMBER: 04-009.32

SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGE UNTIL ALL REVIEWING AGENCIES SIGN, STAMP, AND APPROVE

BY	MARK	DATE	REVISION DESCRIPTION

HARRIS RANCH SUBDIVISION
GEOMETRICS
WASHOE COUNTY NEVADA

SHEET S-1 OF

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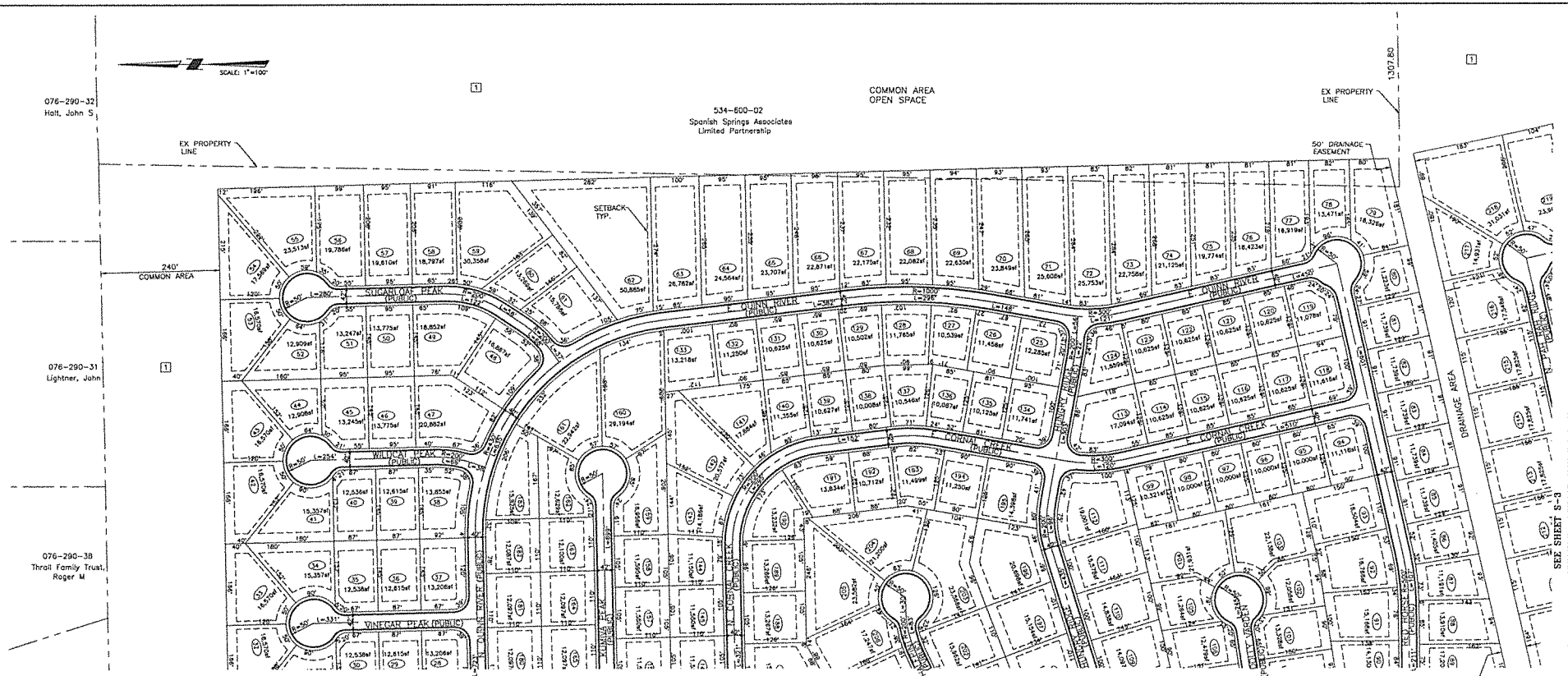
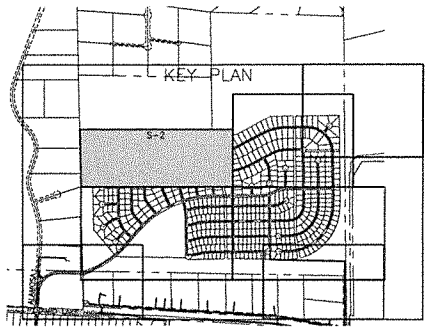


NOTES

1. BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)



C & M ENGINEERING AND DESIGN, LTD
5469 RENO CORPORATE DR., STE. 200B RENO, NV 8951
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM,VI
PROJECT NUMBER: 04-009.2
SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE STAMPED TO COMPLY WITH ALL GOVERNING AGENCIES SIGN, STAMP, AND APPROVAL

HARRIS RANCH SUBDIVISION
GEOMETRICS

SHEET S-2 OF

File: P:\04-009.32 Harris Ranch\dwg\workmap\Workmap(V1, 03_Sht2.dwg
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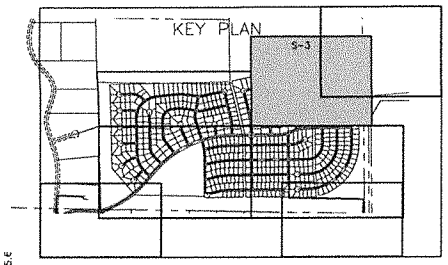
NOTES

1. BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)



SCALE: 1"=100'

SEE SHEET SG-6

534-521-01
Washoe County

COMMON AREA
OPEN SPACE

50' DRAINAGE EASEMENT

30' WATERLINE EASEMENT

EX PROPERTY LINE

EX PROPERTY LINE

50' DRAINAGE EASEMENT

DRAINAGE AREA

E. PAH RAH RIDGE (PUBLIC)

SETBACK TYP.

40' WATERLINE/ ACCESS EASEMENT

100' COMMON AREA

20' DRAINAGE EASEMENT

30' WATERLINE EASEMENT

E. FORTIFICATION (PUBLIC)

UTILITY COORIDOR/TRAIL ACCESS

PEDESTRIAN ACCESS FOR TRAIL CONNECTION TO REGIONAL TRAIL

20' DRAINAGE EASEMENT

DUNCAN RIDGE COURT (PUBLIC)

HUNTSON PLACE (PUBLIC)

SEE SHEET S-2

SEE SHEET S-4

WARNING:
PER PROVISIONS OF NRS 625, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR, STE 200B RENO, NV 89511
PHONE: (775) 856-3112

DESIGNED BY: SC
DRAWN BY: LCM, VI
PROJECT NUMBER: 04-009.3

SUBMITTAL STATUS

PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:

PLANS ARE SUBJECT TO CHANGE WITH ALL DIFFERENCES RESOLVED PRIOR TO SIGNATURE, AND APPROVAL

HARRIS RANCH SUBDIVISION

GEOMETRICS

SHEET S-3 OF

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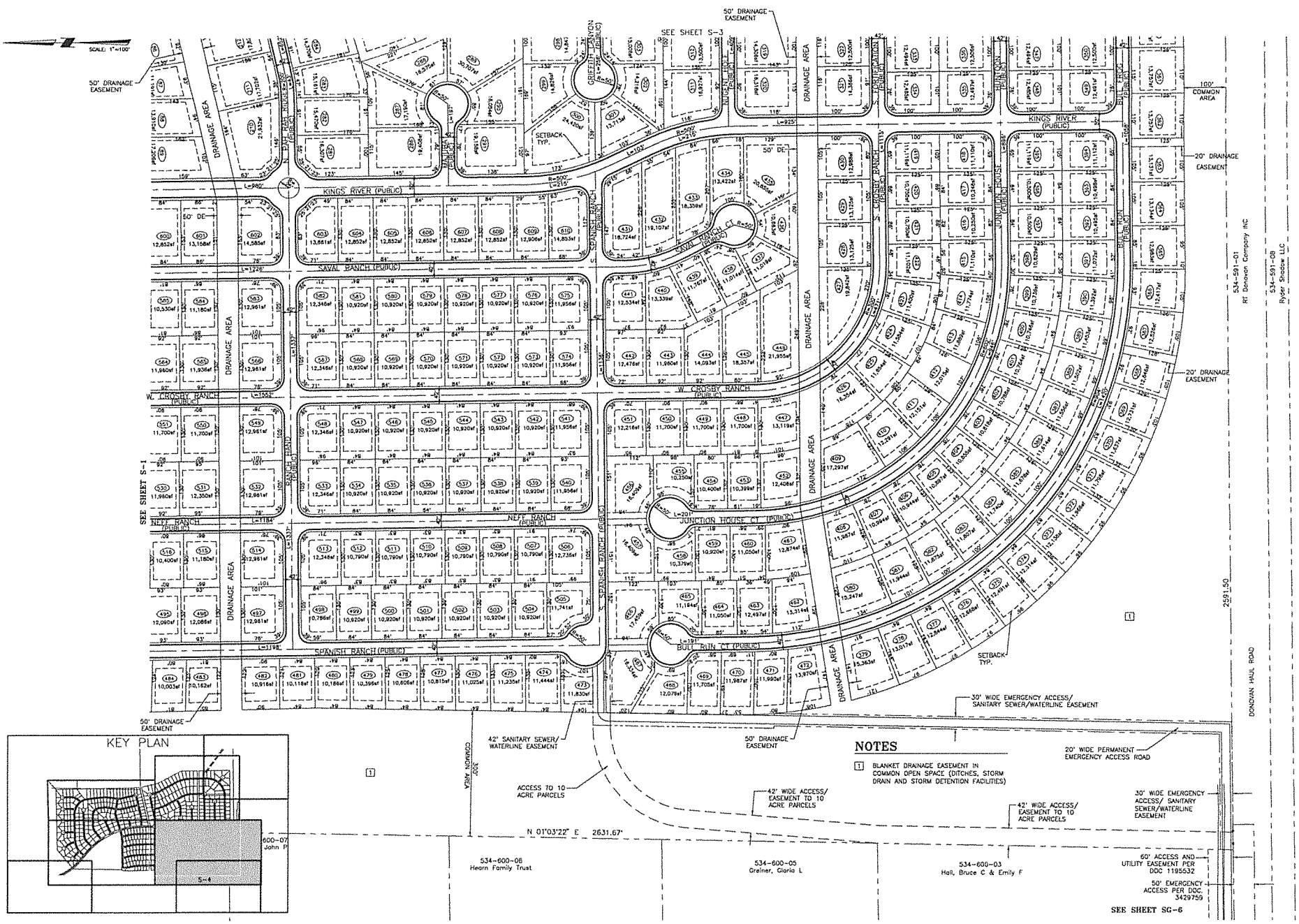


NOTES

1. BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)

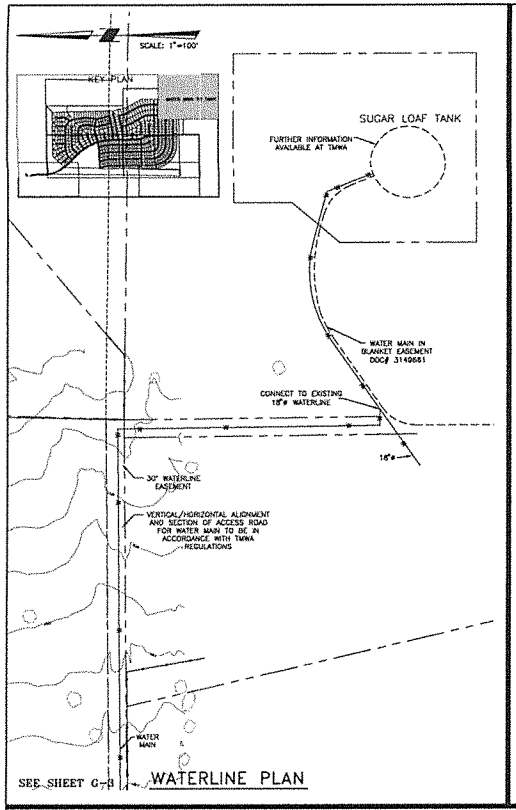
C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200B RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM, VI
PROJECT NUMBER: 04-009.3

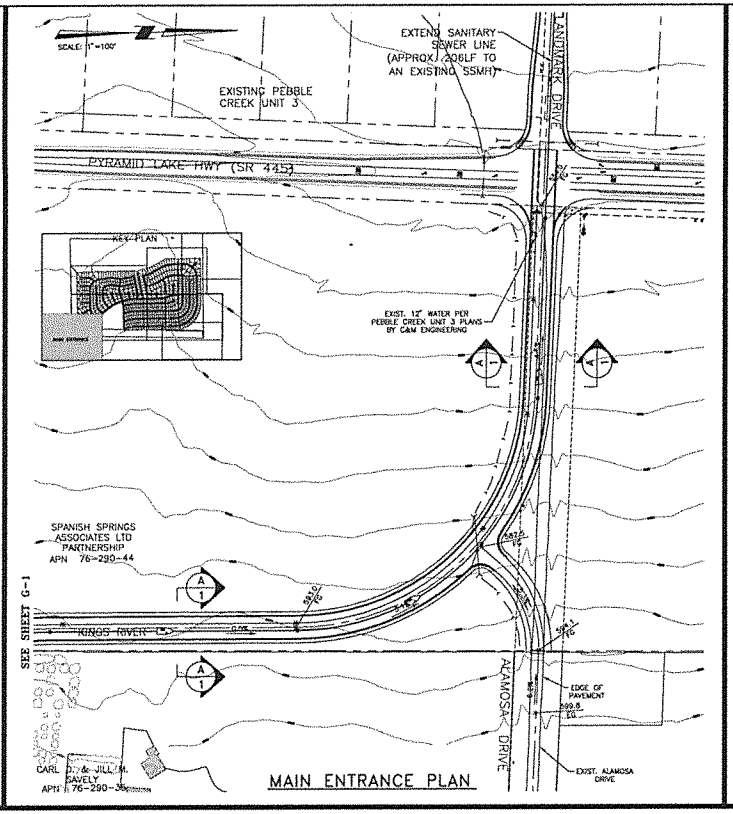
SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGES WITH ALL GOVERNING AGENCIES REVIEW, COMMENT, AND APPROVAL

HARRIS RANCH SUBDIVISION
GEOMETRICS

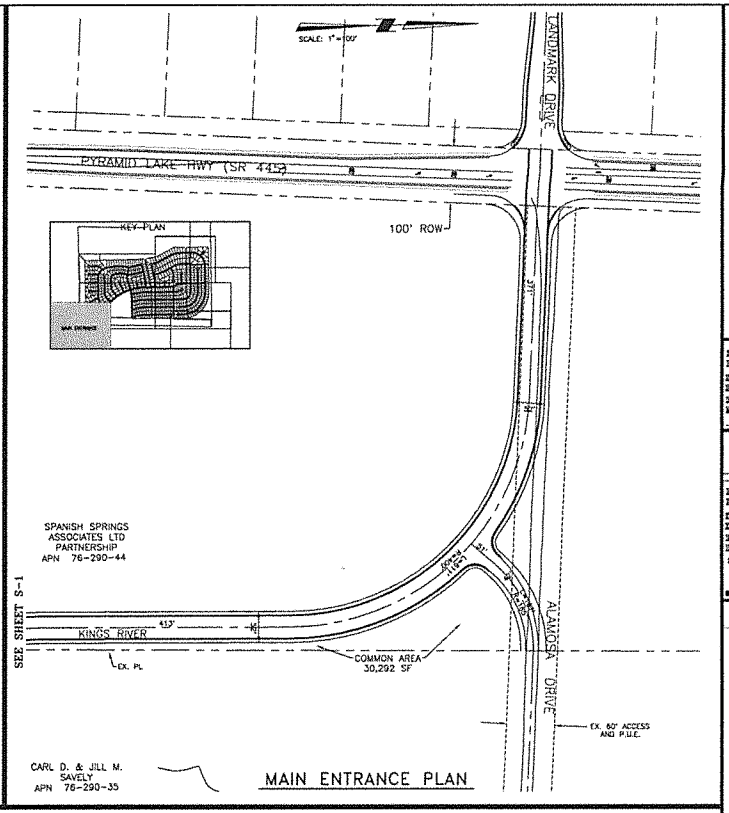
SHEET S-4 OF



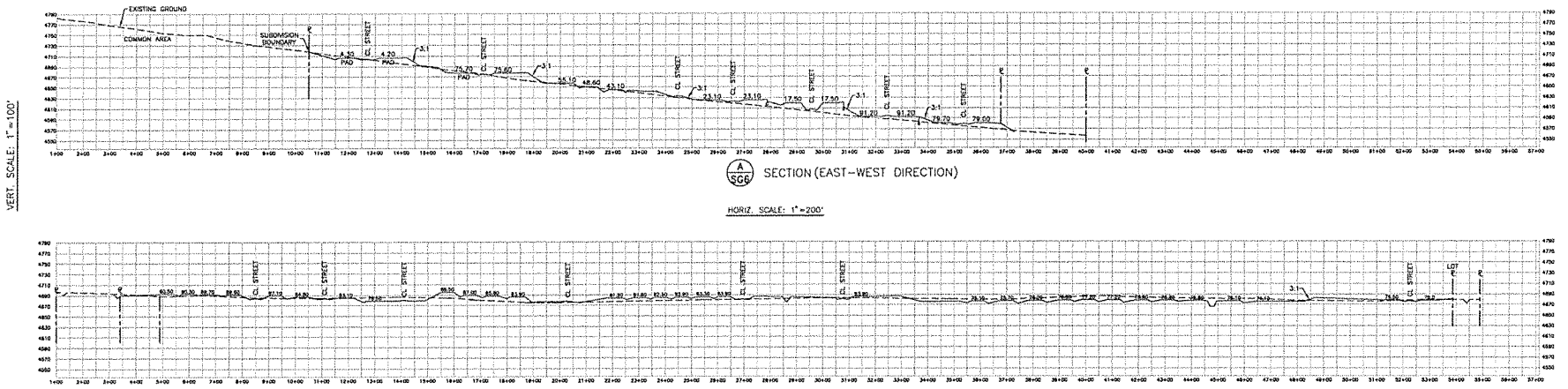
WATERLINE PLAN



MAIN ENTRANCE PLAN



MAIN ENTRANCE PLAN



(A/SG6) SECTION (EAST-WEST DIRECTION)

(B/SG6) SECTION (NORTH-SOUTH DIRECTION)

WARNING:
PER PROVISIONS OF NRS 625, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.

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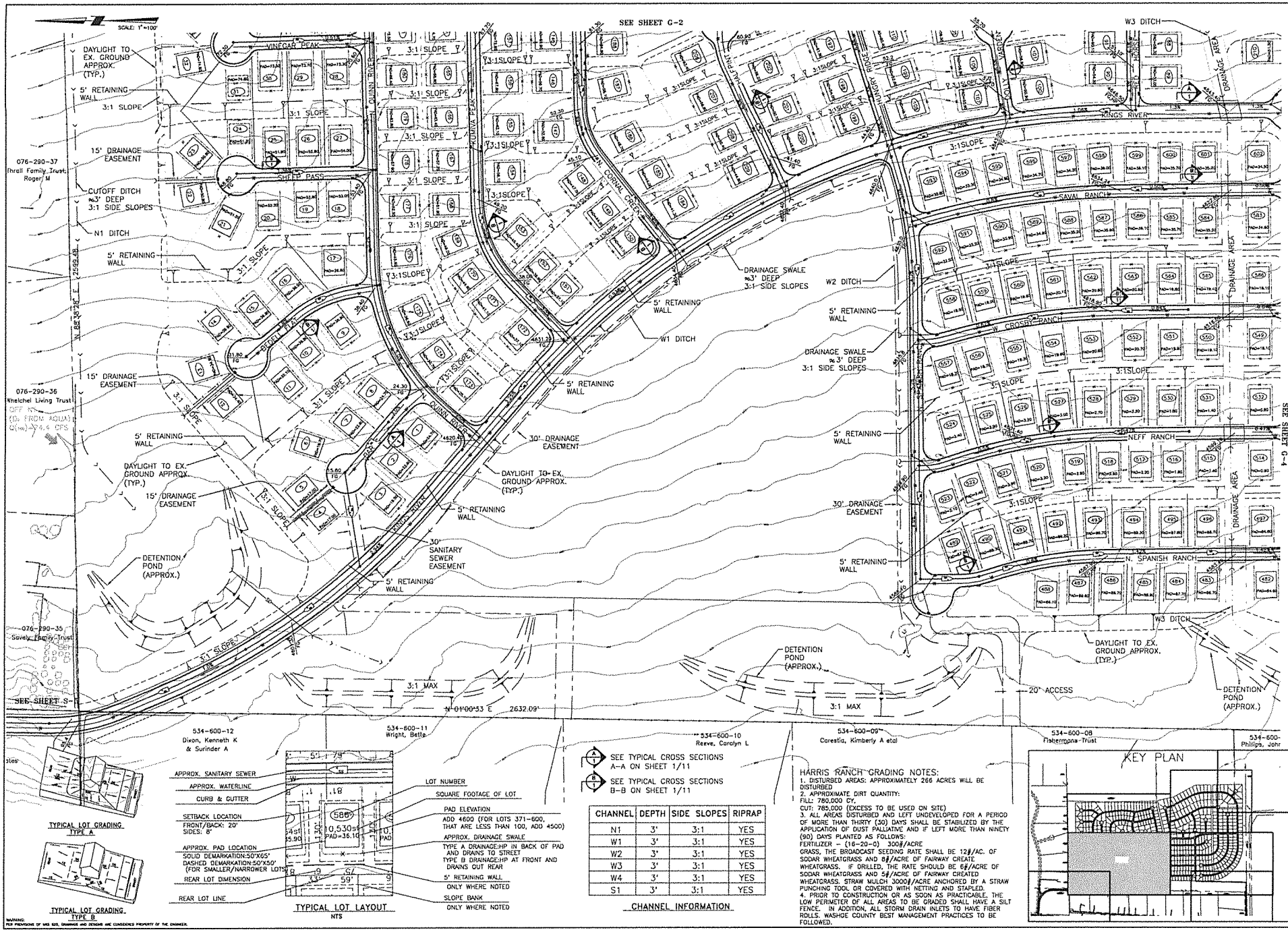
5488 RENO CORPORATE BLVD, STE. 200B, RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM, VI
PROJECT NUMBER: 04-009.3

SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGE UNTIL ALL GOVERNING AGENCIES SIGN, STAMP, AND APPROVE

HARRIS RANCH SUBDIVISION
GEOMETRICS/GRADING
WASHOE COUNTY

SHEET SG-6 OF



CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

CHANNEL INFORMATION

HARRIS RANCH GRADING NOTES:

1. DISTURBED AREAS: APPROXIMATELY 266 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
FILL: 780,000 CY.
CUT: 785,000 (EXCESS TO BE USED ON SITE)
3. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:
FERTILIZER - (16-20-0) 300#/ACRE
GRASS, THE BROADCAST SEEDING RATE SHALL BE 12#/AC. OF SODAR WHEATGRASS AND 8#/ACRE OF FAIRWAY CREATE WHEATGRASS. IF DRILLED, THE RATE SHOULD BE 6#/ACRE OF SODAR WHEATGRASS AND 5#/ACRE OF FAIRWAY CREATED WHEATGRASS. STRAW MULCH 3000#/ACRE ANCHORED BY A STRAW PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.
4. PRIOR TO CONSTRUCTION OR AS SOON AS PRACTICABLE, THE LOW PERIMETER OF ALL AREAS TO BE GRADED SHALL HAVE A SILT FENCE. IN ADDITION, ALL STORM DRAIN INLETS TO HAVE FIBER ROLLS. WASHOE COUNTY BEST MANAGEMENT PRACTICES TO BE FOLLOWED.

WARNING: PER PROVISIONS OF NRS 625, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.

C & M ENGINEERING AND DESIGN, LTD
5468 RENO CORPORATE DR., STE. 200B, RENO, NV 89511
PHONE (775) 856-5312

DESIGNED BY: SC
DRAWN BY: LCM/VI
PROJECT NUMBER: 04-009.3

SUBMITTAL STATUS

PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:

PLANS ARE SUBJECT TO CHANGES WITH ALL CONDITIONS AGENCIES REQUIREMENTS, AND APPROVALS

HARRIS RANCH SUBDIVISION

GRADING

SHEET G-1 OF

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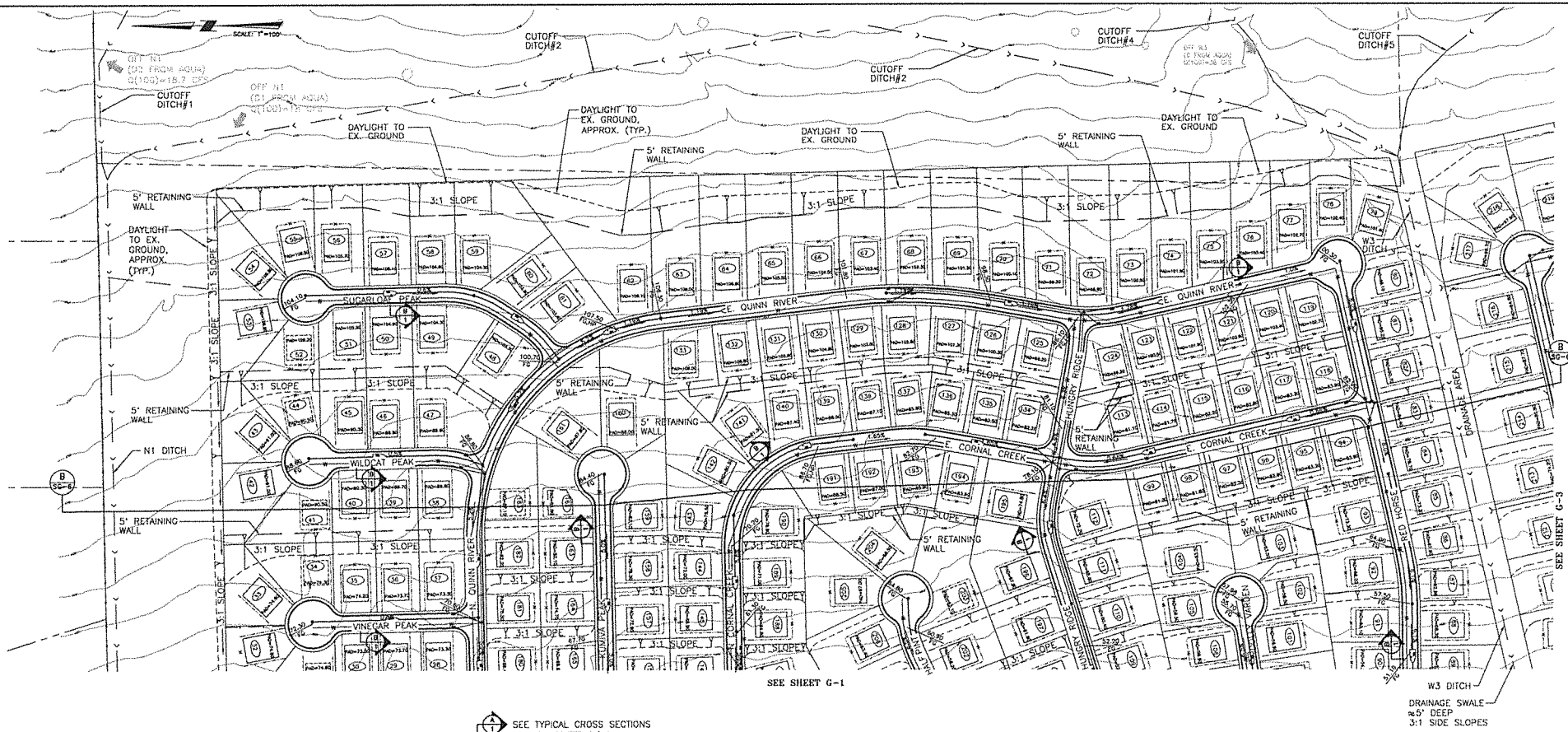
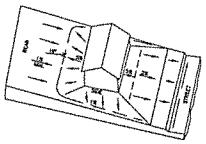


SEE TYPICAL CROSS SECTIONS A–A ON SHEET 1/11

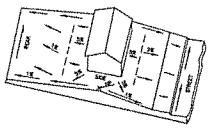
SEE TYPICAL CROSS SECTIONS B–B ON SHEET 1/11

CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

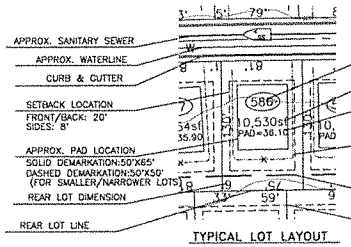
CHANNEL INFORMATION



TYPICAL LOT GRADING TYPE A



TYPICAL LOT GRADING TYPE B



TYPICAL LOT LAYOUT
NTS

HARRIS RANCH GRADING NOTES:
1. DISTURBED AREAS: APPROXIMATELY 266 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
FILL: 780,000 CY.
CUT: 785,000 (EXCESS TO BE USED ON SITE)
3. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:
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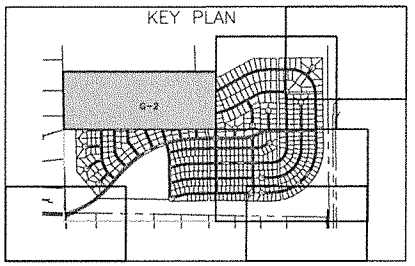
GRASS, THE BROADCAST SEEDING RATE SHALL BE 12#/AC. OF SODAR WHEATGRASS AND 8#/ACRE OF FAIRWAY CREATE WHEATGRASS. IF DRILLED, THE RATE SHOULD BE 6#/ACRE OF SODAR WHEATGRASS AND 5#/ACRE OF FAIRWAY CREATED WHEATGRASS. STRAW MULCH 3000#/ACRE ANCHORED BY A STRAW PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.
4. PRIOR TO CONSTRUCTION OR AS SOON AS PRACTICABLE, THE LOW PERIMETER OF ALL AREAS TO BE GRADED SHALL HAVE A SILT FENCE. IN ADDITION, ALL STORM DRAIN INLETS TO HAVE FIBER ROLLS. WASHOE COUNTY BEST MANAGEMENT PRACTICES TO BE FOLLOWED.



C & M ENGINEERING AND DESIGN, LTD
5468 RENO CORPORATE DR., STE. 200B, RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM/VI
PROJECT NUMBER: 04-009.3

SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGES WITH ALL GOVERNING AGENCIES REVIEW, STAMP, AND APPROVAL

HARRIS RANCH SUBDIVISION
GRADING

SHEET G-2 OF 8

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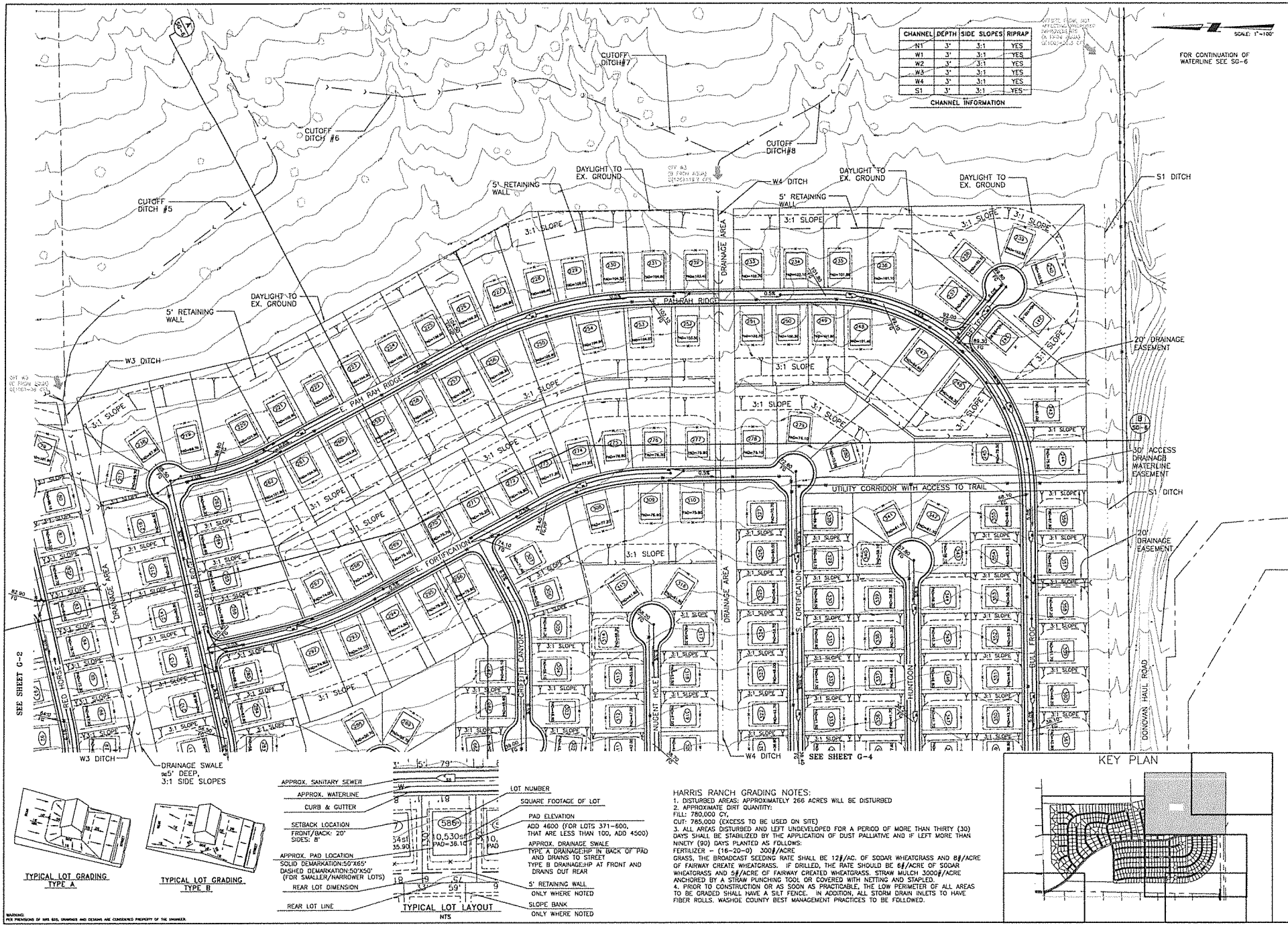

CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

CHANNEL INFORMATION

TYPICAL LOT GRADING TYPE A

TYPICAL LOT GRADING TYPE B

HARRIS RANCH GRADING NOTES:

1. DISTURBED AREAS: APPROXIMATELY 266 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
FILL: 780,000 CY.
CUT: 785,000 (EXCESS TO BE USED ON SITE)
3. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:
FERTILIZER - (16-20-0) 300#/ACRE
GRASS, THE BROADCAST SEEDING RATE SHALL BE 12#/AC. OF SODAR WHEATGRASS AND 8#/ACRE OF FAIRWAY CREATE WHEATGRASS. IF DRILLED, THE RATE SHOULD BE 6#/ACRE OF SODAR WHEATGRASS AND 5#/ACRE OF FAIRWAY CREATED WHEATGRASS. STRAW MULCH 3000#/ACRE ANCHORED BY A STRAW PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.
4. PRIOR TO CONSTRUCTION OR AS SOON AS PRACTICABLE, THE LOW PERIMETER OF ALL AREAS TO BE GRADED SHALL HAVE A SILT FENCE. IN ADDITION, ALL STORM DRAIN INLETS TO HAVE FIBER ROLLS. WASHOE COUNTY BEST MANAGEMENT PRACTICES TO BE FOLLOWED.

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200B, RENO, NV 89511
PHONE (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM/VI
PROJECT NUMBER: 04-009.3

SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGES WITH ALL CONDITIONS ADDITIONS WORK, STANDS, AND APPROV

HARRIS RANCH SUBDIVISION

GRADING

SHEET G-3 OF =

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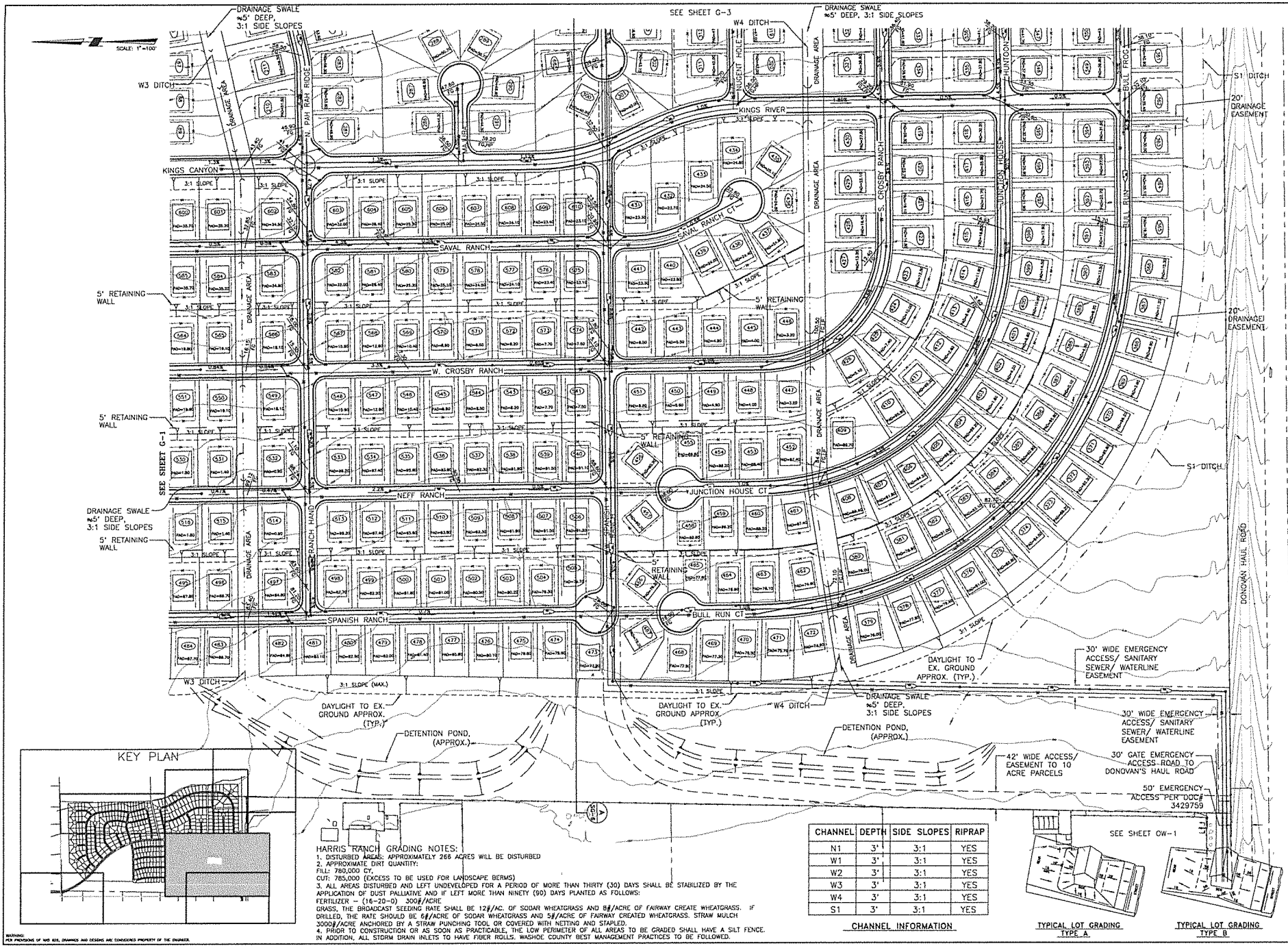
Last Saved By: LCM on: Jul 21, 2015 - 12:27pm



HARRIS RANCH GRADING NOTES:

1. DISTURBED AREAS: APPROXIMATELY 268 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
   FILL: 780,000 CY,
   CUT: 785,000 (EXCESS TO BE USED FOR LANDSCAPE BERMS)
3. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:
   FERTILIZER – (16-20-0) 300#/ACRE
   GRASS, THE BROADCAST SEEDING RATE SHALL BE 12#/AC. OF SODAR WHEATGRASS AND 8#/ACRE OF FAIRWAY CREATE WHEATGRASS. IF DRILLED, THE RATE SHOULD BE 6#/ACRE OF SODAR WHEATGRASS AND 5#/ACRE OF FAIRWAY CREATED WHEATGRASS. STRAW MULCH 3000#/ACRE ANCHORED BY A STRAW PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.
4. PRIOR TO CONSTRUCTION OR AS SOON AS PRACTICABLE, THE LOW PERIMETER OF ALL AREAS TO BE GRADED SHALL HAVE A SILT FENCE. IN ADDITION, ALL STORM DRAIN INLETS TO HAVE FIBER ROLLS. WASHOE COUNTY BEST MANAGEMENT PRACTICES TO BE FOLLOWED.

CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

CHANNEL INFORMATION

TYPICAL LOT GRADING TYPE A

TYPICAL LOT GRADING TYPE B

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200, RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM
PROJECT NUMBER: 04-009.3

SUBMITTAL STATUS
PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGE UNTIL ALL GOVERNING AGENCIES SIGN, STAMP, AND APPROVE

HARRIS RANCH SUBDIVISION
GRADING

SHEET G-4 OF

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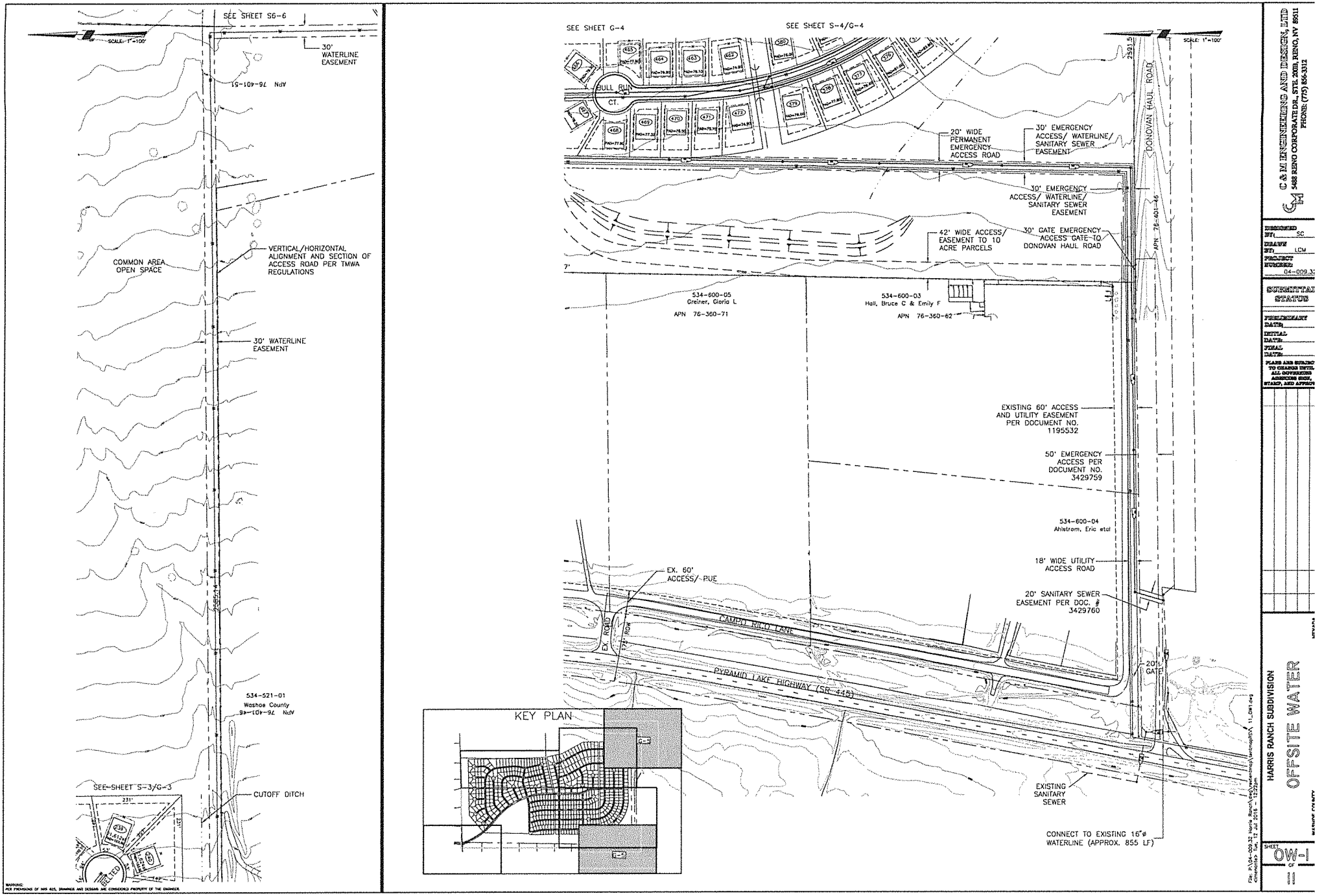

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200, RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM
PROJECT NUMBER: 04-009.3

SUBMITTAL STATUS

PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:

PLANS ARE SUBJECT TO CHANGE UNTIL ALL SIGNATURES ADDRESS BOOK, STAMP, AND APPROV

HARRIS RANCH SUBDIVISION

OFFSITE WATER

SHEET OW-1 OF

WASHOE COUNTY NEVADA

Washoe County Treasurer
P.O. Box 30039, Reno, NV 89520-3039
ph: (775) 328-2510 fax: (775) 328-2500
Email: tax@washoecounty.us

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Search Results | Change of Address | Print this Page

Washoe County Parcel Information

Parcel ID	Status	Last Update
53460001	Active	7/12/2016 2:10:54 AM

Current Owner:
SPANISH SPRINGS ASSOC LTD PTSP

550 W PLUMB LN STE B
RENO, NV 89509-3686

SITUS:
0 PYRAMID WAY
WCTY NV

Taxing District
4000

Geo CD:

Legal Description

Section 13 Township 21 SubdivisionName _UNSPECIFIED Range 20

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2015	$6,532.26	$6,532.26	$0.00	$0.00	$0.00
2014	$6,532.26	$6,532.26	$0.00	$0.00	$0.00
2013	$6,532.26	$6,532.26	$0.00	$0.00	$0.00
2012	$6,532.26	$6,532.26	$0.00	$0.00	$0.00
				Total	$0.00

Important Payment Information

- ALERTS: If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.
- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay Online

No payment due for this account.

$0.00

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

Payment Information

Special Assessment District

Installment Date Information

Assessment Information

Washoe County Treasurer
P.O. Box 30039, Reno, NV 89520-3039
ph: (775) 328-2510 fax: (775) 328-2500
Email: tax@washoecounty.us

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Search Results | Change of Address | Print this Page

Washoe County Parcel Information

Parcel ID	Status	Last Update
53460002	Active	7/12/2016 2:10:54 AM

Current Owner:
SPANISH SPRINGS ASSOC LTD PTSP

550 W PLUMB LN STE B
RENO, NV 89509-3686

SITUS:
0 PYRAMID WAY
WCTY NV

Taxing District
4000

Geo CD:

Legal Description

Lot 2 3 Section 13 Township 21 Range 20 SubdivisionName _UNSPECIFIED

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2015	$2,164.93	$2,164.93	$0.00	$0.00	$0.00
2014	$2,164.94	$2,164.94	$0.00	$0.00	$0.00
2013	$2,164.94	$2,164.94	$0.00	$0.00	$0.00
2012	$2,164.94	$2,164.94	$0.00	$0.00	$0.00
				Total	$0.00

Important Payment Information

- ALERTS: If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.
- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay Online

No payment due for this account.

$0.00

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

Payment Information

Special Assessment District

Installment Date Information

Assessment Information

Washoe County Treasurer
P.O. Box 30039, Reno, NV 89520-3039
ph: (775) 328-2510 fax: (775) 328-2500
Email: tax@washoecounty.us

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Search Results | Change of Address | Print this Page

Washoe County Parcel Information

Parcel ID	Status	Last Update
07629044	Active	7/12/2016 2:10:54 AM

Current Owner:
SPANISH SPRINGS ASSOCIATES LP

550 W PLUMB LN STE B
RENO, NV 89509-3686

SITUS:
0 ALAMOSA DR
WCTY NV

Taxing District
4000

Geo CD:

Legal Description
Lot 4 Township 21 Range 20 SubdivisionName _UNSPECIFIED

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2015	$680.44	$680.44	$0.00	$0.00	$0.00
2014	$680.46	$680.46	$0.00	$0.00	$0.00
2013	$680.44	$680.44	$0.00	$0.00	$0.00
2012	$850.58	$850.58	$0.00	$0.00	$0.00
2011	$899.14	$899.14	$0.00	$0.00	$0.00
				Total	$0.00

Important Payment Information

- ALERTS: If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.
- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay Online

No payment due for this account.

$0.00

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

Payment Information

Special Assessment District

Installment Date Information

Assessment Information

DESCRIPTION

All that real property situated in the County of Washoe, State of Nevada, described as follows:

PARCEL 1:

All of the Southwest 1/4 and the South 1/2 of the Southeast 1/4 of Section 13, Township 21 North, Range 20 East, M.D.B&M.

PARCEL 2:

All of the Northwest 1/4 and the North 1/2 of the Southeast 1/4 of Section 13, Township 21 North, Range 20 East, M.D.B&M.

PARCEL 3:

Lots 2 and 3 in Section 13, Township 21 North, Range 20 East, M.D.B&M.

APN 534-600-01 and 534-600-02

PARCEL 4:

Parcel 4 of the 1st PARCEL MAP FOR SPANISH SPRINGS ASSOCIATES LIMITED PARTNERSHIP, as shown on the plat thereof, recorded on January 14, 2005 as Parcel Map 4318, File No. 3156787; Official Records of Washoe County Nevada.

APN 076-290-44

SOLAEGUI
ENGINEERS, LTD

HARRIS RANCH SUBDIVISION

TRAFFIC STUDY

JULY, 2016

7-11-16
EXP 6-30-18

Prepared by:
Solaegui Engineers, Ltd.
715 H Street
Sparks, Nevada 89431
(775) 358-1004

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LIST OF FIGURES

HARRIS RANCH SUBDIVISION

TRAFFIC STUDY

EXECUTIVE SUMMARY

The proposed Harris Ranch Subdivision is located in Washoe County, Nevada. The project site is located east of Pyramid Highway and south of Alamosa Drive. The project site is currently undeveloped land. The purpose of this study is to address the project's impact upon the adjacent street network. The Pyramid Highway/Calle De La Plata intersection and the Pyramid Highway/ Landmark Drive-Alamosa Drive intersection have been identified for AM and PM peak hour intersection capacity analysis for the existing, existing plus project, 2025 base, and 2025 base plus project scenarios. The Pyramid Highway/Landmark Drive-Alamosa Drive intersection will be analyzed as a typical unsignalized intersection, unsignalized High-T intersection, and signalized intersection per Washoe County and Nevada Department of Transportation requirements.

The proposed Harris Ranch Subdivision will include the construction of 610 single family dwelling units. The project is anticipated to generate 5,544 average daily trips with 437 trips occurring during the AM peak hour and 535 trips occurring during the PM peak hour.

Traffic generated by the Harris Ranch Subdivision will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping or traffic control improvements comply with Nevada Department of Transportation and Washoe County requirements.

It is recommended that the Pyramid Highway/Landmark Drive-Alamosa Drive intersection continue to operate as a full movement intersection with stop sign control at the east and west approaches. It is recommended that the east approach include one left turn lane with 275 feet of storage length and one shared through-right turn lane. The south approach shall be improved to include an exclusive right turn lane with 545 feet of deceleration length. The northeast corner shall be improved to include a 150 foot taper to accommodate the westbound to northbound right turn traffic.

It is recommended that the entire segment of Alamosa Drive from Pyramid Highway to its terminus within the project site and the entire segment of the street located just south of the school site each be constructed per Washoe County collector street standards. The remaining on-site streets shall be constructed per Washoe County local street standards.

INTRODUCTION

STUDY AREA

The proposed Harris Ranch Subdivision is located in Washoe County, Nevada. The project site is located east of Pyramid Highway and south of Alamosa Drive. Figure 1 shows the location of the site. The purpose of this study is to address the project's impact upon the adjacent street network. The Pyramid Highway/Calle De La Plata intersection and the Pyramid Highway/Landmark Drive-Alamosa Drive intersection have been identified for AM and PM peak hour intersection capacity analysis for the existing, existing plus project, 2025 base, and 2025 base plus project scenarios. The Pyramid Highway/Landmark Drive-Alamosa Drive intersection will be analyzed as a typical unsignalized intersection, an unsignalized High-T intersection, and a signalized intersection per Washoe County and Nevada Department of Transportation requirements.

EXISTING AND PROPOSED LAND USES

The project site is currently undeveloped land. Adjacent land generally includes residential development to the north, south and west and undeveloped land to the east. The proposed Harris Ranch Subdivision will include the construction of 610 single family dwelling units.

EXISTING AND PROPOSED ROADWAYS AND INTERSECTIONS

Pyramid Highway is a two-lane roadway with one through lane in each direction in the vicinity of the site. The speed limit is posted for 55 miles per hour south of Calle De La Plata and 65 miles per hour north of Calle De La Plata. Roadway improvements generally include striped white edgelines and graded shoulders on both sides of the roadway and a striped yellow centerline with striped left turn pockets at intersections.

Calle De La Plata is a four-lane roadway with two through lanes in each direction west of Pyramid Highway and a two-lane roadway with one through lane in each direction east of Pyramid Highway. The speed limit is posted for 40 miles per hour west of Pyramid Highway and 50 miles per hour east of Pyramid Highway. Roadway improvements on the four-lane section include curb, gutter, sidewalk and bike lanes on both sides of the street with a raised, landscaped center median. Roadway improvements on the two-lane section include striped white edgelines and graded shoulders on both sides of the roadway and a striped yellow centerline.

Landmark Drive is a two-lane roadway with one through lane in each direction west of Pyramid Highway. The speed limit is posted for 25 miles per hour. Roadway improvements include curb, gutter and sidewalk on both sides of the street with a short section of raised median island near Pyramid Highway. Landmark Drive aligns with Alamosa Drive.

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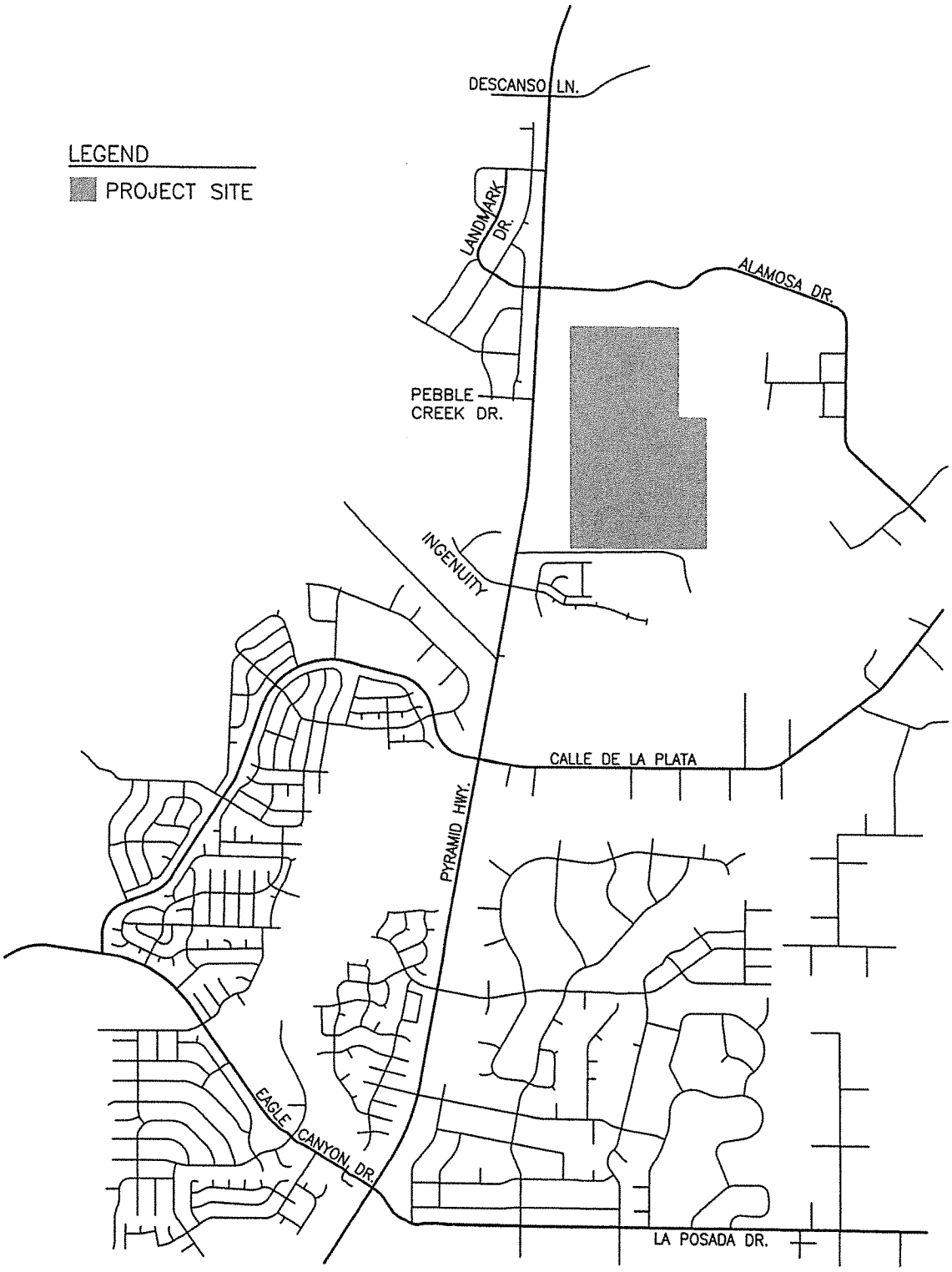

HARRIS RANCH SUBDIVISION

VICINITY MAP

FIGURE 1

Alamosa Drive is currently an unimproved dirt road east of Pyramid Highway. With development of the project Alamosa Drive will be constructed from Pyramid Highway eastward along its current alignment and then southward to the project site.

The Pyramid Highway/Calle De La Plata intersection is an unsignalized four-leg intersection with stop sign control at the east and west approaches. The north and south approaches each contain one exclusive left turn lane and one shared through-right turn lane. The west approach contains one shared left turn-through lane and one exclusive right turn lane. The west approach contains width for a future through lane. The east approach contains one shared left turn-through-right turn lane.

The Pyramid Highway/Landmark Drive-Alamosa Drive intersection is currently an unsignalized four-leg intersection with stop sign control at the east and west approaches. The north approach contains one left turn lane, one through lane, and one right turn lane. The south approach contains one left turn lane and one shared through-right turn lane. The west approach contains one shared left turn-through-right turn lane. The east approach is a dirt road with no lane designations but will be fully constructed with development of the project. The intersection will be analyzed as a typical unsignalized intersection, an unsignalized High-T intersection, and a signalized intersection per Washoe County and Nevada Department of Transportation requirements.

TRIP GENERATION

In order to assess the magnitude of traffic impacts of the proposed project on the key intersections and roadways, trip generation rates and peak hours had to be determined. Trip generation was calculated based on information obtained from the Ninth Edition of *ITE Trip Generation* (2012) for Land Use 210: Single Family Detached Housing. The proposed project will include 610 single family dwelling units. Trips generated by the project were calculated for the peak hours occurring between 7:00 and 9:00 AM and 4:00 and 6:00 PM, which correspond to the peak hours of adjacent street traffic. Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour volumes generated by the project.

TABLE 1
TRIP GENERATION

LAND USE	ADT	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Housing (610 D.U.)	5,544	109	328	437	337	198	535

As shown in Table 1 the proposed Harris Ranch Subdivision is anticipated to generate 5,544 average daily trips with a total of 437 trips occurring during the AM peak hour and a total of 535 trips occurring during the PM peak hour.

TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of the project trips to the Pyramid Highway/Calle De La Plata and Pyramid Highway/Landmark Drive-Alamosa Drive intersections was based on existing peak hour traffic patterns and the locations of attractions and productions in the area. The anticipated trip distribution is shown on Figure 2. The peak hour project trips shown in Table 1 were subsequently assigned to the key intersections based on the trip distribution. Figure 3 shows the project trip assignment at the Pyramid Highway/Calle De La Plata and Pyramid Highway/Landmark Drive-Alamosa Drive intersections during the AM and PM peak hours.

EXISTING AND PROJECTED TRAFFIC VOLUMES

Figure 4 shows the existing traffic volumes at the key intersections for the AM and PM peak hours. The existing traffic volumes at the Pyramid Highway/Calle De La Plata intersection were obtained from traffic counts taken in July and August of 2015. The existing traffic volumes at the Pyramid Highway/Landmark Drive-Alamosa Drive intersection were obtained from traffic counts taken in June of 2016.

Figure 5 shows the existing plus project traffic volumes at the key intersections for the AM and PM peak hours. The existing plus project traffic volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the existing traffic volumes shown on Figure 4.

Figure 6 shows the 2025 base traffic volumes at the key intersections during the AM and PM peak hours. The 2025 base turning movements were estimated based on directional roadway link volumes obtained directly from the Regional Transportation Commission's traffic forecasting model. The traffic analysis zone (TAZ) in which the project is located shows no household or population growth from the 2015 and 2025 scenarios and therefore the 2025 base volumes do not include traffic generated by the project.

Figure 7 shows the 2025 base plus project traffic volumes at the Pyramid Highway/Calle De La Plata and Pyramid Highway/Landmark Drive-Alamosa Drive intersections during the AM and PM peak hours. The 2025 base plus project traffic volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the 2025 base traffic volumes shown on Figure 6.

Figure 5 and 7 also show adjusted traffic volumes for the unsignalized High-T intersection configuration at the Pyramid Highway/Landmark Drive-Alamosa Drive intersection. A High-T intersection will result in the elimination of the northbound left turn movement and the eastbound left turn and through movements. The volume for these eliminated movements was rerouted to Pebble Creek Drive and Serenade Drive.

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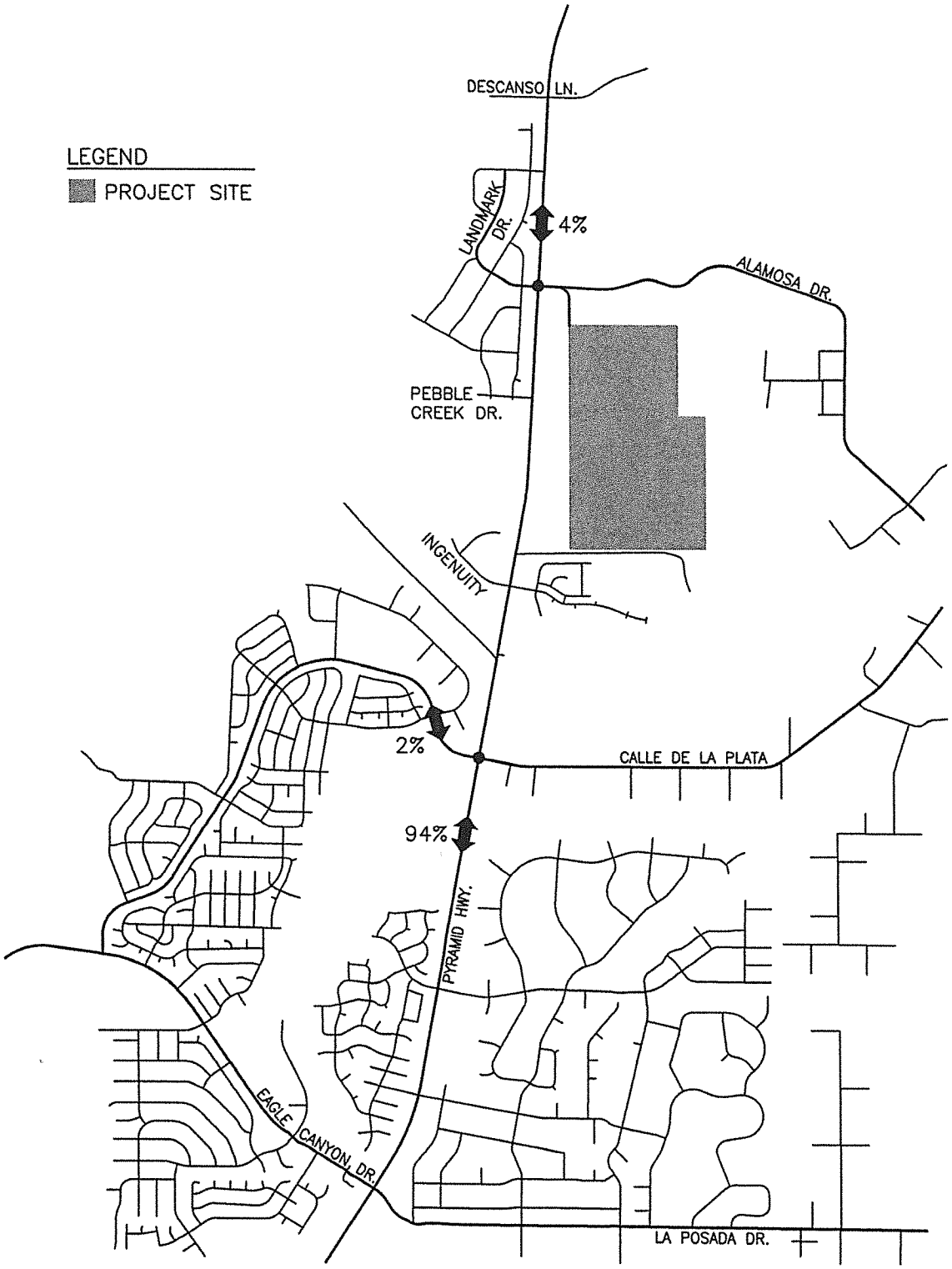

HARRIS RANCH SUBDIVISION

TRIP DISTRIBUTION

FIGURE 2

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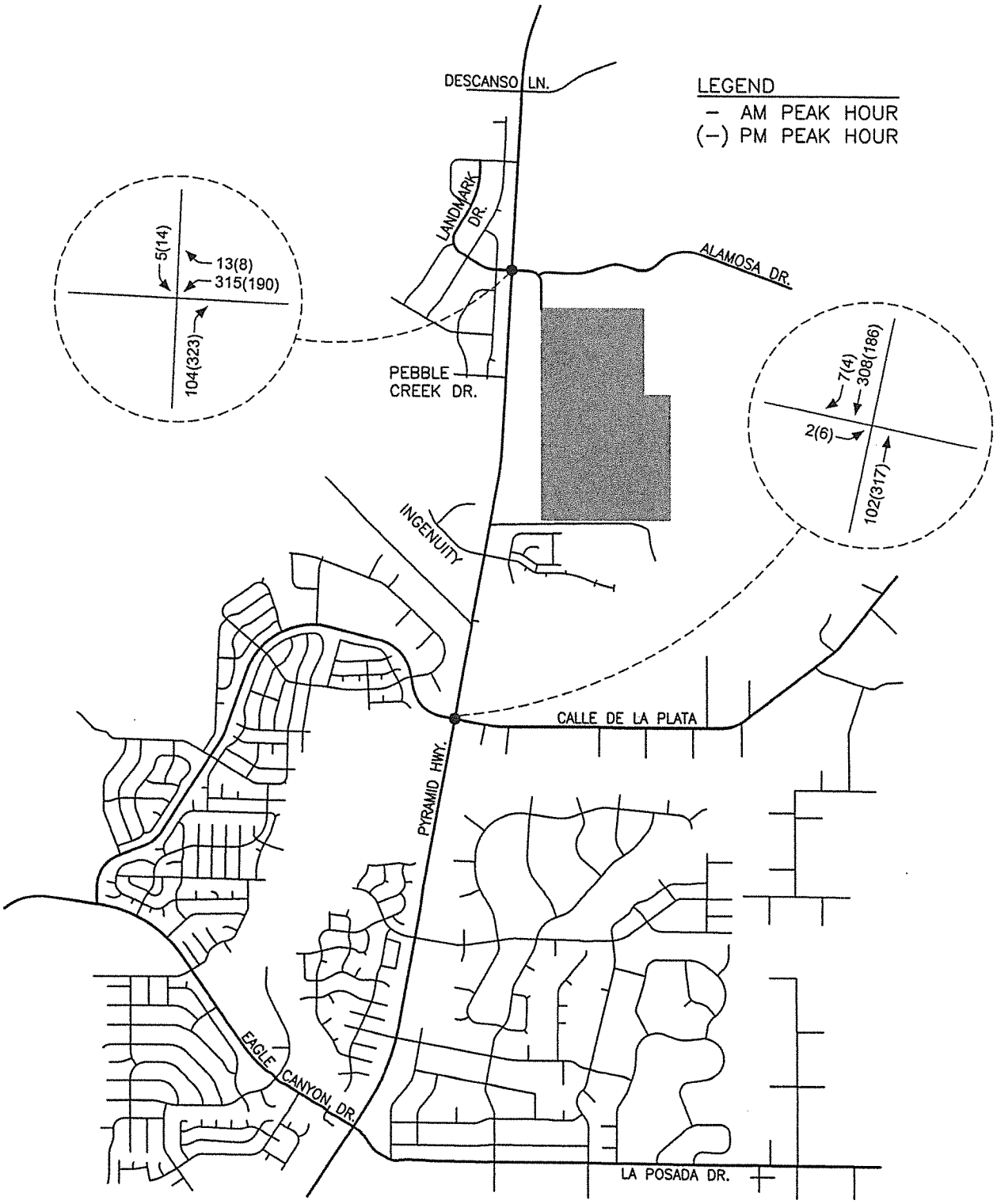

HARRIS RANCH SUBDIVISION

TRIP ASSIGNMENT

FIGURE 3

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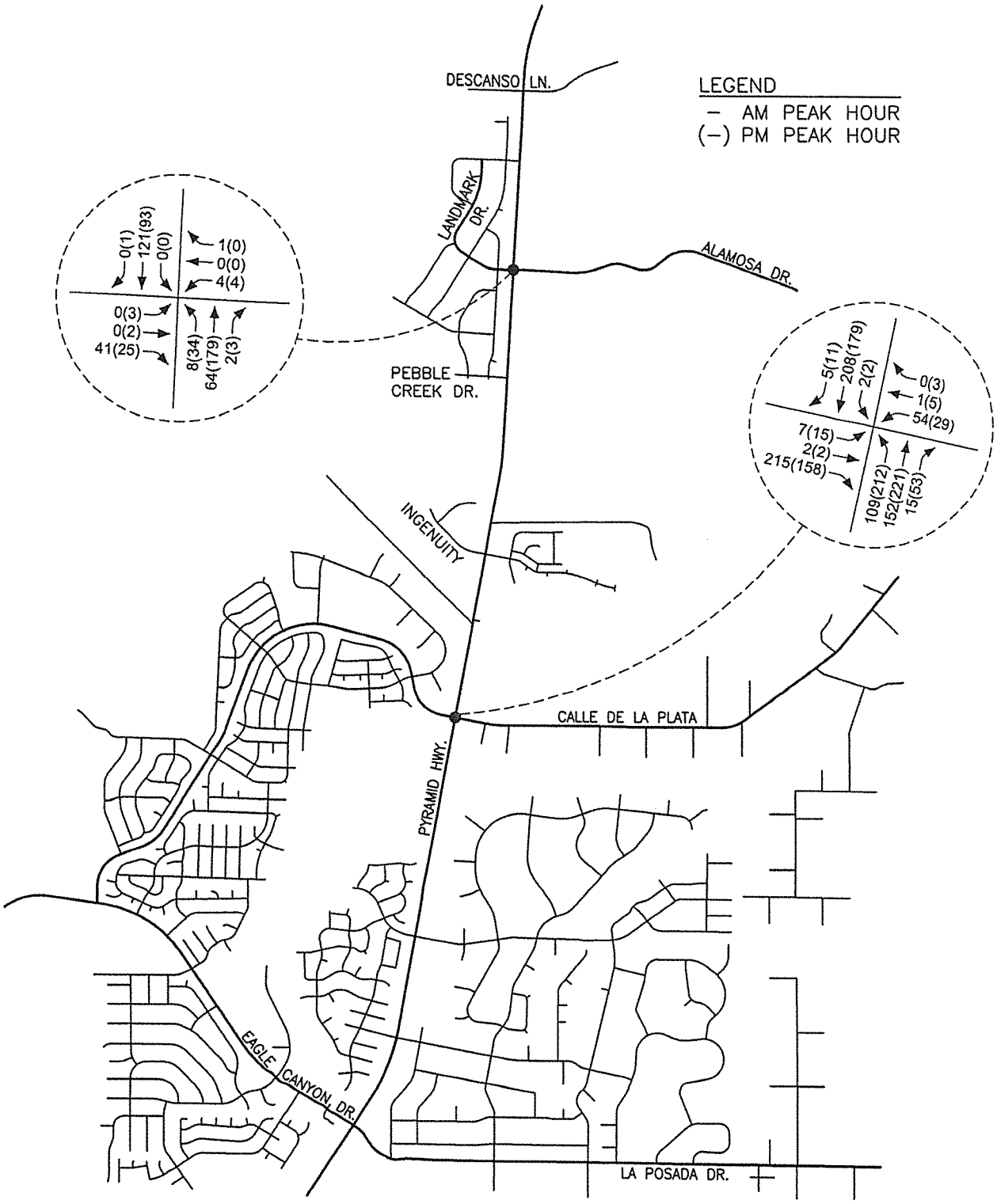

HARRIS RANCH SUBDIVISION

EXISTING TRAFFIC VOLUMES

FIGURE 4

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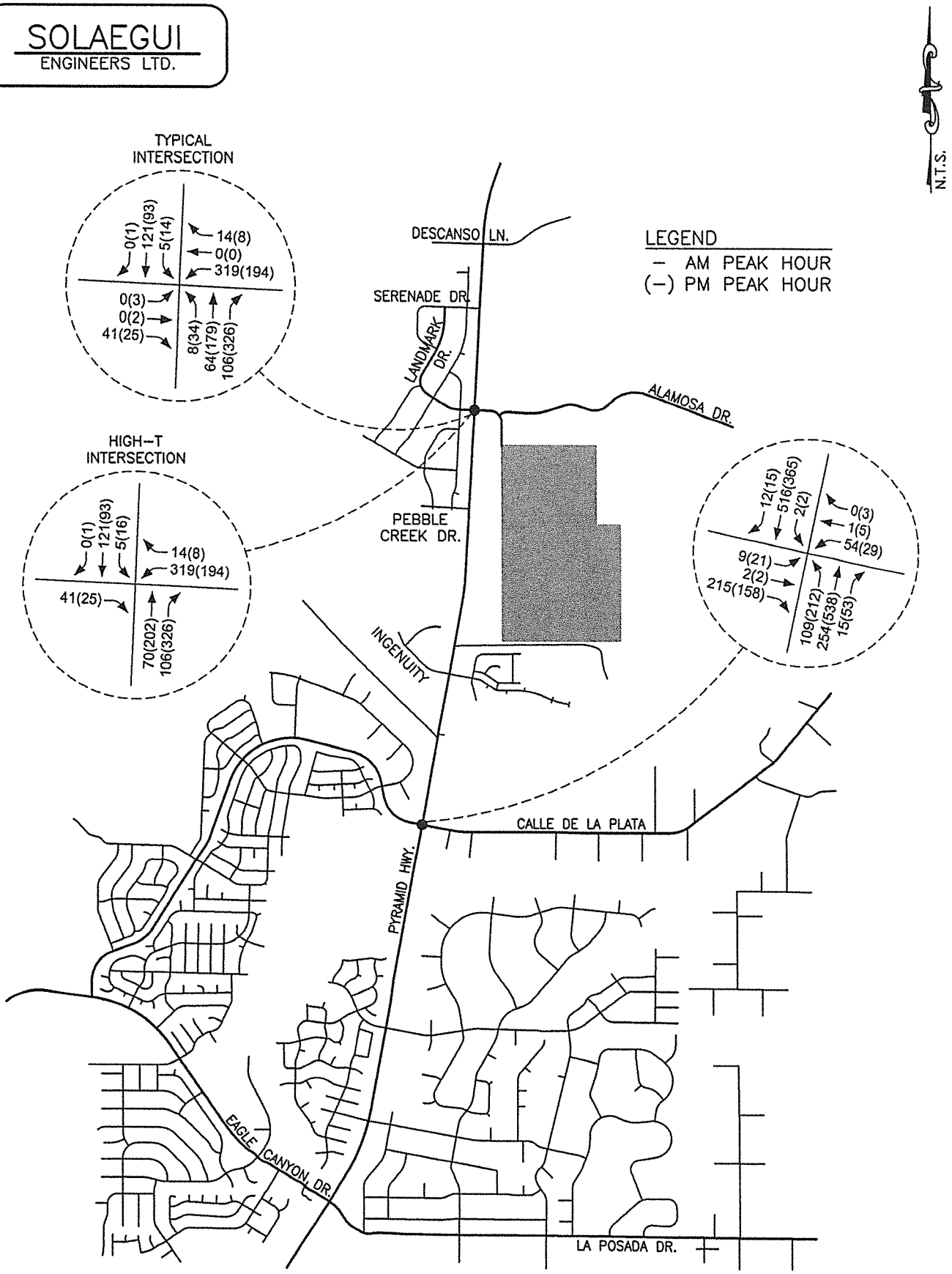

HARRIS RANCH SUBDIVISION

EXISTING PLUS PROJECT TRAFFIC VOLUMES

FIGURE 5

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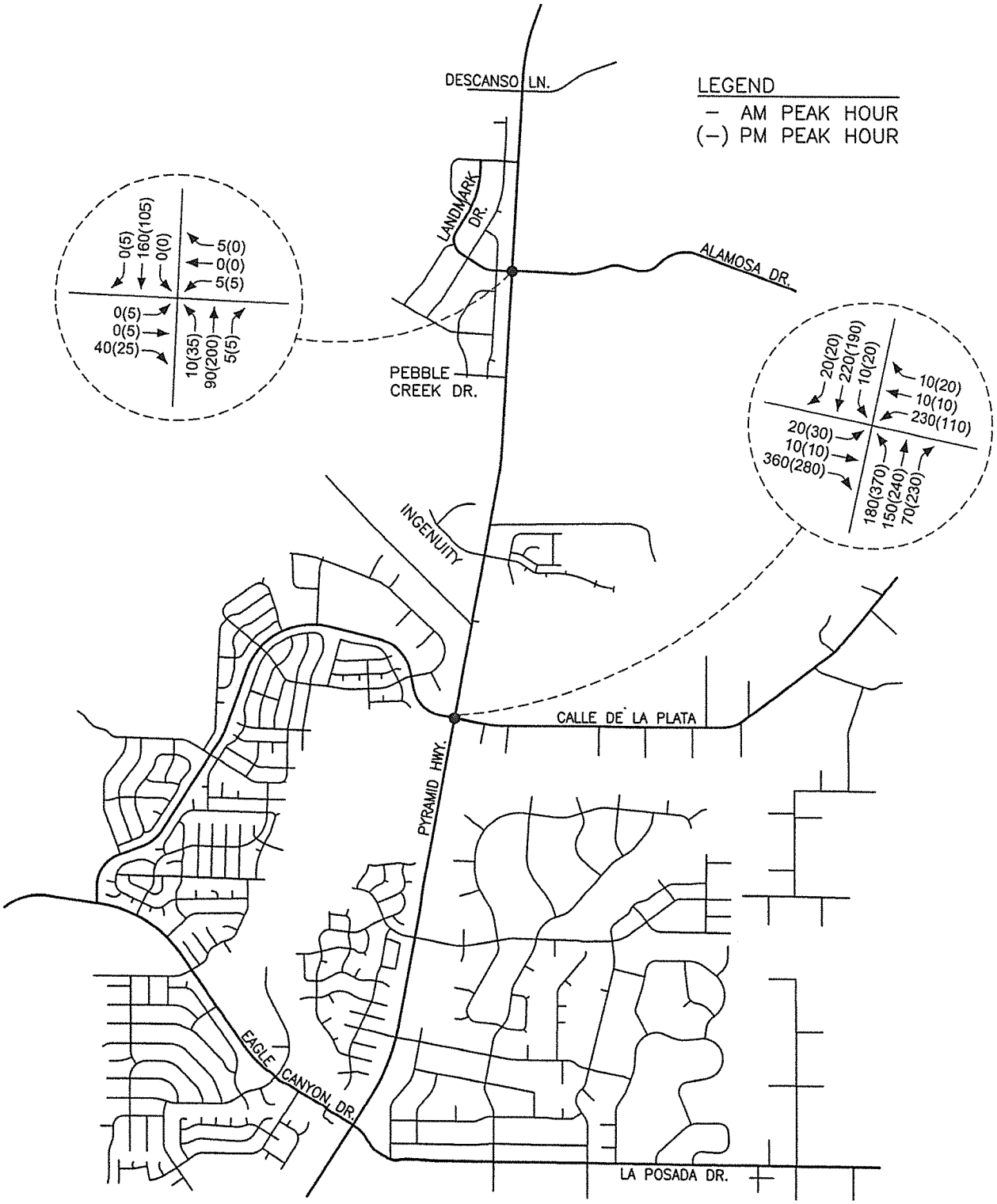

HARRIS RANCH SUBDIVISION
2025 BASE TRAFFIC VOLUMES
FIGURE 6

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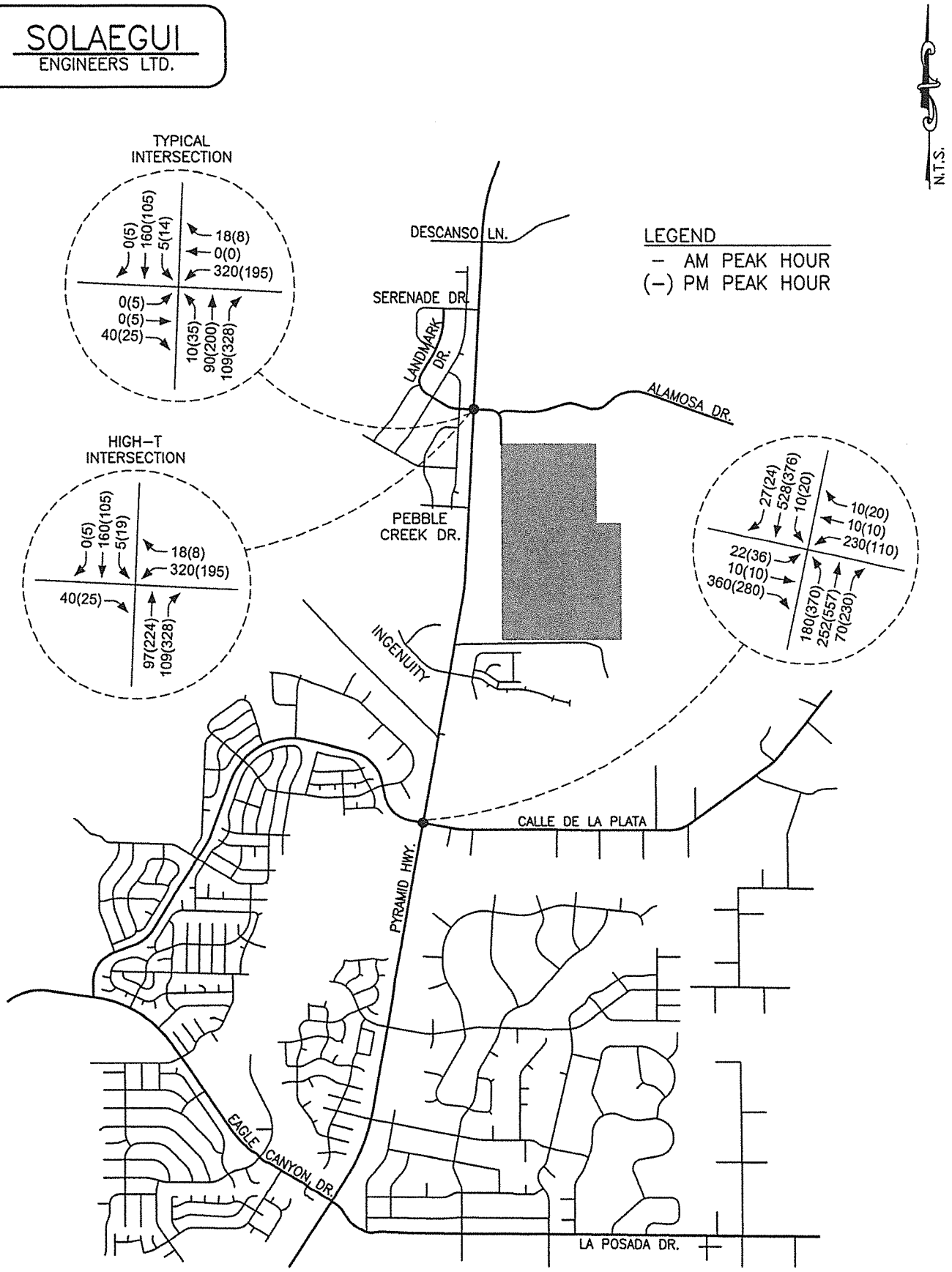
ENGINEERS LTD.



HARRIS RANCH SUBDIVISION

2025 BASE PLUS PROJECT TRAFFIC VOLUMES

FIGURE 7

INTERSECTION CAPACITY ANALYSIS

The key intersections were analyzed for capacity based on procedures presented in the *Highway Capacity Manual* (2010), prepared by the Transportation Research Board, using the latest version of the Highway Capacity software. The result of capacity analysis is a level of service (LOS) rating for each signalized intersection and unsignalized intersection minor movement. Level of service is a qualitative measure of traffic operating conditions where a letter grade "A" through "F", corresponding to progressively worsening traffic operation, is assigned to the intersection or minor movement.

The *Highway Capacity Manual* defines level of service for stop controlled intersections in terms of computed or measured control delay for each minor movement. Level of service is not defined for the intersection as a whole. The level of service criteria for unsignalized intersections is shown in Table 2.

TABLE 2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	DELAY RANGE (SEC/VEH)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Level of service for signalized intersections is stated in terms of the average control delay per vehicle for a peak 15 minute analysis period. The level of service criteria for signalized intersections is shown in Table 3.

TABLE 3
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

The 2035 Regional Transportation Plan indicates that the level of service standard along this section of Pyramid Highway is LOS D based on the projected ADT for the 2035 planning scenario.

Table 4 shows a summary of the level of service and delay results at the key intersections for the existing, existing plus project, 2025 base and 2025 base plus project scenarios. The intersection capacity worksheets are included in the Appendix.

TABLE 4
INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS

INTERSECTION	EXISTING		EXISTING + PROJECT		2025 BASE		2025 BASE + PROJECT	
	AM	PM	AM	PM	AM	PM	AM	PM
Pyramid & Calle De La Plata Unsignalized								
EB Left-Thru	B14.9	C22.7	D25.4	F57.3	C22.2	F94.6	E48.0	F642.2
EB Right	B11.1	B10.3	C16.6	B12.3	B13.6	B11.7	D28.2	C15.3
WB Left-Thru-Right	D26.1	D31.0	F98.9	F107.6	F811.3	F1058	F4607	F4620
NB Left	A7.9	A8.1	A9.0	A8.8	A8.2	A8.8	A9.5	A9.8
SB Left	A7.6	A7.8	A7.8	A8.8	A7.7	A8.4	A8.0	A9.6
Pyramid & Calle De La Plata Signalized	N/A	N/A	C20.9	C20.0	C22.8	C23.7	C24.2	C29.4
Pyramid & Landmark-Alamosa Unsignalized Typical								
EB Left-Thru-Right	A9.1	A9.3	A9.1	A9.9	A9.4	A9.9	A9.4	B11.0
WB Left-Thru-Right	B10.0	B11.6	C18.7	C24.3	A9.9	B12.1	C23.2	D27.5
NB Left	A7.5	A7.5	A7.5	A7.5	A7.6	A7.5	A7.6	A7.5
SB Left	A0.0	A0.0	A7.6	A8.6	A0.0	A0.0	A7.7	A8.7
Pyramid & Landmark-Alamosa Unsignalized High-T								
EB Right	N/A	N/A	A9.1	A8.9	N/A	N/A	A9.4	A9.0
WB Left-Right	N/A	N/A	B12.6	C16.3	N/A	N/A	B13.4	C17.4
SB Left	N/A	N/A	A7.6	A8.7	N/A	N/A	A7.7	A8.8
Pyramid & Landmark-Alamosa Signalized Full Movement	N/A	N/A	C20.4	C24.3	N/A	N/A	C20.4	C24.7

Pyramid Highway/Calle De La Plata

The Pyramid Highway/Calle De La Plata intersection was analyzed for capacity as an unsignalized four-leg intersection with stop sign control at the east and west approaches for all scenarios. The minor movements currently operate at LOS D or better during the AM and PM peak hours. For the existing plus project volumes the eastbound left turn movement operates at LOS F during the PM peak hour and the westbound left turn movement operates at LOS F during the AM and PM peak hours. For the 2025 base and base plus project volumes the eastbound and westbound left turn movements will continue to operate at LOS F. The intersection was analyzed with the existing approach lanes and traffic control for all scenarios.

Traffic signal warrant 3 per the *Manual on Uniform Traffic Control Devices* (2009) was subsequently reviewed at the Pyramid Highway/Calle De La Plata intersection due to the LOS E and F operation for some minor movements. Traffic signal warrant 3 is met for the existing plus project traffic volumes based on the full minor street approach volume at the west leg. However, the warrant is not met for the existing plus project volumes if the right turn volume at the west leg is deducted from the minor street approach volume. An exclusive right turn lane exists at the west approach. Traffic signal warrant 3 is met for the 2025 base and base plus project traffic volumes based on the left turn volume at the east approach. The installation of a traffic signal at the Pyramid Highway/Calle De La Plata intersection will provide LOS C operation during the AM and PM peak hours for all scenarios. It should be noted that peak hour warrant 3 should be applied only in unusual cases such as office complexes, manufacturing plants, industrial complexes, or other high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. The *Manual on Uniform Traffic Control Devices* has eight additional warrants that should be evaluated when considering the need for the installation of a signal. NDOT staff indicate that they are currently conducting a traffic signal warrant study at this intersection.

Pyramid Highway/Landmark Drive-Alamosa Drive

The Pyramid Highway/Landmark Drive-Alamosa Drive intersection was initially analyzed as a typical unsignalized four-leg intersection with stop sign control at the east and west approaches for all scenarios. The minor movements currently operate at LOS B or better during the AM and PM peak hours. For the existing plus project volumes the minor movements operate at LOS C or better during the AM and PM peak hours. For the 2025 base volumes the intersection minor movements are anticipated to operate at LOS B or better during the AM and PM peak hours. For the 2025 base plus project volumes the intersection minor movements are anticipated to operate at LOS D or better during the AM and PM peak hours. Level of service D is acceptable operation under Nevada Department of Transportation policy. The intersection was analyzed with the existing approach lanes at the north, south, and west approaches and with a single shared left turn-through-right turn lane at the east approach for all scenarios.

The Pyramid Highway/Landmark Drive-Alamosa Drive intersection was re-analyzed for capacity as an unsignalized High-T intersection for the existing plus project and 2025 base plus project scenarios per Washoe County and NDOT requirements. The High-T configuration will limit Landmark Drive to right-in/right-out movements only. For the existing plus project and 2025 base plus project volumes the minor movements at the High-T intersection operate at LOS C or better during the AM and PM peak hours. The High-T intersection was analyzed with a median acceleration lane for the westbound to southbound left turn movement. NDOT's access management standards indicate that 1,380 feet of length is required for the acceleration lane based on the 65 mile per hour speed limit on Pyramid Highway and a 300 foot taper (25:1 ratio with 12 foot lane width) is required for speeds over 45 miles per hour. The acceleration and taper amount to a total length of 1,680 feet. Pebble Creek Drive is the nearest cross street on the west side of Pyramid Highway south of Landmark Drive-Alamosa Drive. The spacing is over 2,500 feet which will accommodate the median acceleration lane and taper.

The Pyramid Highway/Landmark Drive-Alamosa Drive intersection was also re-analyzed for capacity as a signalized intersection for the existing plus project and 2025 base plus project scenarios per Washoe County and NDOT requirements. The full movement signalized intersection will operate at LOS C during the AM and PM peak hours for the existing plus project and 2025 base plus project traffic volumes. It should be noted that traffic signal warrant 3 per the *Manual on Uniform Traffic Control Devices* (2009) is not met at the intersection for either the existing or future traffic volumes.

In summary, the Pyramid Highway/Landmark Drive-Alamosa Drive intersection is anticipated to meet policy level of service standards (LOS D) for all scenarios as either a typical unsignalized intersection, unsignalized High-T intersection, or signalized intersection. Based on the above analysis, it is recommended that the Pyramid Highway/Landmark Drive-Alamosa Drive intersection continue to operate with the existing traffic control with all movements allowed. It is recommended that the east approach be designed to include one exclusive left turn lane and one shared through-right turn lane. It is recommended that the left turn lane contain a minimum of 275 feet of storage length based on the AASHTO criteria of providing two minutes of storage length.

The need for an exclusive right turn lane at the south approach of the Pyramid Highway/ Landmark Drive-Alamosa Drive intersection was reviewed based on NDOT's access management standards. The access management standards indicate that an exclusive right turn deceleration lane is required based on the 65 mile per hour speed limit on Pyramid Highway. NDOT's access management standards state that for a 65 mile per hour speed limit the right turn lane shall contain a desirable deceleration length of 545 feet or a minimum deceleration length of 365 feet. The right turn ingress movement is a free movement that does not require storage. It is recommended that the right turn lane be designed to include 545 feet of desirable deceleration length with a 180 foot taper (15:1 ratio with 12 foot lane width). The deceleration and taper amount to a total length of 725 feet. Campo Rico Lane is the nearest cross street on the east side of Pyramid Highway south of Landmark Drive-Alamosa Drive. The spacing is over 1,200 feet which will accommodate the right turn deceleration lane and taper.

The existing left turn pocket at the north approach of the Pyramid Highway/Landmark Drive-Alamosa Drive intersection was reviewed for storage and deceleration requirements. Less than 50 feet of storage length is required for the 2025 base plus project volumes based on NDOT's unsignalized intersection criteria of providing three minutes of storage length. However, the standards also indicate that a minimum of 100 feet of left turn storage be provided. Again, NDOT's access management standards specify that for a 65 mile per hour speed limit the left turn pocket contain a desirable deceleration length of 545 feet or a minimum deceleration length of 365 feet. The existing left turn lane contains ±465 feet of storage/deceleration length which meets the 100 foot storage and 365 foot minimum deceleration requirements.

The need for an acceleration lane at the Pyramid Highway/Alamosa Drive intersection was reviewed. The westbound to northbound right turn volume is low for all existing and with project scenarios. It is recommended that a 150 feet taper be constructed to accommodate the westbound to northbound right turn traffic. This configuration is similar to a NDOT Type 4 approach.

SITE PLAN REVIEW

A copy of the preliminary site plan for the Harris Ranch Subdivision is included in this submittal. The site plan indicates that all project access will be provided from Alamosa Drive via Pyramid Highway. Alamosa Drive is currently an unimproved dirt road. With development of the project Alamosa Drive will be constructed from Pyramid Highway eastward along its current alignment and then southward through the project site. Washoe County staff expressed concern with speeding on Alamosa Drive within the project site during the initial scoping meeting. The site plan has since been modified to address these concerns by providing more cul-de-sacs and eliminating all driveway access on Alamosa Drive.

Average daily traffic volume projections on streets within the subdivision were subsequently reviewed in order to determine right-of-way requirements. Traffic loading was based on the internal street network shown on the site plan and include traffic generated by the potential school site within Harris Ranch. The street loadings also include traffic generated by approximately 9 ten-acre parcels located between the site and Pyramid Highway. The 9 parcels have the potential for 10 lots each and will ultimately take access through Harris Ranch.

Washoe County street standards indicate that local streets can carry 1,000 ADT or less and collector streets can carry up to 9,600 ADT. Collector streets with residential driveways can carry a maximum volume of 2,000 ADT. The site plan indicates that no residential driveway access will be provided on Alamosa Drive. All of the on-site streets with the exception of Alamosa Drive and the street just south of the school site will carry traffic volumes of less than 1,000 vehicles per day which would indicate the need for local streets. The segment of Alamosa Drive at the project's northwest corner is anticipated to carry ±7,200 vehicles per day with volumes gradually decreasing to less than 1,000 vehicles per day just north of the most southerly on-site local street. RTC's traffic model shows almost no growth in base traffic on Alamosa Drive for the 2025 planning scenario. The segment of Alamosa Drive just east of Pyramid Highway is therefore anticipated to carry traffic volumes that are less than the 9,600 ADT threshold for collectors. The street just south of the school site is anticipated to carry ±1,750 vehicles per day indicating the need for a collector street.

It is recommended that the entire segment of Alamosa Drive from Pyramid Highway to its terminus within the project site and the entire segment of the street located just south of the school site each be constructed per Washoe County collector street standards. The remaining on-site streets shall be constructed per Washoe County local street standards.

RECOMMENDATIONS

Traffic generated by the Harris Ranch Subdivision will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping or traffic control improvements comply with Nevada Department of Transportation and Washoe County requirements.

It is recommended that the Pyramid Highway/Landmark Drive-Alamosa Drive intersection continue to operate as a full movement intersection with stop sign control at the east and west approaches. It is recommended that the east approach include one left turn lane with 275 feet of storage length and one shared through-right turn lane. The south approach shall be improved to include an exclusive right turn lane with 545 feet of deceleration length. The northeast corner shall be improved to include a 150 foot taper to accommodate the westbound to northbound right turn traffic.

It is recommended that the entire segment of Alamosa Drive from Pyramid Highway to its terminus within the project site and the entire segment of the street located just south of the school site each be constructed per Washoe County collector street standards. The remaining on-site streets shall be constructed per Washoe County local street standards.

APPENDIX

Trip Generation Summary - Alternative 1

Project: New Project
Alternative: Alternative 1

Open Date: 7/7/2016
Analysis Date: 7/7/2016

ITE	Land Use	Average Daily Trips			AM Peak Hour of Adjacent Street Traffic			PM Peak Hour of Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
210	SFHOUSE 1	2772	2772	5544	109	328	437	337	198	535
	610 Dwelling Units									
Unadjusted Volume		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Pass-By Trips		0	0	0	0	0	0	0	0	0
Volume Added to Adjacent Streets		0	0	0	0	0	0	0	0	0

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

HCS 2010 Two-Way Stop Control Summary Report

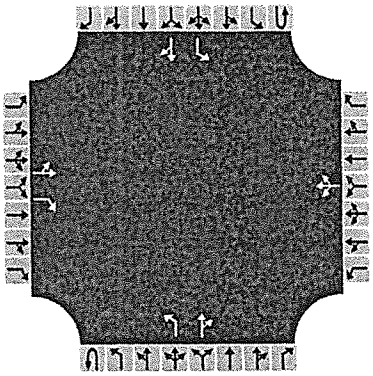
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	AM Existing
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		7	2	215		54	1	0		109	152	15		2	208	5
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		9		226			58			115				2		
Capacity		371		817			228			1344				1399		
v/c Ratio		0.02		0.28			0.25			0.09				0.00		
95% Queue Length		0.1		1.1			1.0			0.3				0.0		
Control Delay (s/veh)		14.9		11.1			26.1			7.9				7.6		
Level of Service (LOS)		B		B			D			A				A		
Approach Delay (s/veh)	11.2				26.1				3.1				0.1			
Approach LOS	B				D											

HCS 2010 Two-Way Stop Control Summary Report

General Information

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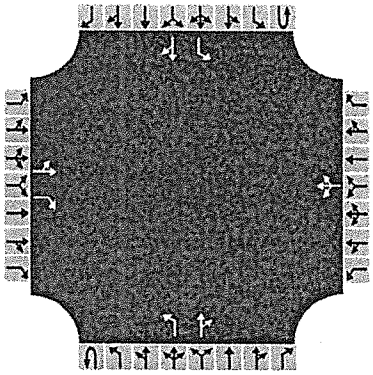
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	PM Existing
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		15	2	158		29	5	3		212	221	53		2	179	11
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		18		166			39			223				2		
Capacity		221		847			177			1371				1272		
v/c Ratio		0.08		0.20			0.22			0.16				0.00		
95% Queue Length		0.3		0.7			0.8			0.6				0.0		
Control Delay (s/veh)		22.7		10.3			31.0			8.1				7.8		
Level of Service (LOS)		C		B			D			A				A		
Approach Delay (s/veh)	11.5				31.0				3.5				0.1			
Approach LOS	B				D											

HCS 2010 Two-Way Stop Control Summary Report

General Information

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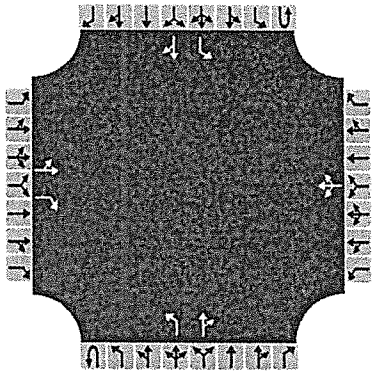
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		9	2	215		54	1	0		109	254	15		2	516	12
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		11		226			58			115				2		
Capacity		187		535			90			1014				1278		
v/c Ratio		0.06		0.42			0.64			0.11				0.00		
95% Queue Length		0.2		2.1			3.1			0.4				0.0		
Control Delay (s/veh)		25.4		16.6			98.9			9.0				7.8		
Level of Service (LOS)		D		C			F			A				A		
Approach Delay (s/veh)	17.0				98.9				2.6				0.0			
Approach LOS	C				F											

HCS 2010 Two-Way Stop Control Summary Report

General Information

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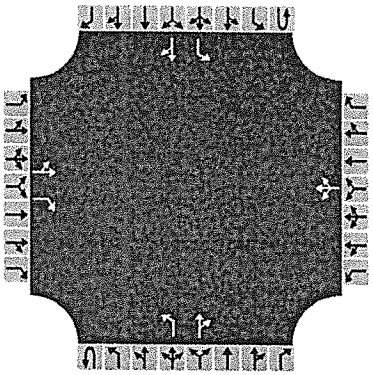
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		21	2	158		29	5	3		212	538	53		2	365	15
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		24		166			39			223				2		
Capacity		92		656			70			1158				958		
v/c Ratio		0.26		0.25			0.56			0.19				0.00		
95% Queue Length		1.0		1.0			2.3			0.7				0.0		
Control Delay (s/veh)		57.3		12.3			107.6			8.8				8.8		
Level of Service (LOS)		F		B			F			A				A		
Approach Delay (s/veh)	17.9				107.6				2.3				0.0			
Approach LOS	C				F											

HCS 2010 Two-Way Stop Control Summary Report

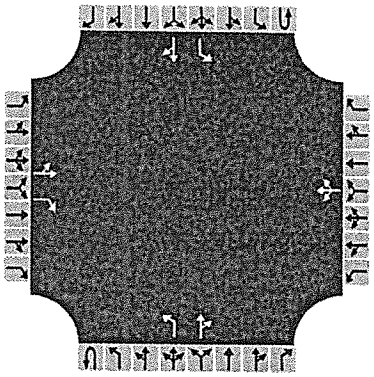
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	AM Base
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		20	10	360		230	10	10		180	150	70		10	220	20
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		32		379			264			189				11		
Capacity		241		797			102			1311				1335		
v/c Ratio		0.13		0.48			2.59			0.14				0.01		
95% Queue Length		0.5		2.6			24.3			0.5				0.0		
Control Delay (s/veh)		22.2		13.6			811.3			8.2				7.7		
Level of Service (LOS)		C		B			F			A				A		
Approach Delay (s/veh)	14.2				811.3				3.7				0.3			
Approach LOS	B				F											

HCS 2010 Two-Way Stop Control Summary Report

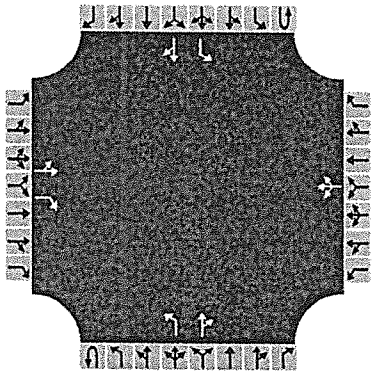
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	PM Base
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		30	10	280		110	10	20		370	240	230		20	190	20
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		43		295			148			389				21		
Capacity		79		830			50			1347				1068		
v/c Ratio		0.54		0.36			2.96			0.29				0.02		
95% Queue Length		2.3		1.6			15.8			1.2				0.1		
Control Delay (s/veh)		94.6		11.7			1057.6			8.8				8.4		
Level of Service (LOS)		F		B			F			A				A		
Approach Delay (s/veh)	20.8				1057.6				3.9				0.7			
Approach LOS	C				F											

HCS 2010 Two-Way Stop Control Summary Report

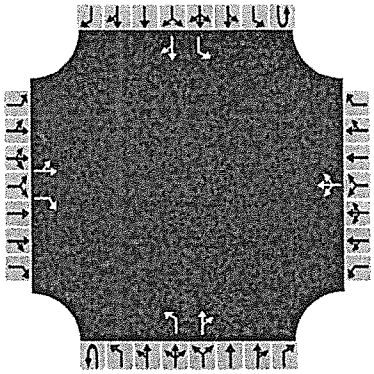
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		22	10	360		230	10	10		180	252	70		10	528	27
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		34		379			264			189				11		
Capacity		117		521			25			990				1219		
v/c Ratio		0.29		0.73			10.57			0.19				0.01		
95% Queue Length		1.1		6.0			32.9			0.7				0.0		
Control Delay (s/veh)		48.0		28.2			4607.0			9.5				8.0		
Level of Service (LOS)		E		D			F			A				A		
Approach Delay (s/veh)	29.7				4607.0				3.4				0.1			
Approach LOS	D				F											

HCS 2010 Two-Way Stop Control Summary Report

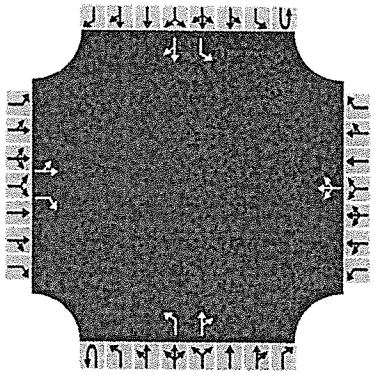
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Calle De La Plata
Jurisdiction	Washoe County
East/West Street	Calle De La Plata
North/South Street	Pyramid Highway
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

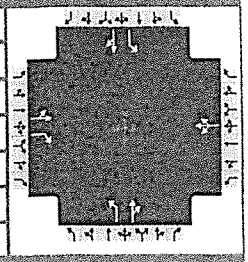
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	1	1	0
Configuration		LT		R			LTR			L		TR		L		TR
Volume (veh/h)		36	10	280		110	10	20		370	557	230		20	376	24
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)		49		295			148			389				21		
Capacity		29		643			15			1137				803		
v/c Ratio		1.71		0.46			10.14			0.34				0.03		
95% Queue Length		5.7		2.4			19.5			1.5				0.1		
Control Delay (s/veh)		642.2		15.3			4620.3			9.8				9.6		
Level of Service (LOS)		F		C			F			A				A		
Approach Delay (s/veh)	92.4				4620.3				3.1				0.5			
Approach LOS	F				F											

HCS 2010 Signalized Intersection Results Summary

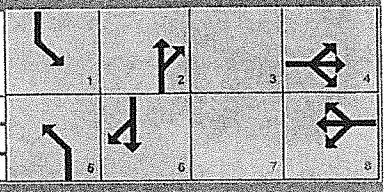
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	Existing + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Calle De La...	File Name	PyCa16ax.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	9	2	215	54	1	0	109	254	15	2	516	12

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	4.0	30.0	20.0	0.0	0.0	
Yellow	4.0	0.0	4.0	4.0	0.0	0.0	
Red	1.0	0.0	1.0	1.0	0.0	0.0	



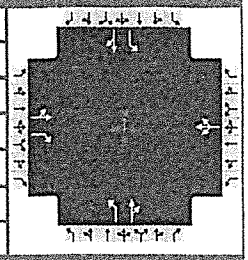
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	2.0	4.0	2.0	4.0
Phase Duration, s		25.0		25.0	15.0	39.0	11.0	35.0
Change Period, ($Y+R_c$), s		5.0		5.0	0.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	3.0	3.1	3.0
Queue Clearance Time (g_s), s		8.9		4.4	6.1	9.4	2.1	21.3
Green Extension Time (g_e), s		0.4		0.4	0.1	1.6	0.0	0.8
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.00		0.00	0.00	0.00	0.08	0.75

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		12	174		58		115	283		2	556	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1460	1549		1390		1774	1843		1774	1855	
Queue Service Time (g_s), s		0.0	6.9		2.0		4.1	7.4		0.1	19.3	
Cycle Queue Clearance Time (g_c), s		0.3	6.9		2.4		4.1	7.4		0.1	19.3	
Green Ratio (*g/C*)		0.27	0.27		0.27		0.20	0.45		0.08	0.40	
Capacity (*c*), veh/h		477	413		466		355	835		142	742	
Volume-to-Capacity Ratio (*X*)		0.024	0.420		0.124		0.323	0.339		0.015	0.749	
Back of Queue (*Q*), ft/ln (50 th percentile)		3.6	61.2		18.8		42.7	70.8		0.9	209.6	
Back of Queue (*Q*), veh/ln (50 th percentile)		0.1	2.4		0.7		1.7	2.8		0.0	8.3	
Queue Storage Ratio (*RQ*) (50 th percentile)		0.00	0.00		0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		20.3	22.7		21.0		25.7	13.2		31.8	19.3	
Incremental Delay (d_2), s/veh		0.0	0.3		0.0		0.2	0.1		0.0	3.8	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		20.3	23.0		21.1		25.9	13.3		31.8	23.1	
Level of Service (LOS)		C	C		C		C	B		C	C	
Approach Delay, s/veh / LOS	22.8	C		21.1	C		16.9	B		23.1	C	
Intersection Delay, s/veh / LOS	20.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.3	B
Bicycle LOS Score / LOS	0.8	A	0.6	A	1.1	A	1.4	A

HCS 2010 Signalized Intersection Results Summary

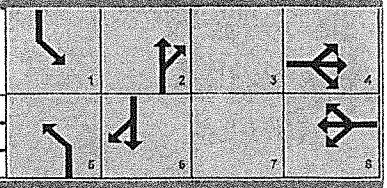
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	PM Peak Hour	PHF	0.95
Urban Street		Analysis Year	Existing + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Calle De La...	File Name	PyCa16pw.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	21	2	158	29	5	3	212	538	53	2	365	15

Signal Information			
Cycle, s	80.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	12.0	29.0	18.0	0.0	0.0	
Yellow	4.0	0.0	4.0	4.0	0.0	0.0	
Red	1.0	0.0	1.0	1.0	0.0	0.0	



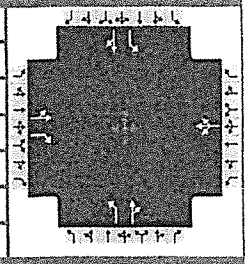
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	2.0	4.0	2.0	4.0
Phase Duration, s		23.0		23.0	23.0	46.0	11.0	34.0
Change Period, ($Y+R_c$), s		5.0		5.0	0.0	5.0	5.0	5.0
Max Allow Headway (MAH), s		3.3		3.3	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s		7.4		3.6	10.2	22.1	2.1	16.1
Green Extension Time (g_e), s		0.3		0.3	0.3	2.0	0.0	1.6
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.00		0.00	0.00	0.00	0.08	0.20

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h		24	124		39		223	622		2	400	
Adjusted Saturation Flow Rate (s), veh/h/ln		1407	1544		1454		1774	1831		1774	1848	
Queue Service Time (g_s), s		0.0	5.4		0.5		8.2	20.1		0.1	14.1	
Cycle Queue Clearance Time (g_c), s		1.0	5.4		1.6		8.2	20.1		0.1	14.1	
Green Ratio (g/C)		0.22	0.22		0.22		0.29	0.51		0.08	0.36	
Capacity (c), veh/h		403	347		407		510	939		133	670	
Volume-to-Capacity Ratio (X)		0.060	0.358		0.096		0.438	0.663		0.016	0.597	
Back of Queue (Q), ft/ln (50 th percentile)		8.9	48.9		14.4		83.1	194.2		0.9	148.5	
Back of Queue (Q), veh/ln (50 th percentile)		0.3	1.9		0.6		3.3	7.6		0.0	5.8	
Queue Storage Ratio (RQ) (50 th percentile)		0.00	0.00		0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		24.4	26.1		24.6		23.2	14.4		34.3	20.7	
Incremental Delay (d_2), s/veh		0.0	0.2		0.0		0.2	1.4		0.0	1.0	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh		24.4	26.4		24.6		23.4	15.8		34.3	21.8	
Level of Service (LOS)		C	C		C		C	B		C	C	
Approach Delay, s/veh / LOS	26.0	C		24.6	C		17.8	B		21.8	C	
Intersection Delay, s/veh / LOS	20.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.3	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.9	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

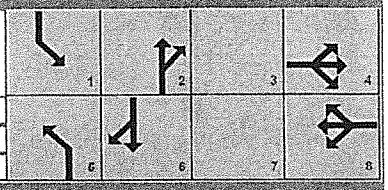
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2025 Base	Analysis Period	1> 7:00
Intersection	Pyramid & Calle De La...	File Name	PyCa25ax.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	360	230	10	10	180	150	70	10	220	20

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	4.0	30.0	20.0	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



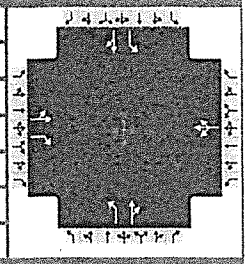
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	2.0	4.0	2.0	4.0
Phase Duration, s		25.0		25.0	15.0	39.0	11.0	35.0
Change Period, ($Y+R_c$), s		5.0		5.0	0.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s		15.2		14.8	9.2	8.2	2.4	9.2
Green Extension Time (g_e), s		0.7		0.7	0.2	0.9	0.0	0.8
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.47		0.38	0.06	0.00	0.32	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		32	300		263		189	232		11	253	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1511	1549		1393		1774	1755		1774	1833	
Queue Service Time (g_s), s		0.0	13.2		11.9		7.2	6.2		0.4	7.2	
Cycle Queue Clearance Time (g_c), s		0.9	13.2		12.8		7.2	6.2		0.4	7.2	
Green Ratio (*g/C*)		0.27	0.27		0.27		0.20	0.45		0.08	0.40	
Capacity (*c*), veh/h		483	413		464		355	796		142	733	
Volume-to-Capacity Ratio (*X*)		0.065	0.726		0.567		0.534	0.291		0.074	0.345	
Back of Queue (*Q*), ft/ln (50 th percentile)		10	131		103.1		75.1	56.5		4.4	70.6	
Back of Queue (*Q*), veh/ln (50 th percentile)		0.4	5.2		4.1		3.0	2.2		0.2	2.8	
Queue Storage Ratio (*RQ*) (50 th percentile)		0.00	0.00		0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		20.5	25.0		24.9		26.9	12.9		31.9	15.7	
Incremental Delay (d_2), s/veh		0.0	5.5		1.0		0.8	0.1		0.1	0.1	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		20.5	30.5		25.9		27.7	13.0		32.0	15.8	
Level of Service (LOS)		C	C		C		C	B		C	B	
Approach Delay, s/veh / LOS	29.6	C		25.9	C		19.6	B		16.4	B	
Intersection Delay, s/veh / LOS	22.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.4	B
Bicycle LOS Score / LOS	1.0	A	0.9	A	1.2	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

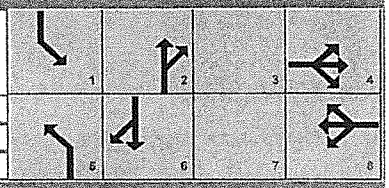
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	PM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2025 Base	Analysis Period	1> 7:00
Intersection	Pyramid & Calle De La...	File Name	PyCa25px.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	280	110	10	20	370	240	230	20	190	20

Signal Information			
Cycle, s	80.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	12.0	29.0	18.0	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



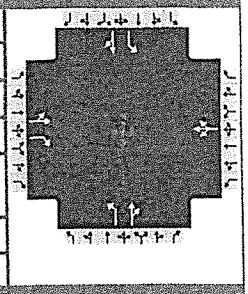
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	2.0	4.0	2.0	4.0
Phase Duration, s		23.0		23.0	23.0	46.0	11.0	34.0
Change Period, ($Y+R_c$), s		5.0		5.0	0.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s		12.9		9.0	18.0	18.0	2.9	9.0
Green Extension Time (g_e), s		0.5		0.7	0.4	1.5	0.0	1.4
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.33		0.03	0.28	0.00	1.00	0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		42	232		147		389	495		21	221	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1457	1544		1431		1774	1703		1774	1829	
Queue Service Time (g_s), s		0.0	10.9		5.3		16.0	16.0		0.9	7.0	
Cycle Queue Clearance Time (g_c), s		1.7	10.9		7.0		16.0	16.0		0.9	7.0	
Green Ratio (*g/C*)		0.22	0.22		0.22		0.29	0.51		0.08	0.36	
Capacity (*c*), veh/h		407	347		402		510	873		133	663	
Volume-to-Capacity Ratio (*X*)		0.104	0.667		0.366		0.764	0.567		0.158	0.333	
Back of Queue (*Q*), ft/ln (50 th percentile)		15.6	107.1		59.2		183	139.9		9.6	71.2	
Back of Queue (*Q*), veh/ln (50 th percentile)		0.6	4.2		2.3		7.2	5.5		0.4	2.8	
Queue Storage Ratio (*RQ*) (50 th percentile)		0.00	0.00		0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		24.6	28.3		26.7		26.0	13.4		34.6	18.5	
Incremental Delay (d_2), s/veh		0.0	3.9		0.2		6.1	0.5		0.2	0.1	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		24.7	32.2		26.9		32.1	13.9		34.8	18.6	
Level of Service (LOS)		C	C		C		C	B		C	B	
Approach Delay, s/veh / LOS	31.0	C		26.9	C		21.9	C		20.0	C	
Intersection Delay, s/veh / LOS	23.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.4	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.9	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

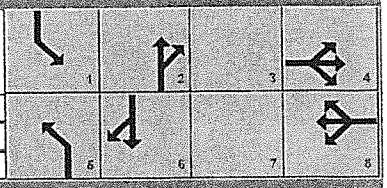
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2025 Base + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Calle De La...	File Name	PyCa25aw.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	22	10	360	230	10	10	180	252	70	10	528	27

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	4.0	30.0	20.0	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	1.0	0.0	1.0	1.0	0.0	0.0



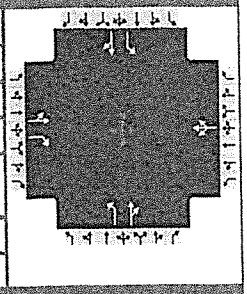
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	2.0	4.0	2.0	4.0
Phase Duration, s		25.0		25.0	15.0	39.0	11.0	35.0
Change Period, ($Y+R_c$), s		5.0		5.0	0.0	5.0	5.0	5.0
Max Allow Headway (MAH), s		3.3		3.3	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s		15.2		14.8	9.2	11.6	2.4	22.8
Green Extension Time (g_e), s		0.7		0.7	0.2	1.8	0.0	0.6
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.47		0.38	0.06	0.00	0.32	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h		34	300		263		189	339		11	584	
Adjusted Saturation Flow Rate (s), veh/h/ln		1500	1549		1393		1774	1788		1774	1845	
Queue Service Time (g_s), s		0.0	13.2		11.8		7.2	9.6		0.4	20.8	
Cycle Queue Clearance Time (g_c), s		1.0	13.2		12.8		7.2	9.6		0.4	20.8	
Green Ratio (g/C)		0.27	0.27		0.27		0.20	0.45		0.08	0.40	
Capacity (c), veh/h		481	413		464		355	810		142	738	
Volume-to-Capacity Ratio (X)		0.070	0.726		0.567		0.534	0.418		0.074	0.792	
Back of Queue (Q), ft/ln (50 th percentile)		10.7	131		103.3		75.1	88.5		4.4	232.6	
Back of Queue (Q), veh/ln (50 th percentile)		0.4	5.2		4.1		3.0	3.5		0.2	9.2	
Queue Storage Ratio (RQ) (50 th percentile)		0.00	0.00		0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		20.5	25.0		24.9		26.9	13.8		31.9	19.8	
Incremental Delay (d_2), s/veh		0.0	5.5		1.0		0.8	0.1		0.1	5.4	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh		20.6	30.5		25.9		27.7	14.0		32.0	25.2	
Level of Service (LOS)		C	C		C		C	B		C	C	
Approach Delay, s/veh / LOS	29.5	C		25.9	C		18.9	B		25.3	C	
Intersection Delay, s/veh / LOS	24.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.4	B
Bicycle LOS Score / LOS	1.0	A	0.9	A	1.4	A	1.5	A

HCS 2010 Signalized Intersection Results Summary

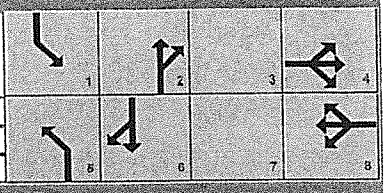
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	PM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2025 Base + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Calle De La...	File Name	PyCa25pw.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	36	10	280	110	10	20	370	557	230	20	376	24

Signal Information			
Cycle, s	80.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	12.0	29.0	18.0	0.0	0.0	
Yellow	4.0	0.0	4.0	4.0	0.0	0.0	
Red	1.0	0.0	1.0	1.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	2.0	4.0	2.0	4.0
Phase Duration, s		23.0		23.0	23.0	46.0	11.0	34.0
Change Period, ($Y+R_c$), s		5.0		5.0	0.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s		12.9		9.0	18.0	36.5	2.9	17.1
Green Extension Time (g_e), s		0.5		0.7	0.4	1.5	0.0	2.0
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.33		0.03	0.28	0.71	1.00	0.39

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		48	232		147		389	828		21	421	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1441	1544		1432		1774	1764		1774	1841	
Queue Service Time (g_s), s		0.0	10.9		5.0		16.0	34.5		0.9	15.1	
Cycle Queue Clearance Time (g_c), s		2.0	10.9		7.0		16.0	34.5		0.9	15.1	
Green Ratio (*g/C*)		0.22	0.22		0.22		0.29	0.51		0.08	0.36	
Capacity (*c*), veh/h		404	347		402		510	904		133	667	
Volume-to-Capacity Ratio (*X*)		0.120	0.667		0.366		0.764	0.916		0.158	0.631	
Back of Queue (*Q*), ft/ln (50 th percentile)		18.1	107.1		59.2		183	392.8		9.6	160.5	
Back of Queue (*Q*), veh/ln (50 th percentile)		0.7	4.2		2.3		7.2	15.5		0.4	6.3	
Queue Storage Ratio (*RQ*) (50 th percentile)		0.00	0.00		0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh		24.8	28.3		26.7		26.0	17.9		34.6	21.1	
Incremental Delay (d_2), s/veh		0.0	3.9		0.2		6.1	13.6		0.2	1.5	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh		24.8	32.2		26.9		32.1	31.5		34.8	22.5	
Level of Service (LOS)		C	C		C		C	C		C	C	
Approach Delay, s/veh / LOS	30.9	C		26.9	C		31.7	C		23.1	C	
Intersection Delay, s/veh / LOS	29.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.4	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	2.5	B	1.2	A

HCS 2010 Two-Way Stop Control Summary Report

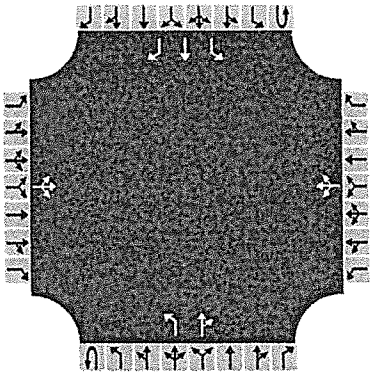
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	AM Existing
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		0	0	41		4	0	1		8	64	2		0	121	0
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			45				5			9						
Capacity			917				722			1452				1527		
v/c Ratio			0.05				0.01			0.01						
95% Queue Length			0.2				0.0			0.0						
Control Delay (s/veh)			9.1				10.0			7.5				7.4		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.1				10.0				0.8							
Approach LOS	A				B											

HCS 2010 Two-Way Stop Control Summary Report

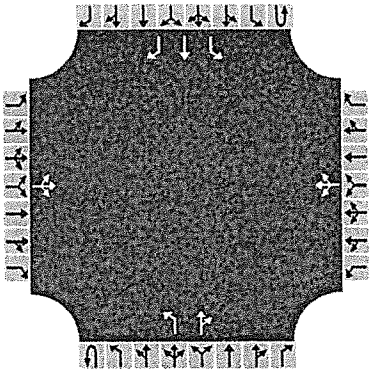
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	PM Existing
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		3	2	25		4	0	0		34	179	3		0	93	1
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			32				4			37						
Capacity			861				548			1489				1374		
v/c Ratio			0.04				0.01			0.02						
95% Queue Length			0.1				0.0			0.1						
Control Delay (s/veh)			9.3				11.6			7.5				7.6		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.3				11.6				1.2							
Approach LOS	A				B											

HCS 2010 Two-Way Stop Control Summary Report

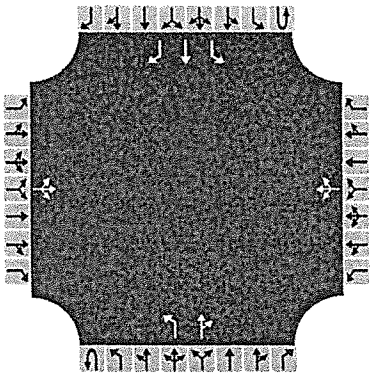
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		0	0	41		319	0	14		8	64	106		5	121	0
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			45				362			9				5		
Capacity			917				619			1452				1389		
v/c Ratio			0.05				0.58			0.01				0.00		
95% Queue Length			0.2				3.8			0.0				0.0		
Control Delay (s/veh)			9.1				18.7			7.5				7.6		
Level of Service (LOS)			A				C			A				A		
Approach Delay (s/veh)	9.1				18.7				0.3				0.3			
Approach LOS	A				C											

HCS 2010 Two-Way Stop Control Summary Report

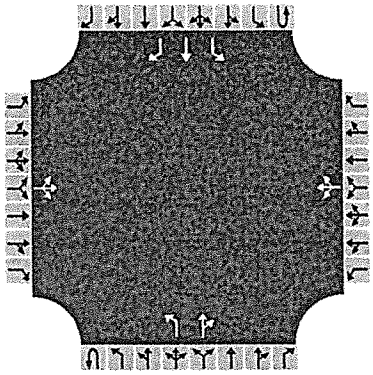
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		3	2	25		194	0	8		34	179	326		14	93	1
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			32				220			37				15		
Capacity			766				402			1489				1020		
v/c Ratio			0.04				0.55			0.02				0.01		
95% Queue Length			0.1				3.2			0.1				0.0		
Control Delay (s/veh)			9.9				24.3			7.5				8.6		
Level of Service (LOS)			A				C			A				A		
Approach Delay (s/veh)	9.9				24.3				0.5				1.1			
Approach LOS	A				C											

HCS 2010 Two-Way Stop Control Summary Report

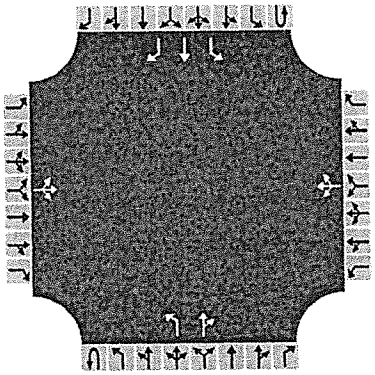
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	AM Base
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		0	0	40		5	0	5		10	90	5		0	160	0
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			43				10			11						
Capacity			869				741			1402				1488		
v/c Ratio			0.05				0.01			0.01						
95% Queue Length			0.2				0.0			0.0						
Control Delay (s/veh)			9.4				9.9			7.6				7.4		
Level of Service (LOS)			A				A			A				A		
Approach Delay (s/veh)	9.4				9.9				0.7							
Approach LOS	A				A											

HCS 2010 Two-Way Stop Control Summary Report

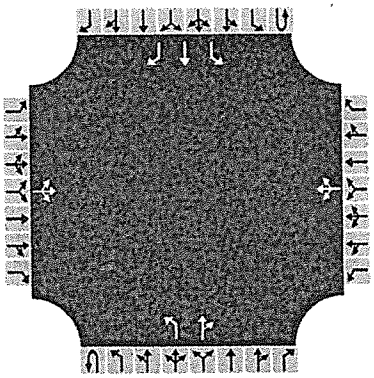
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	PM Base
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dri.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		5	5	25		5	0	0		35	200	5		0	105	5
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			37				5			38						
Capacity			777				513			1468				1346		
v/c Ratio			0.05				0.01			0.03						
95% Queue Length			0.1				0.0			0.1						
Control Delay (s/veh)			9.9				12.1			7.5				7.7		
Level of Service (LOS)			A				B			A				A		
Approach Delay (s/veh)	9.9				12.1				1.1							
Approach LOS	A				B											

HCS 2010 Two-Way Stop Control Summary Report

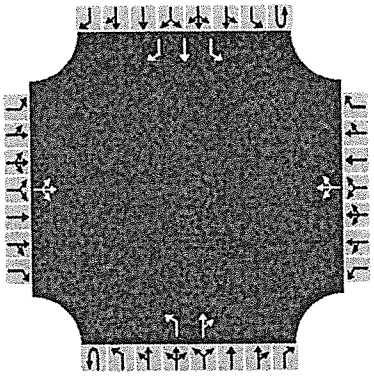
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		0	0	40		320	0	18		10	90	109		5	160	0
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			43				368			11				5		
Capacity			869				556			1402				1353		
v/c Ratio			0.05				0.66			0.01				0.00		
95% Queue Length			0.2				4.9			0.0				0.0		
Control Delay (s/veh)			9.4				23.2			7.6				7.7		
Level of Service (LOS)			A				C			A				A		
Approach Delay (s/veh)	9.4				23.2				0.4				0.2			
Approach LOS	A				C											

HCS 2010 Two-Way Stop Control Summary Report

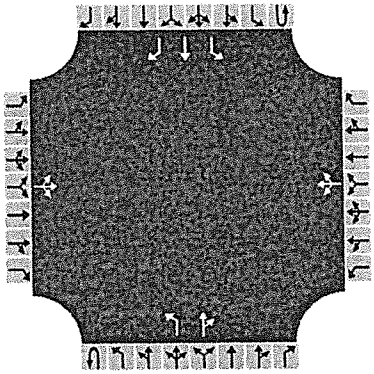
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		5	5	25		195	0	8		35	200	328		14	105	5
Percent Heavy Vehicles		2	2	2		2	2	2		2				2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)			37				221			38				15		
Capacity			638				375			1468				998		
v/c Ratio			0.06				0.59			0.03				0.02		
95% Queue Length			0.2				3.6			0.1				0.0		
Control Delay (s/veh)			11.0				27.5			7.5				8.7		
Level of Service (LOS)			B				D			A				A		
Approach Delay (s/veh)	11.0				27.5				0.5				1.0			
Approach LOS	B				D											

HCS 2010 Two-Way Stop Control Summary Report

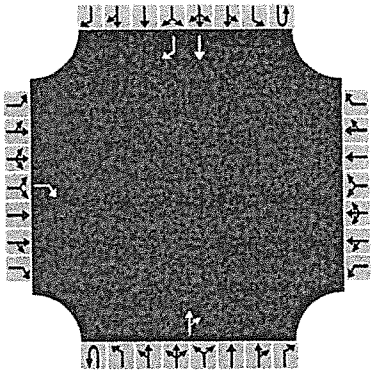
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa EBR
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	1	0	0	0	1	1
Configuration				R								TR			T	R
Volume (veh/h)				41							70	106			121	0
Percent Heavy Vehicles				2												
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)				45												
Capacity				917												
v/c Ratio				0.05												
95% Queue Length				0.2												
Control Delay (s/veh)				9.1												
Level of Service (LOS)				A												
Approach Delay (s/veh)	9.1															
Approach LOS	A															

HCS 2010 Two-Way Stop Control Summary Report

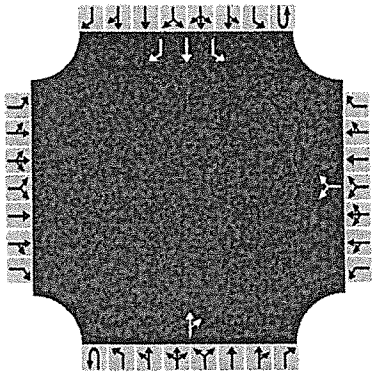
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	AM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa WBL
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	1	1	1
Configuration							LR					TR		L	T	R
Volume (veh/h)						319		14			70	106		5	0	0
Percent Heavy Vehicles						2		2						2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							362							5		
Capacity							831							1382		
v/c Ratio							0.44							0.00		
95% Queue Length							2.2							0.0		
Control Delay (s/veh)							12.6							7.6		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					12.6								7.6			
Approach LOS					B											

HCS 2010 Two-Way Stop Control Summary Report

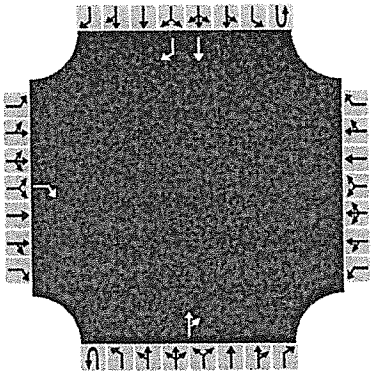
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa EBR
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	1	0	0	0	1	1
Configuration				R								TR			T	R
Volume (veh/h)				25							202	326			93	1
Percent Heavy Vehicles				2												
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)				27												
Capacity				954												
v/c Ratio				0.03												
95% Queue Length				0.1												
Control Delay (s/veh)				8.9												
Level of Service (LOS)				A												
Approach Delay (s/veh)	8.9															
Approach LOS	A															

HCS 2010 Two-Way Stop Control Summary Report

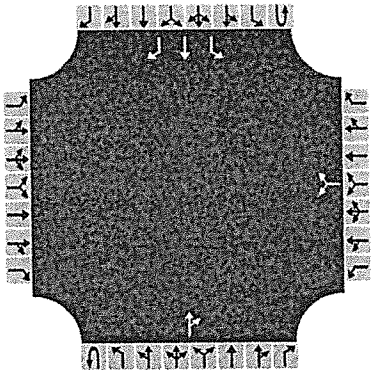
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2016
Time Analyzed	PM Existing + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa WBL
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	1	1	1
Configuration							LR					TR		L	T	R
Volume (veh/h)						194		8			202	326		16	0	0
Percent Heavy Vehicles						2		2						2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							220							17		
Capacity							535							998		
v/c Ratio							0.41							0.02		
95% Queue Length							2.0							0.1		
Control Delay (s/veh)							16.3							8.7		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					16.3								8.7			
Approach LOS					C											

HCS 2010 Two-Way Stop Control Summary Report

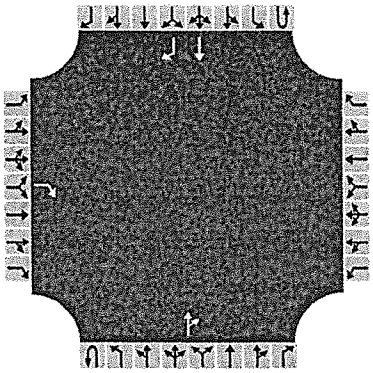
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa EBR
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	1	0	0	0	1	1
Configuration				R								TR			T	R
Volume (veh/h)				40							97	109			160	0
Percent Heavy Vehicles				2												
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)				43												
Capacity				869												
v/c Ratio				0.05												
95% Queue Length				0.2												
Control Delay (s/veh)				9.4												
Level of Service (LOS)				A												
Approach Delay (s/veh)	9.4															
Approach LOS	A															

HCS 2010 Two-Way Stop Control Summary Report

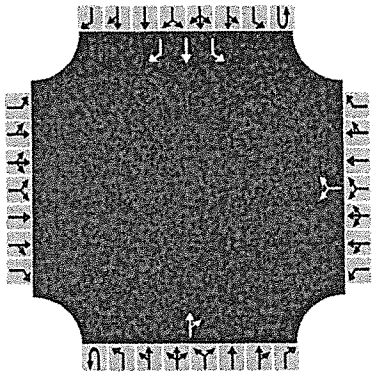
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	AM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa EBR
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	1	1	1
Configuration							LR					TR		L	T	R
Volume (veh/h)						320		18			97	109		5	0	0
Percent Heavy Vehicles						2		2						2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							368							5		
Capacity							796							1345		
v/c Ratio							0.46							0.00		
95% Queue Length							2.5							0.0		
Control Delay (s/veh)							13.4							7.7		
Level of Service (LOS)							B							A		
Approach Delay (s/veh)					13.4								7.7			
Approach LOS					B											

HCS 2010 Two-Way Stop Control Summary Report

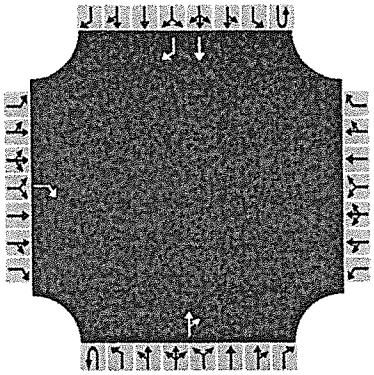
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa EBR
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	1	0	0	0	1	1
Configuration				R								TR			T	R
Volume (veh/h)				25							224	328			105	5
Percent Heavy Vehicles				2												
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)				27												
Capacity				938												
v/c Ratio				0.03												
95% Queue Length				0.1												
Control Delay (s/veh)				9.0												
Level of Service (LOS)				A												
Approach Delay (s/veh)	9.0															
Approach LOS	A															

HCS 2010 Two-Way Stop Control Summary Report

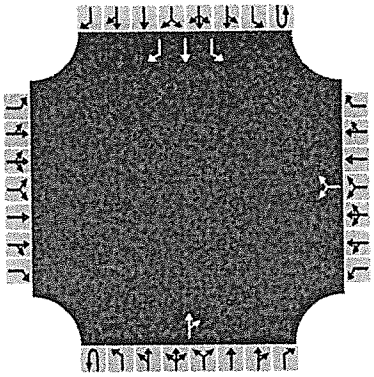
General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	6/16/2016
Analysis Year	2025
Time Analyzed	PM Base + Project
Intersection Orientation	North-South
Project Description	Harris Ranch

Site Information

Intersection	Pyramid & Alamosa WBL
Jurisdiction	Washoe County
East/West Street	Landmark Dr.-Alamosa Dr.
North/South Street	Pyramid Highway
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

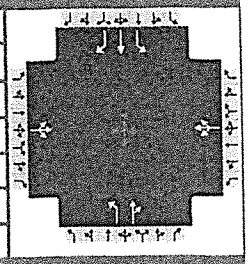
Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	0	0	0	1	0	0	1	1	1
Configuration							LR					TR		L	T	R
Volume (veh/h)						195		8			224	328		19	0	0
Percent Heavy Vehicles						2		2						2		
Proportion Time Blocked																
Right Turn Channelized	No				No				No				No			
Median Type	Undivided															
Median Storage																

Delay, Queue Length, and Level of Service

Flow Rate (veh/h)							221							21		
Capacity							508							976		
v/c Ratio							0.44							0.02		
95% Queue Length							2.2							0.1		
Control Delay (s/veh)							17.4							8.8		
Level of Service (LOS)							C							A		
Approach Delay (s/veh)					17.4								8.8			
Approach LOS					C											

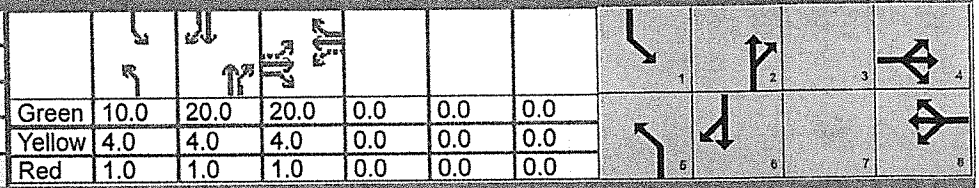
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	Existing + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Landmark-Al...	File Name	PyAl16aw.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1	1	41	319	1	14	8	64	106	5	121	1

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.0	20.0	20.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0

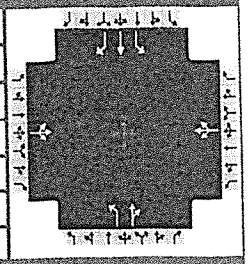
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		8.0	2.0	4.0	2.0	3.0
Phase Duration, s		25.0		25.0	15.0	25.0	15.0	25.0
Change Period, ($Y+R_c$), s		5.0		5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s		3.3		17.6	2.3	7.4	2.2	5.3
Green Extension Time (g_e), s		0.7		0.2	0.0	0.5	0.0	0.5
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.00		1.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		45			352		8	179		5	127	1
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1588			1366		1774	1675		1774	1863	1579
Queue Service Time (g_s), s		0.0			14.3		0.3	5.4		0.2	3.3	0.0
Cycle Queue Clearance Time (g_c), s		1.3			15.6		0.3	5.4		0.2	3.3	0.0
Green Ratio (*g/C*)		0.31			0.31		0.15	0.31		0.15	0.31	0.31
Capacity (*c*), veh/h		545			529		273	515		273	573	486
Volume-to-Capacity Ratio (*X*)		0.083			0.665		0.031	0.347		0.019	0.222	0.002
Back of Queue (*Q*), ft/ln (50 th percentile)		11.2			121.6		2.6	48.3		1.7	32.8	0.3
Back of Queue (*Q*), veh/ln (50 th percentile)		0.4			4.8		0.1	1.9		0.1	1.3	0.0
Queue Storage Ratio (*RQ*) (50 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		16.0			21.0		23.4	17.4		23.3	16.7	15.6
Incremental Delay (d_2), s/veh		0.0			2.6		0.0	0.1		0.0	0.1	0.0
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		16.1			23.5		23.4	17.6		23.3	16.8	15.6
Level of Service (LOS)		B			C		C	B		C	B	B
Approach Delay, s/veh / LOS	16.1	B		23.5	C		17.9	B		17.0	B	
Intersection Delay, s/veh / LOS	20.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	0.8	A	0.7	A

HCS 2010 Signalized Intersection Results Summary

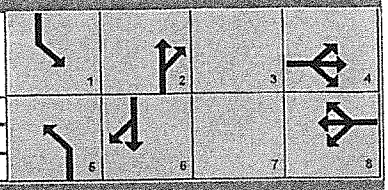
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	PM Peak Hour	PHF	0.95
Urban Street		Analysis Year	Existing + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Landmark-Al...	File Name	PyAl16pw.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	3	2	25	194	1	8	34	179	326	14	93	1

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.0	30.0	20.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	1.0	1.0	1.0	0.0	0.0	0.0	



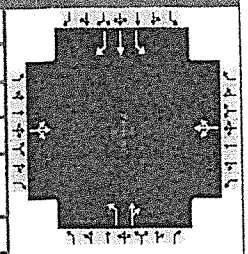
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		8.0	2.0	4.0	2.0	3.0
Phase Duration, s		25.0		25.0	15.0	35.0	15.0	35.0
Change Period, ($Y+R_c$), s		5.0		5.0	5.0	5.0	5.0	5.0
Max Allow Headway (*MAH*), s		3.1		3.1	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s		3.1		12.0	3.3	23.0	2.5	4.5
Green Extension Time (g_e), s		0.4		0.3	0.0	1.0	0.0	1.4
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.00		0.01	0.00	0.17	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		32			214		36	532		15	98	1
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1601			1387		1774	1669		1774	1863	1579
Queue Service Time (g_s), s		0.0			8.9		1.3	21.0		0.5	2.5	0.0
Cycle Queue Clearance Time (g_c), s		1.1			10.0		1.3	21.0		0.5	2.5	0.0
Green Ratio (*g/C*)		0.27			0.27		0.13	0.40		0.13	0.40	0.40
Capacity (*c*), veh/h		480			464		237	668		237	745	631
Volume-to-Capacity Ratio (*X*)		0.066			0.461		0.151	0.796		0.062	0.131	0.002
Back of Queue (*Q*), ft/ln (50 th percentile)		10			78.5		14	214.7		5.7	24.7	0.3
Back of Queue (*Q*), veh/ln (50 th percentile)		0.4			3.1		0.6	8.5		0.2	1.0	0.0
Queue Storage Ratio (*RQ*) (50 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		20.6			23.8		28.7	19.8		28.4	14.2	13.5
Incremental Delay (d_2), s/veh		0.0			0.3		0.1	6.2		0.0	0.0	0.0
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		20.6			24.1		28.9	26.0		28.4	14.3	13.5
Level of Service (LOS)		C			C		C	C		C	B	B
Approach Delay, s/veh / LOS	20.6	C		24.1	C		26.2	C		16.1	B	
Intersection Delay, s/veh / LOS	24.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.8	A	1.4	A	0.7	A

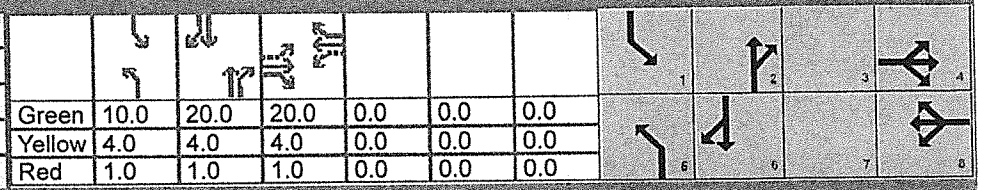
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	AM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2025 Base + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Landmark-Al...	File Name	PyAl25aw.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	1	1	40	320	1	18	10	90	109	5	160	1

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.0	20.0	20.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	1.0	1.0	1.0	0.0	0.0	0.0

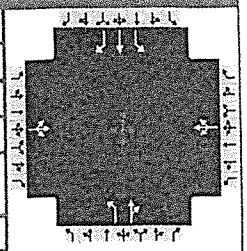
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		8.0	2.0	4.0	2.0	3.0
Phase Duration, s		25.0		25.0	15.0	25.0	15.0	25.0
Change Period, ($Y+R_c$), s		5.0		5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s		3.2		3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s		3.3		17.9	2.3	8.3	2.2	6.5
Green Extension Time (g_e), s		0.7		0.2	0.0	0.6	0.0	0.6
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.00		1.00	0.00	0.00	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h		44			357		11	209		5	168	1
Adjusted Saturation Flow Rate (s), veh/h/ln		1588			1370		1774	1696		1774	1863	1579
Queue Service Time (g_s), s		0.0			14.6		0.3	6.3		0.2	4.5	0.0
Cycle Queue Clearance Time (g_c), s		1.3			15.9		0.3	6.3		0.2	4.5	0.0
Green Ratio (g/C)		0.31			0.31		0.15	0.31		0.15	0.31	0.31
Capacity (c), veh/h		545			529		273	522		273	573	486
Volume-to-Capacity Ratio (X)		0.081			0.674		0.039	0.401		0.019	0.294	0.002
Back of Queue (Q), ft/ln (50 th percentile)		10.9			124.7		3.3	57.6		1.7	44.5	0.3
Back of Queue (Q), veh/ln (50 th percentile)		0.4			4.9		0.1	2.3		0.1	1.8	0.0
Queue Storage Ratio (RQ) (50 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		16.0			21.1		23.4	17.8		23.3	17.1	15.6
Incremental Delay (d_2), s/veh		0.0			2.8		0.0	0.2		0.0	0.1	0.0
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh		16.0			23.8		23.4	18.0		23.3	17.2	15.6
Level of Service (LOS)		B			C		C	B		C	B	B
Approach Delay, s/veh / LOS	16.0	B		23.8	C		18.2	B		17.4	B	
Intersection Delay, s/veh / LOS	20.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	0.9	A	0.8	A

HCS 2010 Signalized Intersection Results Summary

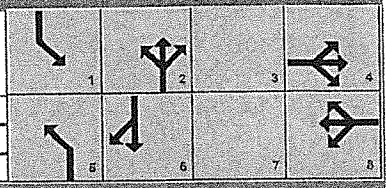
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Jun 17, 2016	Area Type	Other
Jurisdiction	Washoe County	Time Period	PM Peak Hour	PHF	0.95
Urban Street		Analysis Year	2025 Base + Project	Analysis Period	1> 7:00
Intersection	Pyramid & Landmark-Al...	File Name	PyAl25pw.xus		
Project Description	Harris Ranch				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	5	5	25	195	1	8	35	200	328	14	105	5

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.0	30.0	20.0	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	1.0	1.0	1.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		8.0		8.0	1.1	4.0	2.0	3.0
Phase Duration, s		25.0		25.0	15.0	35.0	15.0	35.0
Change Period, ($Y+R_c$), s		5.0		5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s		3.1		3.1	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s		3.3		12.1	2.7	24.3	2.5	4.8
Green Extension Time (g_e), s		0.4		0.3	0.0	0.9	0.0	1.5
Phase Call Probability		1.00		1.00	1.00	1.00	1.00	1.00
Max Out Probability		0.00		0.01	0.00	0.33	0.00	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h		37			215		37	556		15	111	5
Adjusted Saturation Flow Rate (s), veh/h/ln		1622			1384		1774	1675		1774	1863	1579
Queue Service Time (g_s), s		0.0			8.8		0.7	22.3		0.5	2.8	0.2
Cycle Queue Clearance Time (g_c), s		1.3			10.1		0.7	22.3		0.5	2.8	0.2
Green Ratio (g/C)		0.27			0.27		0.53	0.40		0.13	0.40	0.40
Capacity (c), veh/h		487			463		761	670		237	745	631
Volume-to-Capacity Ratio (X)		0.076			0.464		0.048	0.829		0.062	0.148	0.008
Back of Queue (Q), ft/ln (50 th percentile)		11.7			79.1		6.3	236.3		5.7	28.2	1.3
Back of Queue (Q), veh/ln (50 th percentile)		0.5			3.1		0.2	9.3		0.2	1.1	0.0
Queue Storage Ratio (RQ) (50 th percentile)		0.00			0.00		0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		20.6			23.8		8.5	20.2		28.4	14.4	13.5
Incremental Delay (d_2), s/veh		0.0			0.3		0.0	8.1		0.0	0.0	0.0
Initial Queue Delay (d_3), s/veh		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (d), s/veh		20.7			24.1		8.5	28.3		28.4	14.4	13.5
Level of Service (LOS)		C			C		A	C		C	B	B
Approach Delay, s/veh / LOS	20.7	C		24.1	C		27.1	C		15.9	B	
Intersection Delay, s/veh / LOS	24.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.8	A	1.5	A	0.7	A

C & M ENGINEERING AND DESIGN, LTD

July 8, 2016

Jesse Haw / Bob Sader
Spanish Springs Assoc. LTD Partnership
550 W. Plumb Lane, Suite B., #505
Reno, Nevada 89509

RE: FEASIBILITY REPORT FOR HARRIS RANCH'S WATER, SEWER, AND STORM DRAIN SYSTEMS AT PROPOSED TENTATIVE MAP PROPERTY – 610 ACRES (APN 534-600-01, 02 & 076-290-44)

Dear Community Services Department,

As requested, C & M Engineering and Design has analyzed the domestic water system, sewer system, and storm drain for Harris Ranch Subdivision (the "Subdivision") tentative map application within APNs 534-600-01, 534-600-02, and 076-290-44. This land is located approximately 3 miles north of Eagle Canyon Drive on the east side of Pyramid Highway within the unincorporated portion of Spanish Springs Valley. See the attached vicinity map. The Subdivision layout includes 610 lots located on APNs 532-600-01 and 02. The Subdivision has LDS zoning and is a common open space development. The Subdivision property is master planned in the Spanish Springs Area Plan as suburban residential and is also within the Suburban Character Management Area.

DOMESTIC WATER

TMWA, the Truckee Meadows Water Authority, in 2015 became the water purveyor for the Subdivision. Prior to the merger, Washoe County Department of Water Resources (WCDWR) was the water purveyor. The owner of the Subdivision had TWMA prepare a Discovery Study for the proposed project. The proposed project area is presently not within TMWA's service territory but an annexation was submitted to TWMA in 2015. TMWA's findings were published on December 4, 2015. The findings were based upon 750 single family residences; however the latest site plan contains 610 lots. Based upon TMWA's conceptual water service plan, the estimated maximum day demand is approximately 740 gpm, under the premise of 750 single family residences averaging 9,000 square feet. This estimated water demand does not include water for common area irrigation, which is anticipated to be minimal. The Discovery's conclusions state TMWA is agreeable to supplying water service to the project, subject to the applicant satisfying certain conditions precedent, including successful annexation to the TMWA's retail service area, the dedication of water resources, approval of the water supply plan by the local health authority, the execution of a Water Service Agreement, payment of fees, and the construction and dedication of infrastructure and easements in accordance with TMWA rules and tariffs. The conceptual water service plan within the Discovery depicts two water main extensions from the existing Spring Creek 6 Tank Zone to the Subdivision being necessary for meeting TMWA's regulations. The Discovery describes an existing tank zone limit of 4700 to 4720 feet for maximum service pressure elevations, with which the Subdivision complies. Five pressure regulating stations may be necessary to maintain service pressures below 100 psi.

The Discovery finding for the water demand, based upon 750 single family residences, is 337.50 acre-feet and for estimated maximum day demand, 740 gpm, although these amounts may increase somewhat due to larger lot sizes in the Subdivision than those assumed by TMWA. Reducing these specifications for 610 lots, the water demand would be 274.5 acre feet and the maximum day demand would be 601.87 gpm. There are no Truckee River decreed water rights or resource credits appurtenant to the subject parcels. Once annexed, the developers will be required to follow TMWA's current rules and pay all fees for water right dedication needed in order to obtain a will serve commitment letter.

IRRIGATION WATER

The landscaping will be part of the individual residential units. Minimal common area landscaping is anticipated.

SANITARY SEWER

The Subdivision will be served by a gravity sewer system that drains to the existing Pebble Creek-North Spanish Springs Lift Station. The Pebble Creek – North Spanish Springs Lift Station and Force Main are located west of Subdivision. The lift station was sized for the full build-out of the northern portion of the Spanish Springs Area Plan.

The Subdivision will tie into Washoe County's existing sanitary sewer system in two locations along Pyramid Lake Highway (SR445), one on the north end of the project and the other on the south. The northern location will be at the project's proposed entrance to an existing 8" diameter line at Alamosa Drive and Landmark Drive. The southern location will be within an existing easement just beyond the proposed project's southern boundary to an existing 10" diameter line constructed with Donovan Ranch Phase 1 improvements.

The owner of the Subdivision had Washoe County prepare a Discovery Study for the proposed project. Washoe County has concluded it can provide sewer service to the proposed project and sufficient existing line capacity should be in place and no improvements will be required by Washoe County to the collection system or Pebble Creek Lift Station. Washoe County is presently reviewing the Spanish Springs Area Plan regarding present connections and its fee structure. The owner will also be responsible for City of Sparks sewer connection fees since the sewage enters into its system.

STORM WATER

All the storm water runoff from the Subdivision will mimic existing drainage patterns and sheet flow or shallow swale flow towards Pyramid Lake Highway (SR445). All of these flows eventually accumulate at the highway's roadside ditch thence to the low-point of the highway. Should sufficient runoff accumulate, the water will overtop the highway and drain toward the Boneyard Flat. Boneyard Flat has been accepted by Washoe County as the location that will provide mitigation for increases in runoff due to the development of areas within the northern portion of the Spanish Springs Area Plan. The Subdivision is within the Boneyard Flat drainage basin and will discharge from this site towards to the playa without adversely affecting any existing structures. The Boneyard Flat is located west of the proposed project. Aqua Hydrologic Consulting submitted an application for a Conditional Letter of Map Revision (CLOMR) of Boneyard Flat to FEMA in March 2011. The LOMR was prepared by DEW Hydrology and was approved in 2014. The Subdivision's elevations are higher than the 100-year 24-hour storm water surface elevation as calculated by Aqua Hydrogeologic Consulting and DEW Hydrology (4505.6=100-year Flood Elevation) and will not require elevated pads. The lowest elevation within the proposed site is 4555. The site does receive offsite flows from the Pah Rah Range to the east. Channels will need to be designed and constructed to convey these storm flows through the Subdivision to the Boneyard Flat. These channels are common for the northern Spanish Springs area and exist in the Pebble Creek project to the northwest, as well as within the Spanish Springs Business Center to the south. The proposed on-site drainage system for Harris Ranch consists of curb and gutter, catch basins, storm drains, and open channels. The onsite 5-year flows will be intercepted in an underground storm drain system that discharges into ditches and channels. Overland routes will be provided for events exceeding the capacity of the storm drain systems. Detention or other facilities may be needed along the west side of the site in order to reduce the impact of runoff at the existing adjacent properties to the west. These detention facilities are tentatively shown on the grading plans of the tentative map. During final design, a determination of how to reduce the impacts of storm water runoff to adjacent properties west of the Subdivision should be made. Eventually all runoff in this area drains into Boneyard Flat, an area designated to mitigate increases in runoff due to surrounding development.

Due to the development of this property, there will be an increase in storm water discharge; however, the increase was included in the calculations and submittals to FEMA for Boneyard Flat. The analysis of detention and discharge from Boneyard Flat was performed by Aqua Hydrogeologic Consulting and DEW Hydrology in conjunction with their preparations of the CLOMR and LOMR. Based upon their findings, Boneyard Flat has been accepted by Washoe County as the location that will provide mitigation for increases in runoff due to the development of areas within the northern portion of the Spanish Springs Area Plan and therefore this proposed project requires no detention. The on-site 5 year flows on the proposed site will be intercepted in underground storm drain system, which will discharge into five proposed detention basins to minimize any impacts to adjacent properties to the west.

Sincerely,

Samuel Chacon, P.E.
Principal

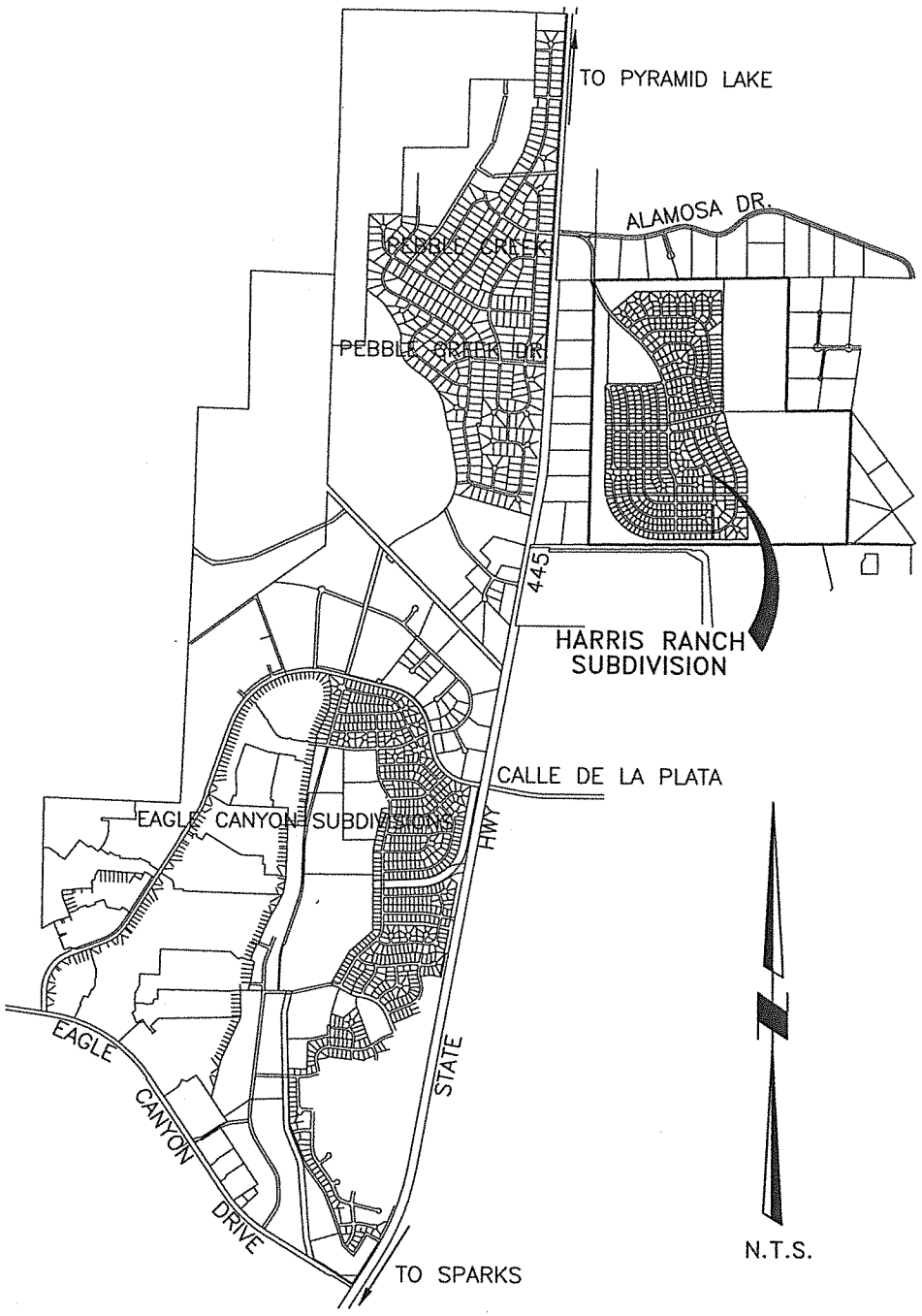


FIGURE 1

VICINITY MAP

HARRIS RANCH SUBDIVISION

C & M ENGINEERING AND DESIGN, LTD
9498 DOUBLE R BLVD., SUITE B RENO, NV 89521
PHONE: (775) 856-3312 FAX: (775) 856-3318

File: P:\04-009.32 Harris Ranch\docs\hydro\ VicMap.dwg
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HARRIS RANCH SUBDIVISION

PRELIMINARY DRAINAGE REPORT

July 8, 2016

C&M Engineering and Design, LTD.

INTRODUCTION

This report presents the preliminary stormwater hydrologic analysis and tentative drainage plan for the Harris Ranch Subdivision in Washoe County, Nevada. The project is located approximately 3 miles north of Eagle Canyon Drive on the east side of Pyramid Highway within the Spanish Springs Valley. The project lies in FEMA flood zone X, unshaded, indicating areas outside the 500-year floodplain. The proposed site drains into the Boneyard Flat, a retention area for the northern portion of the Spanish Springs Valley.

SITE DESCRIPTION

The site consists of approximately 610 acres of undeveloped land located in the Spanish Springs Valley. The site is bounded on the west, north, and east by existing 10 acre parcels and on the south by the Donovan Ranch property. Harris Ranch is approximately 1000 feet south of Alamosa Drive and 1100 feet east of Pyramid Highway. The site is located within assessor's parcel numbers 534-600-01, 534-600-02, and 076-290-44.

The site's runoff flows to the west eventually draining into the Boneyard Flat. Onsite grades range from 18 percent in upper easterly area of the site to 6 percent in the westerly portion of the site where the majority of development should occur. Groundcover consists primarily of a

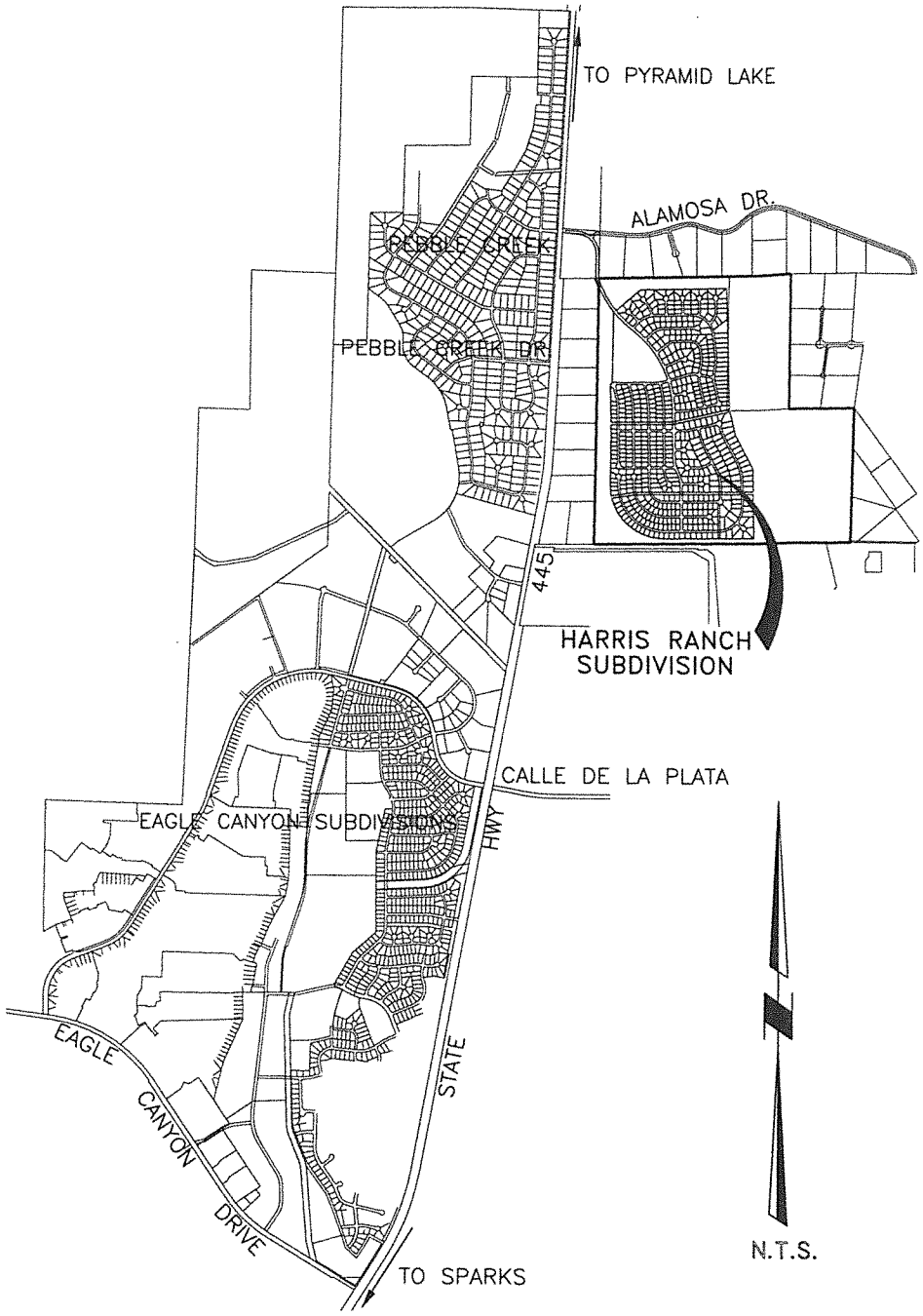


FIGURE 1

VICINITY MAP

HARRIS RANCH SUBDIVISION

C & M ENGINEERING AND DESIGN, LTD
9498 DOUBLE R BLVD., SUITE B RENO, NV 89521
PHONE: (775) 856-3312 FAX: (775) 856-3318

File: P:\04-009.32 Harris Ranch\docs\hydro\ VicMap.dwg
<lmenante> Wed, 06 Jul 2016 - 1:49pm

moderate growth of sagebrush and grasses, with occasional jeep trails traversing the site. The soil type predominately consists of decomposed granite silty sands as determined by Black Eagle Consulting.

PROJECT DESCRIPTION

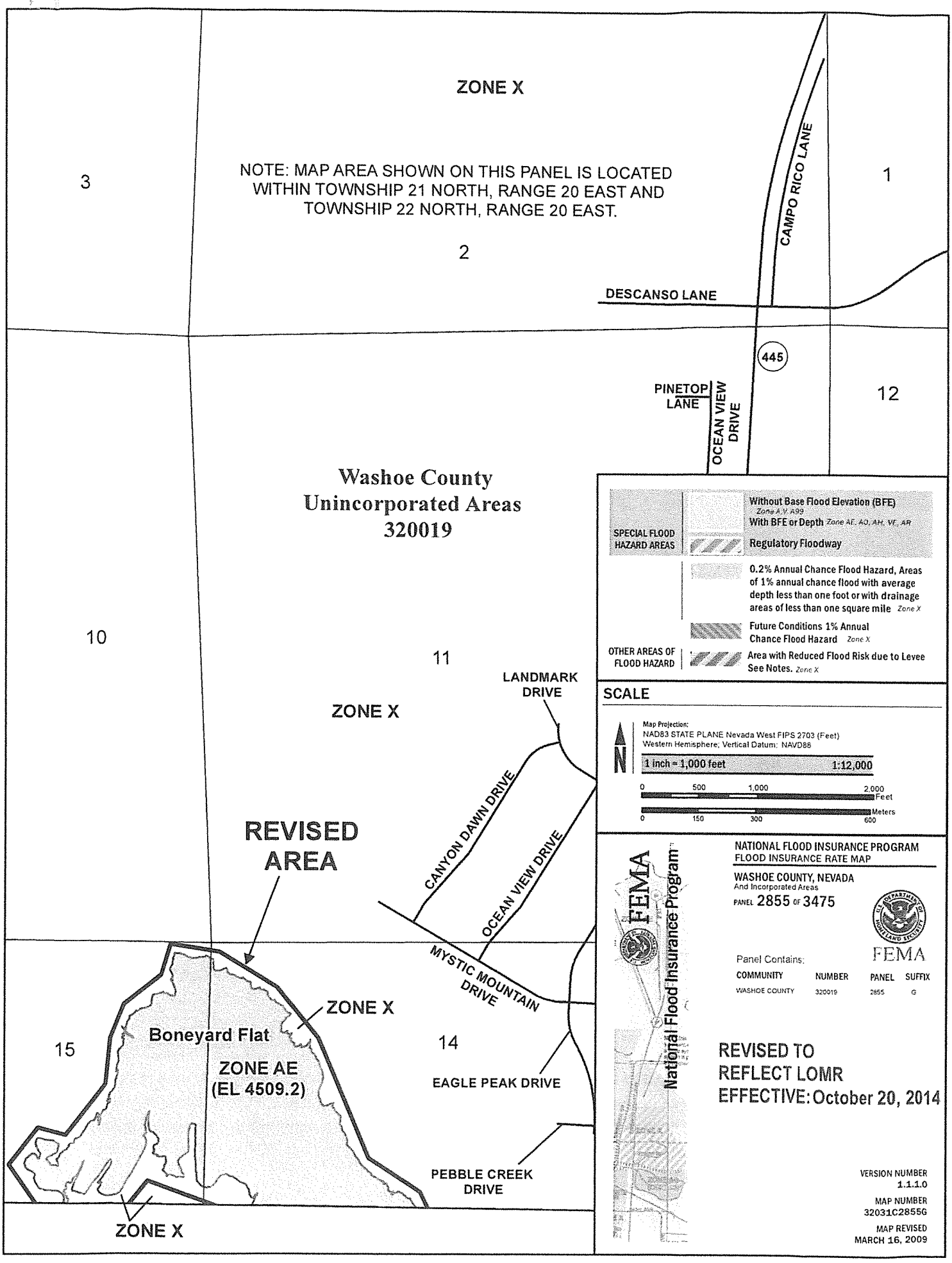
Harris Ranch is a proposed single family residential subdivision consisting of a minimum of 610 units with a minimum lot size of 10,000 square feet, maximum of 50,885 square feet, and average of 14,866 square feet. Primary access to the site will be from Pyramid Highway to Alamosa Drive then south on to the proposed collector street for the subdivision. The project is proposed to be constructed in several phases. The streets will be public.

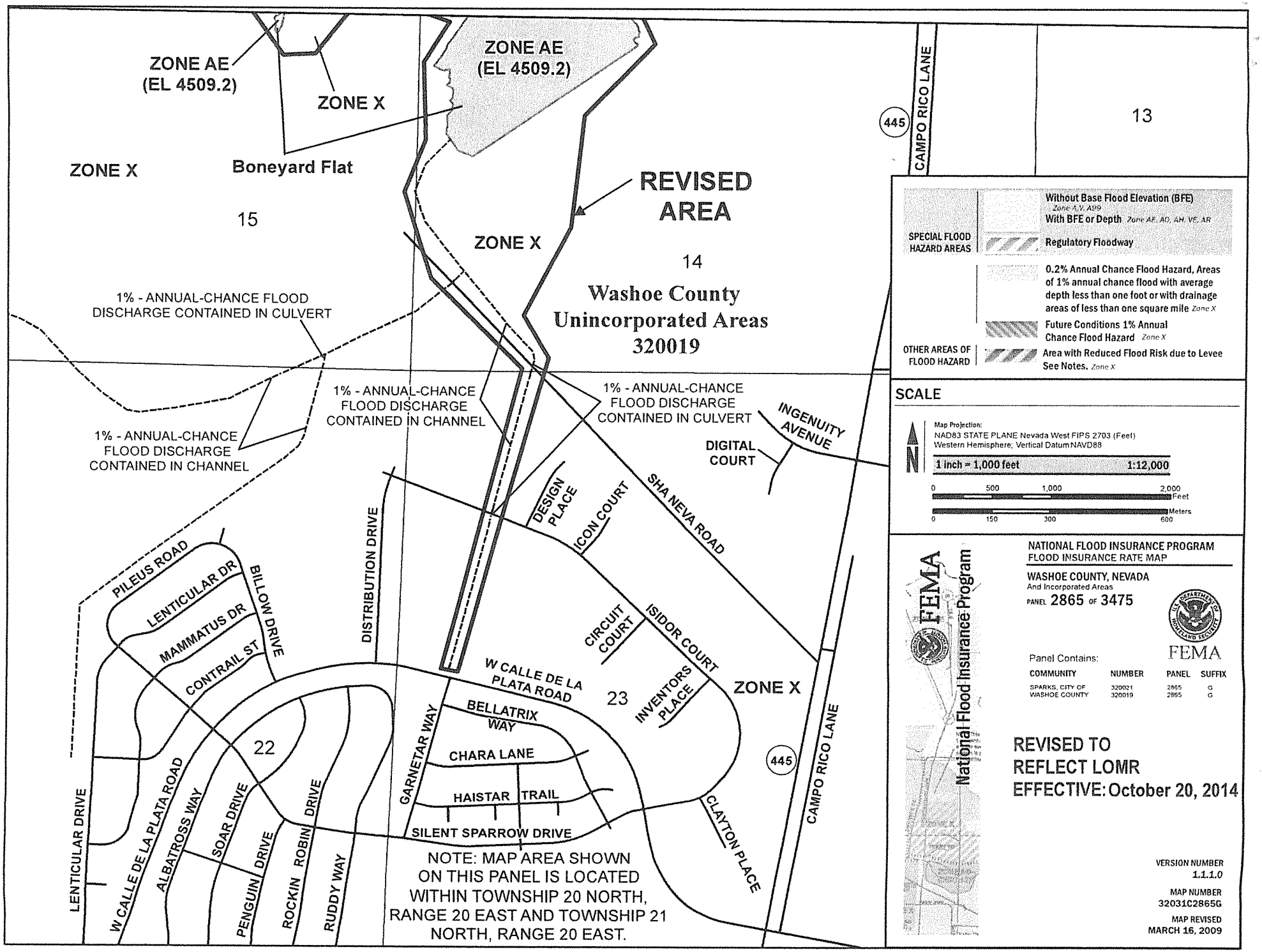
FLOOD ZONE

Based on Flood Insurance Rate Maps Nos. 32031C2855G (revised 10/2014), 32031C2865G revised 10/2014), and 32031C2860G (panel not printed), prepared by the Federal Emergency Management Agency (FEMA), the project site lies in "Flood Zone X (unshaded) outside the 500-year floodplain," indicating minimal flooding potential.

EXISTING DRAINAGE

Most of the existing site drains by sheet flow and shallow swale flow toward Pyramid Lake Highway (SR445). The site receives offsite flow from low-lying hills to the east and northeast. Some of the offsite runoff from the east currently flows by a natural swale to the Donovan Aggregate Pit. These offsite flows were tabulated by Aqua Hydrogeologic Consulting Inc in their study of the Boneyard Flat. All of the flows eventually accumulate at Pyramid Lake Highway (SR445)'s roadside ditch thence its low-point. Should sufficient runoff accumulate, the water will overtop the highway and drain toward the Boneyard Flat. A few studies of the offsite flows have been completed and can be found in existing drainage reports listed in the References section of this report. See Appendix B for existing analysis information relevant to this project.


ZONE X
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 21 NORTH, RANGE 20 EAST AND TOWNSHIP 22 NORTH, RANGE 20 EAST.
3
2
1
CAMPO RICO LANE
DESCANSO LANE
445
PINETOP LANE
OCEAN VIEW DRIVE
12
Washoe County
Unincorporated Areas
320019
10
11
LANDMARK DRIVE
ZONE X
CANYON DAWN DRIVE
OCEAN VIEW DRIVE
REVISED AREA
MYSTIC MOUNTAIN DRIVE
ZONE X
Boneyard Flat
ZONE AE
(EL 4509.2)
15
14
EAGLE PEAK DRIVE
PEBBLE CREEK DRIVE
ZONE X
SPECIAL FLOOD HAZARD AREAS
Without Base Flood Elevation (BFE) Zone A, V, A99
With BFE or Depth Zone AE, AO, AH, VE, AR
Regulatory Floodway
0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
Future Conditions 1% Annual Chance Flood Hazard Zone X
OTHER AREAS OF FLOOD HAZARD
Area with Reduced Flood Risk due to Levee See Notes. Zone X
SCALE
N
Map Projection:
NAD83 STATE PLANE Nevada West FIPS 2703 (Feet)
Western Hemisphere; Vertical Datum: NAVD88
1 inch = 1,000 feet
1:12,000
0 500 1,000 2,000 Feet
0 150 300 600 Meters
FEMA
National Flood Insurance Program
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
WASHOE COUNTY, NEVADA
And Incorporated Areas
PANEL 2855 OF 3475
FEMA
Panel Contains:
COMMUNITY NUMBER PANEL SUFFIX
WASHOE COUNTY 320019 2855 G
REVISED TO REFLECT LOMR EFFECTIVE: October 20, 2014
VERSION NUMBER 1.1.1.0
MAP NUMBER 32031C2855G
MAP REVISED MARCH 16, 2009


ZONE AE
(EL 4509.2)
ZONE X
ZONE AE
(EL 4509.2)
ZONE X
Boneyard Flat
15
ZONE X
REVISED
AREA
14
Washoe County
Unincorporated Areas
320019
13
445
CAMPO RICO LANE
1% - ANNUAL-CHANCE FLOOD
DISCHARGE CONTAINED IN CULVERT
1% - ANNUAL-CHANCE
FLOOD DISCHARGE
CONTAINED IN CHANNEL
1% - ANNUAL-CHANCE
FLOOD DISCHARGE
CONTAINED IN CULVERT
1% - ANNUAL-CHANCE
FLOOD DISCHARGE
CONTAINED IN CHANNEL
INGENUITY
AVENUE
DIGITAL
COURT
DESIGN
PLACE
ICON COURT
SHA NEVA ROAD
DISTRIBUTION DRIVE
PILEUS ROAD
LENTICULAR DR
MAMMATUS DR
CONTRAIL ST
BILLOW DRIVE
CIRCUIT
COURT
ISIDOR COURT
INVENTORS
PLACE
W CALLE DE LA
PLATA ROAD
23
ZONE X
BELLATRIX
WAY
GARNETAR WAY
CHARA LANE
HAISTAR TRAIL
SILENT SPARROW DRIVE
22
445
CLAYTON PLACE
CAMPO RICO LANE
LENTICULAR DRIVE
W CALLE DE LA PLATA ROAD
ALBATROSS WAY
SOAR DRIVE
PENGUIN DRIVE
ROCKIN ROBIN DRIVE
RUDDY WAY
NOTE: MAP AREA SHOWN
ON THIS PANEL IS LOCATED
WITHIN TOWNSHIP 20 NORTH,
RANGE 20 EAST AND TOWNSHIP 21
NORTH, RANGE 20 EAST.
SPECIAL FLOOD HAZARD AREAS
Without Base Flood Elevation (BFE)
Zone A, V, A99
With BFE or Depth Zone AE, AO, AH, VE, AR
Regulatory Floodway
0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
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0 500 1,000 2,000 Feet
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NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
WASHOE COUNTY, NEVADA
And Incorporated Areas
PANEL 2865 OF 3475
FEMA
Panel Contains:
COMMUNITY NUMBER PANEL SUFFIX
SPARKS, CITY OF 320021 2865 G
WASHOE COUNTY 320019 2865 G
REVISED TO
REFLECT LOMR
EFFECTIVE: October 20, 2014
VERSION NUMBER
1.1.1.0
MAP NUMBER
32031C2865G
MAP REVISED
MARCH 16, 2009

PROPOSED DRAINAGE

The proposed onsite drainage system for Harris Ranch consists of curb and gutter, catch basins, storm drains, and open channels. The onsite 5-year flows will be intercepted in an underground storm drain system that discharges into ditches and channels. Overland routes will be provided for events exceeding the capacity of the storm drain systems. Detention or other facilities may be needed along the west side of the site in order to reduce the impact of runoff at the adjacent properties. These detention facilities are tentatively shown on the grading plan. Eventually all runoff in this area drains into the Boneyard Flat, an area designated to mitigate increases in runoff due to surrounding development.

DETENTION

Harris Ranch should require no on-site detention. Increased runoff mitigation for the proposed subdivision will be provided by the Boneyard Flat playa as determined in a report prepared by DEW Hydrology. DEW Hydrology considered fully developed conditions based on current zoning for undeveloped areas on the CLOMR and LOMR on study of the Boneyard Flat and its storage capacity. Therefore, the development of Harris Ranch should not adversely impact the drainage at the Boneyard Flat since Harris Ranch was considered as fully developed in DEW Hydrology studies in March 2011 and December 2013. As previously mentioned, some on-site detention may be necessary to reduce the impacts of runoff at existing properties west of the proposed subdivision. During final design, a determination of how to reduce the impacts of storm water runoff to adjacent properties west of the subdivision should be made.

HYDROLOGY

A preliminary onsite storm drain system was laid out and analyzed using the Rational Method. The drainage areas are delineated and can be seen on the Hydrology Map in the Appendix under the Rational Method section. Detailed hydrologic and hydraulic calculations will be provided during final design.

CONCLUSIONS

1. Based on this preliminary hydrologic analysis, it appears that Harris Ranch can be developed as planned without adverse impact to surrounding properties with respect to storm drainage.
2. A storm drain system for each unit should be analyzed and designed as determined in individual drainage studies.
3. Mitigation of increases in storm water runoff due to the development of this project will be retained in the Boneyard Flat.

REFERENCES

AQUA Hydrogeologic Consulting, Conditional Letter of Map Revision (CLOMR) Boneyard Flat, Washoe County, Nevada, March 2011.

DEW Hydrology, Letter of Map Revision LOMR Boneyard Flat, Washoe County, Nevada, December, 2013.

Nimbus Engineers, Boneyard Flat Playa 100-Year 10-Day Storm Event Analysis, November 2000.

Nimbus Engineers, Eagle Canyon III Flood Hydrology Master Plan, November 2001.

CFA Inc., Master Drainage Report for Pebble Creek Subdivision, February 2001.

APPENDIX A

RATIONAL METHOD CALCULATIONS

RATIONAL METHOD HYDROLOGY
WASHOE COUNTY / RENO IDF CURVES
HARRIS RANCH SUBDIVISION

PART A: INDIVIDUAL DRAINAGE AREAS

DESIGN POINT	DRAINAGE SUB-AREA	AREA (acres)	RUNOFF COEFF.	WATERSHED LENGTH (ft)	VELOCITY (ft/sec)	TIME OF CONC (min)	INTENSITY (in/hr) 5-YR	INTENSITY (in/hr) 100-YR	PEAK RUNOFF (c 5-YR	PEAK RUNOFF (c 100-YR
N1 Ditch	N1A	4.00	0.45	420	2	10.00	1.48	3.80	**2.66**	**6.84**
N1 Ditch	N1B	4.67	0.45	450	2	10.00	1.48	3.80	**3.11**	**7.98**
N1 Ditch	N1C	4.15	0.45	450	2	10.00	1.48	3.80	**2.77**	**7.10**
W1 Ditch	W1A	18.97	0.45	2350	2	19.58	1.10	2.50	**9.36**	**21.34**
W1 Ditch	W1B	9.18	0.45	1350	2	11.25	1.44	3.60	**5.93**	**14.87**
W1 Ditch	W1C	7.88	0.45	1150	2	10.00	1.48	3.80	**5.25**	**13.47**
W1 Ditch	W1D	4.98	0.45	500	2	10.00	1.48	3.80	**3.32**	**8.52**
W1 Ditch	W1E	0.97	0.45	1621	2	13.51	1.35	3.13	**0.58**	**1.36**
W2 Ditch	W2A	26.96	0.45	1150	2	10.00	1.48	3.80	**17.96**	**46.11**
W2 Ditch	W2B	4.36	0.45	600	2	10.00	1.48	3.80	**2.90**	**7.45**
W2 Ditch	W2C	3.39	0.45	500	2	10.00	1.48	3.80	**2.26**	**5.79**
W2 Ditch	W2D	2.12	0.45	300	2	10.00	1.48	3.80	**1.41**	**3.62**
W2 Ditch	W2E	2.88	0.45	500	2	10.00	1.48	3.80	**1.92**	**4.92**
W2 Ditch	W2F	0.60	0.45	1100	2	10.00	1.48	3.80	**0.40**	**1.02**
W3 Ditch	W3A	3.58	0.45	450	2	10.00	1.48	3.80	**2.38**	**6.12**
W3 Ditch	W3B	19.47	0.45	1200	2	10.00	1.48	3.80	**12.97**	**33.29**
W3 Ditch	W3C	4.31	0.45	1010	2	10.00	1.48	3.80	**2.87**	**7.36**
W3 Ditch	W3D	3.63	0.45	500	2	10.00	1.48	3.80	**2.42**	**6.20**
W3 Ditch	W3E	3.86	0.45	400	2	10.00	1.48	3.80	**2.57**	**6.59**
W3 Ditch	W3F	3.39	0.45	500	2	10.00	1.48	3.80	**2.26**	**5.79**
W3 Ditch	W3G	4.71	0.45	700	2	10.00	1.48	3.80	**3.14**	**8.05**
W3 Ditch	W3H	3.44	0.45	400	2	10.00	1.48	3.80	**2.29**	**5.88**
W4 Ditch	W4A	5.67	0.45	500	2	10.00	1.48	3.80	**3.78**	**9.70**
W4 Ditch	W4B	3.82	0.45	400	2	10.00	1.48	3.80	**2.54**	**6.53**
W4 Ditch	W4C	12.29	0.45	1150	2	10.00	1.48	3.80	**8.18**	**21.02**
W4 Ditch	W4D	31.35	0.45	1750	2	14.58	1.31	2.98	**18.54**	**42.04**
W4 Ditch	W4E	4.31	0.45	500	2	10.00	1.48	3.80	**2.87**	**7.37**
W4 Ditch	W4F	3.42	0.45	500	2	10.00	1.48	3.80	**2.27**	**5.84**
W4 Ditch	W4G	7.48	0.45	1000	2	10.00	1.48	3.80	**4.98**	**12.80**
W4 Ditch	W4H	3.86	0.45	500	2	10.00	1.48	3.80	**2.57**	**6.60**
W4 Ditch	W4I	6.86	0.45	900	2	10.00	1.48	3.80	**4.57**	**11.73**
W4 Ditch	W4J	9.58	0.45	1050	2	10.00	1.48	3.80	**6.38**	**16.38**
S1 Ditch	S1A	11.16	0.45	800	2	10.00	1.48	3.80	**7.43**	**19.08**
S1 Ditch	S1B	3.79	0.45	450	2	10.00	1.48	3.80	**2.52**	**6.48**
S1 Ditch	S1C	3.59	0.45	500	2	10.00	1.48	3.80	**2.39**	**6.13**
S1 Ditch	S1D	3.60	0.45	600	2	10.00	1.48	3.80	**2.40**	**6.15**
N1 Detention	OffN1(D1)*									**18.00**
N1 Detention	OffN1(D2) *									**18.70**
N1 Detention	OffN1(D3) *									**74.40**
W3 Detention	OFF W3 (C) *									**38.00**
W4 Detention	OFF W4 (B) *									**19.70**

* Offsite flows per Aqua Hydrogeologic Consulting LLC

TABLE A-1: RATIONAL METHOD CALCULATIONS

PART B: CUMULATIVE DRAINAGE AREAS										
N1DitchOnsite	N1C	4.15	0.45	450	2	10.00	1.48	3.80	**2.77**	**7.10**
N1DitchOnsite	N1A-C	12.82	0.45	585	4	12.44	1.40	3.40	**8.05**	**19.61**
N1Ditch	N1A-C + OFF									**56.31**
N1 Detention	N1A-C + OFF									**130.71**
W1 Ditch	W1D	4.98	0.45	500	2	10.00	1.48	3.80	**3.32**	**8.52**
W1 Ditch/Det.	W1A-E	41.98	0.45	300	4	11.25	1.44	3.60	**27.13**	**68.01**
W2 Ditch	W2A	26.96	0.45	1150	2	10.00	1.48	3.80	**17.96**	**46.11**
W2 Ditch/Det.	W2A-F	40.30	0.45	133	4	10.55	1.46	3.70	**26.42**	**67.10**
W3 DitchOnsit	W3A	3.58	0.45	450	2	10.00	1.48	3.80	**2.38**	**6.12**
W3 DitchOnsit	W3A-D	30.98	0.45	133	4	10.55	1.46	3.70	**20.31**	**51.59**
W3 DitchOnsit	W3A-H	46.38	0.45	197	4	10.82	1.46	3.70	**30.41**	**77.22**
W3 Ditch/Det.	W3A-H +OFF									**115.22**

W4 DitchOnsit	W4A	5.67	0.45	500	2	10.00	1.48	3.80	**3.78**	**9.70**
W4 DitchOnsit	W3A-C	21.78	0.45	585	4	12.44	1.40	3.40	**13.68**	**33.32**
W4 DitchOnsit	W3A-I	71.42	0.45	585	4	12.44	1.40	3.40	**44.87**	**109.27**
W4 Ditch	W4A-I +OFF									**116.37**

S1 Ditch	S1A	11.16	0.45	800	2	10.00	1.48	3.80	**7.43**	**19.08**
S1 Ditch	S1A-D	22.13	0.45	500	4	12.08	1.40	3.40	**13.90**	**33.86**

W4 Detention	W4A-J+OFF+S1A-	110.76								**166.61**

TABLE A-1: RATIONAL METHOD CALCULATIONS

APPENDIX B

EXISTING HYDRAULICS
EXCERPTS FROM OFFSITE STUDIES

APPLICATION FOR
CONDITIONAL LETTER OF MAP REVISION (CLOMR)
BONEYARD FLAT
WASHOE COUNTY, NEVADA

Prepared for:

HAWCO PROPERTIES
401 Court Street
Reno, Nevada 89501

Prepared by:
Aqua Hydrogeologic Consulting
P.O. Box 18793
Reno, NV 89511

March, 2011

also used to calculate the lag time for Watersheds I and H1 which have slopes greater than 10%. All lag time calculations are presented in Appendix A.

4.6 Hydrograph Routing

Channel and overland flow routing were performed with the Muskingum-Cunge method. This method takes into account channel characteristics such as shape, slope, length and roughness.

4.7Summary of Model Parameters

A summary of the parameters used in the updated models are shown in Table 1 below.

Table 1. Watershed Parameters, Boneyard Flat Watersheds, Corrected and Proposed Conditions Models

Region	Watershed ID	Area, Sq. miles	Curve Number	Lag Time, hours	100-year Rainfall, in.
Boneyard	B1	1.222	80	0.35	2.24
Boneyard	B5	0.1402	77	0.22	2.24
Boneyard	B6	1.738	73	0.68	2.24
Boneyard	B7	0.1066	84	0.18	2.24
Boneyard	B8	0.4868	88	0.41	2.24
Pebble Creek	PC1	0.1853	76	0.31	2.24
Pebble Creek	PC2A	0.3418	74	0.50	2.24
Pebble Creek	PC2B	0.1373	59	0.32	2.24
Pebble Creek	PC3	0.4447	73	0.48	2.24
Pebble Creek	PC4	1.573	68	0.68	2.24
Pebble Creek	PC5	0.4118	74	0.71	2.24
Pebble Creek	PC6	0.781	74	0.63	2.24
Pebble Creek	PC7	0.4295	76	0.47	2.24
Pebble Creek	PC8A	0.1791	74	0.58	2.24
Pebble Creek	PC8B	0.1941	76	0.46	2.24
Pebble Creek	PC9A	0.3845	79	0.76	2.24
Pebble Creek	PC9B	0.936	80	1.11	2.24
Stormy Can.	8	1.552	81+.2% imp area	0.66	2.5
Stormy Can.	H1	0.2341	74	0.62	2.5
Stormy Can.	H2	0.4226	80	0.41	2.5
Stormy Can.	H3	0.4725	68	0.45	2.5
Stormy Can.	I	0.277	65	0.53	2.5
Stormy Can.	K1	0.0122	89	0.21	2.5
EC III	G1	0.0705	62	0.35	2.5
EC III	G2	0.4038	71	0.66	2.5
EC III	SW1	0.0206	63	0.15	2.5
EC III	SW2	0.056	61	0.18	2.5
EC III	SW3	0.0615	73	0.20	2.5
EC III	SW4	0.0305	65	0.20	2.5
EC III	K	0.0253	85	0.36	2.5

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*          VERSION 4.1                  *
*                                       *
*  RUN DATE   25JAN11  TIME  08:01:28   *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*     U.S. ARMY CORPS OF ENGINEERS      *
*     HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET            *
*        DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104              *
*                                       *
*****************************************
```


```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

              *DIAGRAM
    1         ID  ============================================================================
    2         ID      MODEL INCLUDING PEBBLE BEACH MODEL BY CFM
    3         ID      JANUARY 2011
    4         ID      AQUA HYDROGEOLOGIC CONSULTING
    5         ID       MODEL NAME  HAWCO201.DAT
    6         ID      CORRECTED EFFECTIVE MODEL
    7         ID     ****************************************************************************
    8         ID     ****************************************************************************
    9         ID      ULTIMATE MODEL: DEVELOPED CONDITION ; FILE NKCC1(nRC).DAT (APRIL 2006)
   10         ID      ADD SEDIMENTATION BASIN (RTNSB)
   11         ID     ============================================================================
   12         ID  ============================================================================
   13         ID       CITY OF SPARKS-SPANISH SPRINGS VALLEY HYDROLOGY
   14         ID       DATE: March 2002
   15         ID       100-YEAR, 24-HOUR STORM EVENT
   16         ID       HEC-1 FILENAME CC-SPMP.DAT
   17         ID
   18         ID       Copied and modified the following Curent Conditions model from:
   19         ID       -Spanish Springs Valley Flood Control Master Plan for City of Sparks,
   20         ID       Harding ESE, Januray 2001
   21         ID       - Phase 5 of Flood Control Master Plan for Kiley Ranch, Nimbus Engineers,
   22         ID       June 2001
   23         ID       -Wingfield Springs 4th Nine Drainage Master Plan, Stantec Consulting,
   24         ID       May 2001
   25         ID      ****************************************************************************
   26         ID       SPANISH SPRINGS CURENT CONDITIONS HEC-1 MODEL
   27         ID       100-YEAR, 24-HOUR STORM EVENT
   28         ID      ****************************************************************************
   29         ID       FILE NAME: CC-SPMP.DAT
   30         ID
   31         ID          WITH FLOOD PLAIN DETENTION AND OTHER FLOOD CONTROL IMPROVEMENTS
   32         ID          IN NORTHERN SPANISH SPRINGS VALLEY, UPSTREAM OF THE SPANISH
   33         ID          SPRINGS DETENTION FACILITY.
   34         ID
   35         ID     ****************************************************************************
              *   ***************************************************************************
   36         ID         MODEL BEING MODIFIED TO COMPUTE RUNOFF VOLUME AND ELEVATION IN BONEYARD
   37         ID         FLAT  MANY COMMENTS ABOVE ARE IRRELEVANT TO THIS MODEL  BONEYARD FLAT
   38         ID         WATERSHEDS BF1 THROUG BF 9 HAVE BEEN ADDED      SEPT 13 2010
              *   ***************************************************************************
   39         IT       1                    2880
   40         IN      15
   41         IO       5
   42         JR    PREC      1
              *  ****************************************************************************
              *  ****************************************************************************
              *  ****************************************************************************
              *   JD CARDS FROM NIMBUS ENGINEERS 1991 MODEL  *          DARF RATIO
              *   JD  2.50     0.1                           *             1.00
              *   JD  2.46      10                           *             0.98
              *   JD  2.41      30                           *             0.96
              *   JD  2.38      45                           *             0.95
              *   JD  2.36    63.4                           *             0.94
              *  ****************************************************************************
              *  ****************************************************************************
              *   DUE TO COMPLEX FLOW DIVERSIONS WITHIN THE HEC-1 MODEL, BY USING JD CARDS,
              *   TOTAL CONTRIBUTING AREAS AT CONCENTRATION POINTS WINGF&DOWNSTREAM CPS WERE
              *   CALCULATED WRONG,THEREFORE, APPLYING WRONG DARF.
              *
              *   JD CARDS WILL BE REPLACED WITH A JR CARD TO CORRECT THIS PROBLEM.
              *   USERS OF THIS MODEL SHOULD CAREFULLY SELECT AN APPROPRIATE DARF FOR EACH
              *   CONCENTRATION POINTS. IT SHOULD BE NOTED THAT WHEN FLOW IS COMBINED WITH
              *   DIVERSION FLOWS, CALCULATED COMBINED TOTAL AREA MAY NOT BE APPROPRIATE
              *   TO BE USED IN SELECTING DARF.
              *  ****************************************************************************
              *  ****************************************************************************
              *       DARF         AREA (SQ. MI.)
```

```
* KO                                                    22
RD    1750   0.005   0.025            TRAP       8       3
*

KK    PC2b
* KO                                                    22
BA    .1373
LS                S9
UD    0.32
*
```



```
LINE  ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK  P23479
* KO                                                    22
HC       3
*

KK  R23479
KM   (P) DRAINAGE CHANNEL SOUTHERN 3/4
* KO                                                    22
RD    2150    0.01   0.030            TRAP      12       3
*

KK    PC8b
* KO                                                    22
BA    .1941
LS                76
UD    0.46
*

KK   PC2 9
* KO                                                    22
HC       2
*

KK    R2 9
KM   (P) DRAINAGE CHANNEL SOUTHERN END
* KO                                                    22
RD    1400   0.003   0.030            TRAP      12       3
*

KK    PC8a
BA    .1791
PB    2.24
LS                74
UD    0.58
*

KK     PC6
* KO                                                    22
BA   0.781
PB    2.24
LS                74
UD    0.63
*

KK     PC5
* KO                                                    22
BA    .4118
LS                74
UD    0.71
*
```



```
LINE  ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

KK    PC2a
* KO                                                    22
BA  0.3418
PB    2.24
LS                74
UD    0.50
*

KK     PC1
* KO                                                    22
BA    .1853
PB    2.24
LS                76
UD    0.31
*

KK   BNYRD
KM   BONEYARD FLAT PLAYA  LAST ENTRY OF CFA PEBBLE CREEK MODEL
KO                                                     22
HC        6
* ************************************************************************************
* ************************************************************************************
*

KK      B6      RUNOFF FROM BONEYARD FLAT 6
BA   1.738
PB    2.24
LS                73
UD    0.68
*

KK      B5      RUNOFF FROM BONEYARD FLAT 5
BA    .1402
PB    2.24
LS                77
UD    0.22
```

```
211          KK     SW1       ONSITE WATERSHED OF EAGLE CAN. 3, PART OF FORMER WSHED 10A
212          BA    .0206
213          LS                63
214          UD    .150
             *

215          KK      P1     COMBINE FLOW FROM G1, G2, AND SW1
216          HC       3
             *

217          KK     SW2       RUNOFF FROM SW2 ONSITE OF EAGLE CANYON 3
218          BA    .056
219          LS                61
220          UD    .180
             *

221          KK      P2     COMBINE FLOW FROM G1, G2, SW1 WITH SW2
222          HC       2
             *
```



```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

223          KK     SW3       ONSITE RUNOFF FROM EAGLE CANYON SW3
224          BA    .0615
225          LS                73
226          UD    0.20
             *

227          KK      P3        COMBINE SW3 WITH COMBINED FLOW FROM P2
228          HC       2
             *

229          KK     SW4         ONSITE RUNOFF FROM EAGLE CANYON SW4
230          BA    .0305
231          LS                65
232          UD     .20
             *

233          KK       K
234          BA    .0253
235          LS                85
236          UD    0.36
             *

237          KK      P6          COMBINE FLOWS FROM G1, G2, SW1-4 & K WILL GO TO CENTRAL CHANNEL
238          HC       3
             *

239          KK      B8          RUNOFF FROM BONEYARD FLAT 8
240          BA    .4868
241          PB     2.24
242          LS                88
243          UD     .41
             *

244          KK      P4     COMBINE FLOW FROM BF8 AND HC-SW  TOTAL FLOW IN CENTRAL CHANNEL
245          HC       2
             *

246          KK   CPBY1     COMBINE FLOWS FROM STORMY CANYON CHANNEL AND CENTRAL
247          KM              CHANNEL FOR FLOW INTO PROPOSED COMBINED CHANNEL
248          HC       2
             *

249          KK      B1          RUNOFF FROM BONEYARD FLAT 1   THE PLAYA AREA
250          BA   1.222
251          LS                80
252          UD    0.35
             *
             *
```



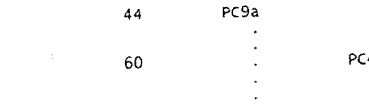
```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

253          KK   TOTAL      COMBINE  ALL FLOWS IN BONEYARD
254          HC       3
             *

255          KK  BONDIV
256          KM         INSERT BONEYARD FLAT RETENTION POND DATA FROM  C&M NO OUTLET
             * KO       1
257          RS       0   STOR       0
258          SQ       0      0       0       0       0       0       0       0       0       0
259          SQ       0      0       0       0       0       0       0       0
260          SE    4455   4499    4500    4501    4502    4503    4504    4505    4506    4507
261          SE    4508   4509    4510    4511    4512    4513    4514    4515
262          SV       0    200     205     215     250     315     400     510     640     800
263          SV     980   1190    1420    1670    1940    2240    2570    2950
             *
264          ZZ
```

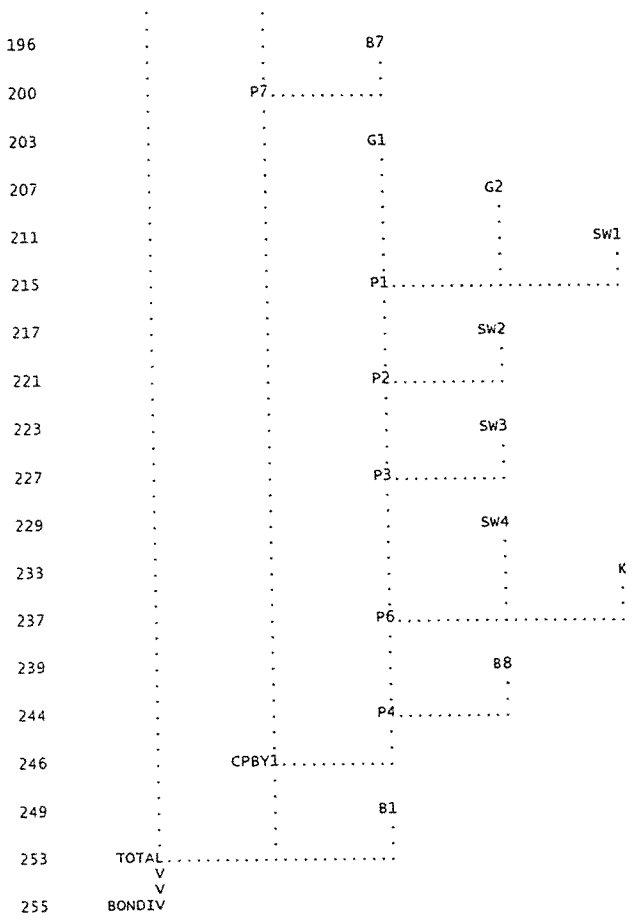

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW



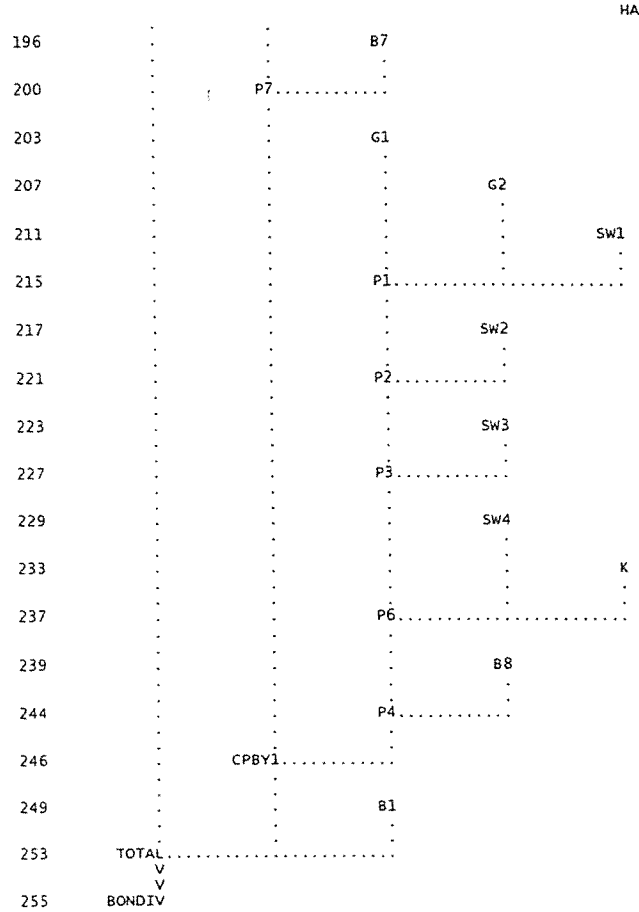


(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1**********************************************
*                                            *
*    FLOOD HYDROGRAPH PACKAGE  (HEC-1)       *
*              JUN  1998                     *
*            VERSION 4.1                     *
*                                            *
*  RUN DATE   25JAN11  TIME  08:01:28        *
*                                            *
**********************************************
```

```
**********************************************
*                                            *
*    U.S. ARMY CORPS OF ENGINEERS            *
*    HYDROLOGIC ENGINEERING CENTER           *
*          609 SECOND STREET                 *
*       DAVIS, CALIFORNIA 95616              *
*          (916) 756-1104                    *
*                                            *
**********************************************
```

```
================================================================================
    MODEL INCLUDING PEBBLE BEACH MODEL BY CFM
    JANUARY 2011
    AQUA HYDROGEOLOGIC CONSULTING
     MODEL NAME  HAWCO201.DAT
    CORRECTED EFFECTIVE MODEL
    ********************************************************************************
    ********************************************************************************
    ULTIMATE MODEL: DEVELOPED CONDITION ; FILE NKCC1(nRC).DAT (APRIL 2006)
    ADD SEDIMENTATION BASIN (RTNSB)
  ==============================================================================
================================================================================
     CITY OF SPARKS-SPANISH SPRINGS VALLEY HYDROLOGY
     DATE: March 2002
     100-YEAR, 24-HOUR STORM EVENT
     HEC-1 FILENAME CC-SPMP.DAT

     Copied and modified the following Curent Conditions model from:
     -Spanish Springs Valley Flood Control Master Plan for City of Sparks,
     Harding ESE, Januray 2001
     - Phase 5 of Flood Control Master Plan for Kiley Ranch, Nimbus Engineers,
     June 2001
     -Wingfield Springs 4th Nine Drainage Master Plan, Stantec Consulting,
     May 2001
    ********************************************************************************
     SPANISH SPRINGS CURENT CONDITIONS HEC-1 MODEL
     100-YEAR, 24-HOUR STORM EVENT
    ********************************************************************************
     FILE NAME: CC-SPMP.DAT

        WITH FLOOD PLAIN DETENTION AND OTHER FLOOD CONTROL IMPROVEMENTS
        IN NORTHERN SPANISH SPRINGS VALLEY, UPSTREAM OF THE SPANISH
        SPRINGS DETENTION FACILITY.
```



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1**********************************************
*                                            *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)        *
*              JUN  1998                     *
*           VERSION 4.1                      *
*                                            *
*  RUN DATE   22FEB11  TIME  15:34:02        *
*                                            *
**********************************************
```

```
**********************************************
*                                            *
*    U.S. ARMY CORPS OF ENGINEERS            *
*    HYDROLOGIC ENGINEERING CENTER           *
*          609 SECOND STREET                 *
*       DAVIS, CALIFORNIA 95616              *
*         (916) 756-1104                     *
*                                            *
**********************************************
```

```
================================================================================
    MODEL INCLUDING PEBBLE BEACH MODEL BY CFM
    JANUARY 2011
    AQUA HYDROGEOLOGIC CONSULTING
    PROPOSED CONDITIONS MODEL
     MODEL NAME  HAWCO202.DAT
   ********************************************************************************
   ********************************************************************************
    ULTIMATE MODEL: DEVELOPED CONDITION ; FILE NKCC1(nRC).DAT (APRIL 2006)
    ADD SEDIMENTATION BASIN (RTNSB)
  ==============================================================================
================================================================================
     CITY OF SPARKS-SPANISH SPRINGS VALLEY HYDROLOGY
     DATE: March 2002
     100-YEAR, 24-HOUR STORM EVENT
     HEC-1 FILENAME CC-SPMP.DAT

     Copied and modified the following Curent Conditions model from:
     -Spanish Springs Valley Flood Control Master Plan for City of Sparks,
     Harding ESE, Januray 2001
     - Phase 5 of Flood Control Master Plan for Kiley Ranch, Nimbus Engineers,
     June 2001
     -Wingfield Springs 4th Nine Drainage Master Plan, Stantec Consulting,
     May 2001
    ********************************************************************************
     SPANISH SPRINGS CURENT CONDITIONS HEC-1 MODEL
     100-YEAR, 24-HOUR STORM EVENT
    ********************************************************************************
     FILE NAME: CC-SPMP.DAT

        WITH FLOOD PLAIN DETENTION AND OTHER FLOOD CONTROL IMPROVEMENTS
        IN NORTHERN SPANISH SPRINGS VALLEY, UPSTREAM OF THE SPANISH
        SPRINGS DETENTION FACILITY.
```

ROUTED TO	PC4,9a	1.96	1	FLOW	161.	155.	150.	144.	
+				TIME	12.78	12.78	12.78	12.80	
HYDROGRAPH AT	PC3	.44	1	FLOW	63.	61.	58.	57.	
+				TIME	12.45	12.45	12.45	12.47	
2 COMBINED AT	PC349a	2.40	1	FLOW	207.	200.	193.	186.	
+				TIME	12.68	12.68	12.68	12.68	
ROUTED TO	PC349a	2.40	1	FLOW	207.	200.	193.	186.	
+				TIME	12.73	12.75	12.75	12.75	
HYDROGRAPH AT	PC9b	.94	1	FLOW	141.	138.	135.	132.	
+				TIME	13.13	13.13	13.13	13.13	
ROUTED TO	R9b	.94	1	FLOW	141.	138.	135.	132.	
+				TIME	13.20	13.20	13.20	13.20	
HYDROGRAPH AT	PC7	.43	1	FLOW	84.	82.	80.	77.	
+				TIME	12.42	12.42	12.42	12.42	
2 COMBINED AT	PC7,9b	1.37	1	FLOW	175.	170.	166.	162.	
+				TIME	13.05	13.05	13.05	13.05	
ROUTED TO	R7,9b	1.37	1	FLOW	174.	170.	166.	162.	
+				TIME	13.12	13.12	13.12	13.12	
HYDROGRAPH AT	PC2b	.14	1	FLOW	1.	1.	1.	1.	
+				TIME	12.90	12.92	12.95	12.98	
3 COMBINED AT	P23479	3.90	1	FLOW	371.	360.	349.	338.	
+				TIME	12.83	12.85	12.85	12.87	
ROUTED TO	R23479	3.90	1	FLOW	371.	360.	349.	338.	
+				TIME	12.90	12.90	12.92	12.93	
HYDROGRAPH AT	PC8b	.19	1	FLOW	39.	38.	37.	35.	
+				TIME	12.40	12.40	12.40	12.40	
2 COMBINED AT	PC2 9	4.10	1	FLOW	391.	380.	368.	356.	
+				TIME	12.85	12.85	12.87	12.87	
ROUTED TO	R2 9	4.10	1	FLOW	391.	379.	367.	356.	
+				TIME	12.90	12.92	12.93	12.93	
HYDROGRAPH AT	PC8a	.18	1	FLOW	25.	24.	23.	22.	
+				TIME	12.57	12.57	12.57	12.57	
HYDROGRAPH AT	PC6	.78	1	FLOW	101.	98.	95.	92.	
+				TIME	12.62	12.63	12.63	12.63	
HYDROGRAPH AT	PC5	.41	1	FLOW	49.	48.	46.	45.	
+				TIME	12.72	12.72	12.73	12.73	
HYDROGRAPH AT	PC2a	.34	1	FLOW	52.	51.	49.	47.	
+				TIME	12.47	12.47	12.47	12.47	
HYDROGRAPH AT	PC1	.19	1	FLOW	48.	47.	46.	44.	
+				TIME	12.23	12.23	12.23	12.23	
6 COMBINED AT	BNYRD	6.00	1	FLOW	603.	584.	565.	547.	
+				TIME	12.75	12.75	12.77	12.77	
HYDROGRAPH AT	B6	1.74	1	FLOW	191.	185.	179.	173.	
+				TIME	12.70	12.70	12.70	12.70	
HYDROGRAPH AT	B5	.14	1	FLOW	49.	48.	47.	45.	
+				TIME	12.13	12.13	12.13	12.13	
3 COMBINED AT	PT3	7.88	1	FLOW	804.	779.	754.	729.	
+				TIME	12.73	12.73	12.73	12.75	
HYDROGRAPH AT	08	1.55	1	FLOW	471.	461.	452.	442.	
+				TIME	12.58	12.58	12.58	12.58	
HYDROGRAPH AT	K1	.01	1	FLOW	12.	12.	12.	11.	
+				TIME	12.10	12.10	12.10	12.10	
HYDROGRAPH AT									

SCALE: 1"=500'

OFFSITE FLOWS AS ESTIMATED BASED ON HYDRO-REPORTS BY OTHERS, SEE MAP APPENDIX B

OFF N1 (D2 FROM AQUA)

OFF N1 (D1 FROM AQUA)

OFF W3 (C FROM AQUA)

OFF W4 (B FROM AQUA)

OFF N1 (D3 FROM AQUA)

ALAMOSA

N1 DITCH

W1 DITCH

W2 DITCH

W3 DITCH

W4 DITCH

S1 DITCH

N1 DETENTION POND

W1 DETENTION POND

W2 DETENTION POND

W3 DETENTION POND

W4 DETENTION POND

CAMPO RICO LANE

PYRAMID LAKE HWY (SR 445)

HYDROLOGY LEGEND

W4A — SUBAREA

EX. DESIGN PT

DESIGN POINT

PRELIMINARY FLOWS

DESIGN POINT	DRAINAGE SUB-AREA	PEAK RUNOFF (cfs 5-YR	100-YR
N1 Ditch	N1A	2.66	6.84
N1 Ditch	N1B	3.11	7.98
N1 Ditch	N1C	2.77	7.10
W1 Ditch	W1A	9.35	21.34
W1 Ditch	W1B	5.93	14.87
W1 Ditch	W1C	5.25	13.47
W1 Ditch	W1D	3.32	8.52
W1 Ditch	W1E	0.58	1.36
W2 Ditch	W2A	17.98	46.11
W2 Ditch	W2B	2.90	7.45
W2 Ditch	W2C	2.26	5.79
W2 Ditch	W2D	1.41	3.62
W2 Ditch	W2E	1.92	4.92
W2 Ditch	W2F	0.40	1.02
W3 Ditch	W3A	2.39	6.12
W3 Ditch	W3B	12.97	33.29
W3 Ditch	W3C	2.87	7.36
W3 Ditch	W3D	2.42	6.20
W3 Ditch	W3E	2.57	6.59
W3 Ditch	W3F	2.26	5.79
W3 Ditch	W3G	3.14	8.05
W3 Ditch	W3H	2.29	5.88
W4 Ditch	W4A	3.78	9.70
W4 Ditch	W4B	2.54	6.53
W4 Ditch	W4C	8.18	21.02
W4 Ditch	W4D	18.54	42.04
W4 Ditch	W4E	2.87	7.37
W4 Ditch	W4F	2.27	5.84
W4 Ditch	W4G	4.98	12.80
W4 Ditch	W4H	2.57	6.60
W4 Ditch	W4I	4.57	11.73
W4 Ditch	W4J	6.38	16.38
S1 Ditch	S1A	7.43	19.08
S1 Ditch	S1B	2.52	6.48
S1 Ditch	S1C	2.39	6.13
S1 Ditch	S1D	2.40	6.15
N1 Detention	OffN1(D1)*		18.00
N1 Detention	OffN1(D2) *		18.70
N1 Detention	OffN1(D3) *		74.40
W3 Detention	OFF W3 (C) *		39.00
W4 Detention	OFF W4 (B) *		19.70

* Offsite flows per Aqua Hydrogeologic Consulting LLC

HYDROLOGY MAP

HARRIS RANCH

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., SUITE 200B
RENO, NV 89511 PHONE (775)856-3312

File: P:\04-009.32 Harris Ranch\dwg\revtentmap\tentmapREV\ hydrotentmapREV.dwg
<schacon> Mon, 11 Jul 2016 - 2:25pm

Basin B-5
Area = 1.738 Mi^2=1111ac
CN = 73
Lag Time = 0.68
Q_{100} = 191 cfs

PC-5
A=0.4118 Mi^2=263.5ac
CN=74
Lag Time = 0.71
Q_{100} = 49 cfs

PC-6
A=0.7813 Mi^2=500ac
CN=74
Lag Time = 0.63
Q_{100} = 101 cfs

ESTIMATE OFF-SITE FLOWS
Flows are estimated by percentage of areas

- **Basin B-6**
  Q_{100} = 191 cfs
  Area = 1.738 Mi^2 = 1112 acres
  A = 234 acres
  B = 115 acres
  C = 221 acres

Sub Basin	Percentage	Q_{100}
A	21%	40.1cfs
B	10.3%	19.7 cfs
C	19.9%	38.0 cfs

- **Basin PC-5**
  D_1 = 96.8 acres

Sub Basin	Percentage	Q_{100}
D_1	36.7%	18cfs

- **Basin PC-6**
  D_2 = 96.8 acres
  D_3 = 368.7 acres

Sub Basin	Percentage	Q_{100}
D_2	18.5%	18.7cfs
D_3	73.7%	74.4cfs

PC4
PC9A
PC3
PC2A
PC2B
PC9B
PC7
PC1
PC8B
PC6
B5
PC8A
PC5
B1
B6
B7
B8
H1
H2
H3
I
K
K1
SW1
SW2
SW3
SW4
G1
G2
D_3
D_2
D_1
C
B
A
Boneyard Flat
Sandpit
Gravel Pit
Stormy Gap
Hungry
VALLEY

Legend
Boundary
Watersheds
Soil Types
A
B
C
D
NR

AquA
Hydrogeologic Consulting LLC

Boneyard Flat
Soils Map

N
W E
S

Feet
0 1,250 2,500 5,000

SPANISH SPRINGS ASSOCIATES LIMITED PARTNERSHIP
550 W. Plumb Lane, Suite B #505
Reno, NV 89509
(775) 425-4425

June 23, 2016

PROJECT NAME: Tentative Map for 610 Lots on APNs 534-600-01, 534-600-02, and 076-290-44

To Whom It May Concern:

This letter verifies that Spanish Springs Associates Limited Partnership and its General Partner, Hawco Development Company, have the following water rights banked with the Truckee Meadows Water Authority for use on the above referenced project and other developments of these companies.

Permit Number	Acre feet
70702	36.4
70426	40.25
70086	36.2
72270	1.81
70087	0.85
68185	1.24
64639	8.21
62614	5.12
68453	48.5
68454	7.5
69340	14.5
Total	**199.72**

Any balance of the water rights required will be purchased from Truckee Meadows Water Authority. Thank you for your attention to this matter. Feel free to call me with any questions or concerns.

Sincerely

Jesse Haw, President
Hawco Development Company,
General Partner of Spanish Springs
Associates Limited Partnership

TRUCKEE MEADOWS WATER AUTHORITY
www.tmwa.com

Quality. Delivered.

1355 Capital Blvd. • P.O. Box 30013 • Reno, NV 89520-3013
P 775.834.8080 • F 775.834.8003

July 8, 2016

Samuel Chacon, P.E.
C & M Engineering and Design, Ltd
5488 Reno Corporate Drive, Suite 200B
Reno, NV 89511

RE: Harris Ranch Subdivision Tentative Map
Acknowledgement of Water Service
(Tentative Map Review – 610 Units)

Dear Mr. Chacon:

I have reviewed the plans for the above referenced development ("Project") and have determined the Project is outside the Truckee Meadows Water Authority's retail water service area. This letter constitutes an Acknowledgment of Water Service pursuant to NAC 445A.6666, and the Truckee Meadows Water Authority hereby acknowledges that Truckee Meadows Water Authority is agreeable to supplying water service to the Project subject to applicant satisfying certain conditions precedent, including, without limitation, annexation to the Truckee Meadows Water Authority's retail water service territory, the dedication of water resources, approval of the water supply plan by the local health authority, the execution of a Water Service Agreement, payment of fees, and the construction and dedication of infrastructure in accordance with our rules and tariffs. This Acknowledgement does not constitute a legal obligation by Truckee Meadows Water Authority to supply water service to the Project, and is made subject to all applicable Truckee Meadows Water Authority Rules.

Review of conceptual site plans or tentative maps by Truckee Meadows Water Authority does not constitute an application for service, nor implies a commitment by Truckee Meadows Water Authority for planning, design or construction of the water facilities necessary for service. The extent of required off-site and on-site water infrastructure improvements will be determined by Truckee Meadows Water Authority upon receiving a specific development proposal or complete application for service and upon review and approval of a water facilities plan by the local health authority. Because the NAC 445A Water System regulations are subject to interpretation, Truckee Meadows Water Authority cannot guarantee that a subsequent water facility plan will be approved by the health authority or that a timely review and approval of the Project will be made. The Applicant should carefully consider the financial risk associated with committing resources to their project prior to receiving all required approvals. After submittal of a complete Application for Service, the required facilities, the cost of these facilities, which could be significant, and associated fees will be estimated and will be included as part of the Water Service Agreement necessary for the Project. All fees

must be paid to Truckee Meadows Water Authority prior to water being delivered to the Project.

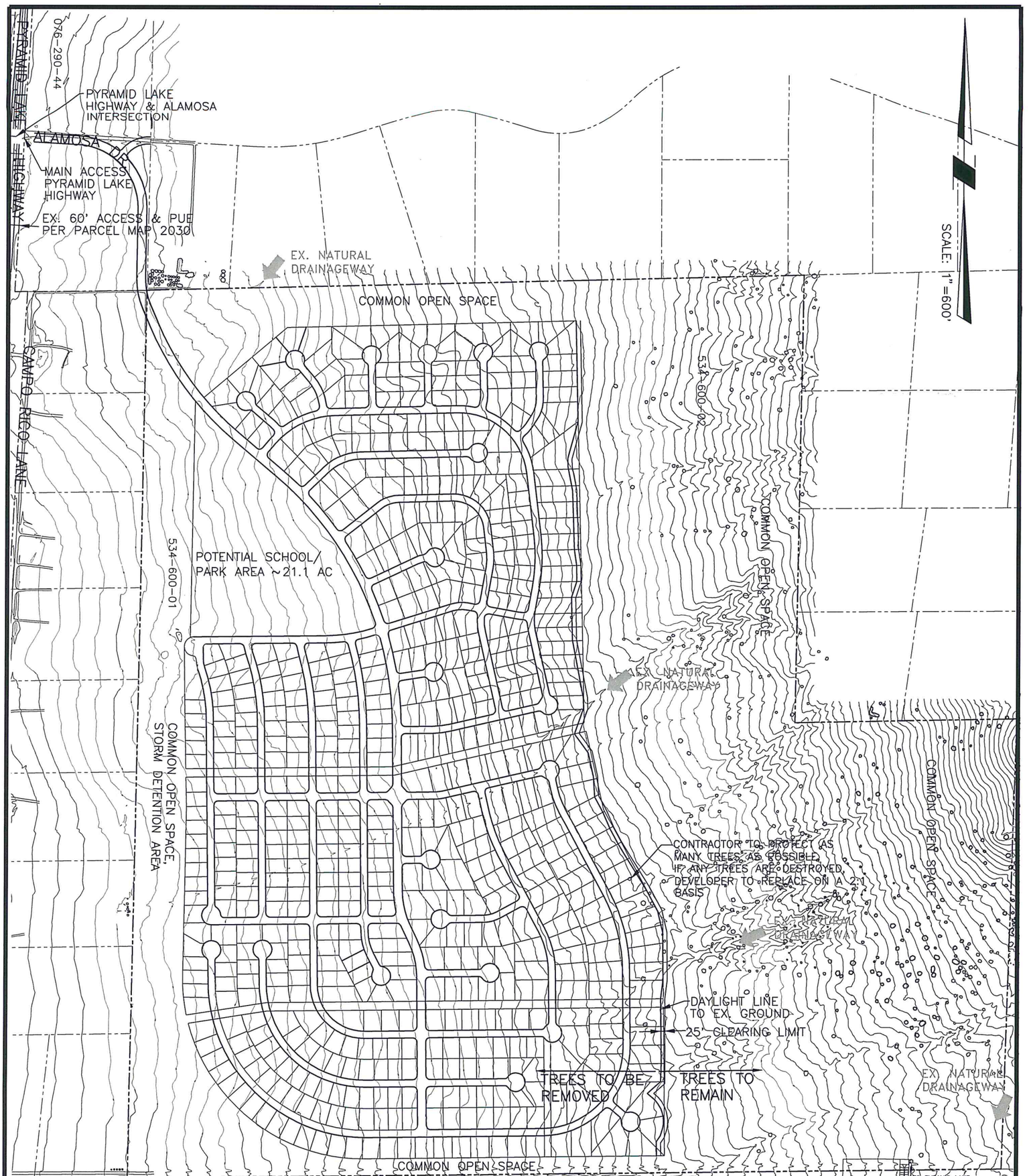
Please call me at (775) 834-8026 at your convenience if you have any questions.

Sincerely,

Holly M. Flores

Holly M. Flores, P.E.
Principal Engineer

cc: James English, Washoe County District Health Dept.
16-5066



LAND USE DATA:

LOCATION: SPANISH SPRINGS, WASHOE COUNTY

ACCESS: PYRAMID LAKE HIGHWAY TO ALAMOSA DR.

APN: 534-600-01, 534-600-02, 076-290-44(NO LOTS, DENSITY ONLY)

LAND USE: PRESENT= LDS, PROPOSED= LDS (COMMON OPEN SPACE DEVELOPMENT)

NUMBER OF UNITS: PRESENT=0, PROPOSED=610

EX. VEGETATION (TREE PRESERVATION INFORMATION):

APPROXIMATE TREES WITHIN PROJECT AREA: 442

APPROXIMATE TREES TO BE REMOVED: 8 (CONTRACTOR TO SAVE AS MANY AS POSSIBLE)

APPROXIMATE TO REMAIN: 434

PREVAILING WINDS: PREDOMINANTLY FROM THE SOUTHWEST TO THE NW

SOIL: DECOMPOSED GRANITE SILTY SANDS (PER BLACK EAGLE)

FLOOD ZONE: ZONE X UNSHADED, OUTSIDE 500-YEAR FLOODPLAIN

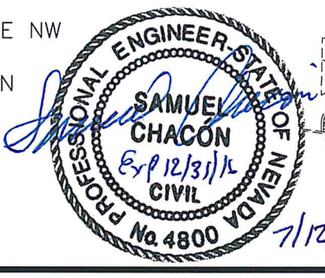
EX. UTILITY LOCATIONS:

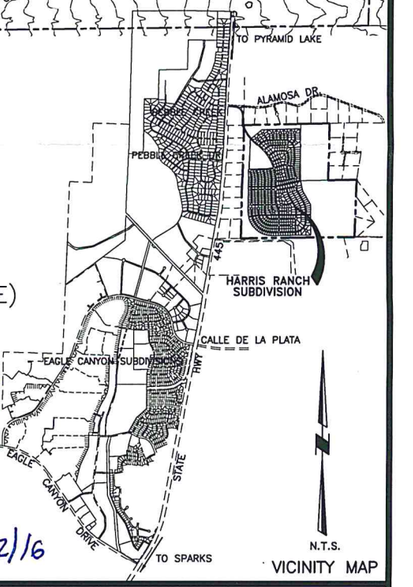
SEWER: PYRAMID LAKE HIGHWAY, LANDMARK DRIVE

WATER: SUGARLOAF TANK, LANDMARK DRIVE

ELEC: PYRAMID LAKE HIGHWAY

GAS: PYRAMID LAKE HIGHWAY





C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., SUITE 200B
RENO, NV 89511 PHONE (775)856-3312

SITE_ANALYSIS_MAP

HARRIS_RANCH_SUBDIVISION

File: P:\04-009.32 Harris Ranch\dwg\revtentmap\tentmapREV\ SiteAnalysisREV.dwg
<lmenante> Thu, 07 Jul 2016 - 3:15pm

TENTATIVE MAP FOR
HARRIS RANCH SUBDIVISION

OWNER/DEVELOPER

SPANISH SPRINGS ASSOCIATES LIMITED PARTNERSHIP
550 W. PLUMB LANE, SUITE B, #505
RENO, NEVADA 89509

LEGEND

- NEW PAVEMENT
- NEW SLOPE(AS SHOWN)
- NEW RETAINING WALL
- NEW CURB & GUTTER
- 4600 — EXISTING 5' CONTOUR
- 2% — DIRECTION OF FLOW
- NEW STORM DRAIN W/MANHOLE
- NEW SANITARY SEWER W/MANHOLE
- NEW CATCH BASIN/MANHOLE
- W — NEW WATER LINE
- W — EXISTING WATER LINE W/VALVE
- (89.34) FG — EXIST. SPOT ELEVATION
- ROCK RIPRAP
- 100 — LOT NUMBER
- 13,777sf — LOT SQUARE FOOTAGE
- PAD=50.90 — PAD ELEVATION (ADD 4600– EXCEPT FOR LOTS 371–600 THAT ARE LESS THAN 100 WHERE 4500 IS ADDED)

LEGEND FOR NON–ANNOTATED FEATURES:

- INDEX CONTOUR
- APPROXIMATE INDEX
- INDEX DEPRESSION
- INTERMEDIATE CONTOUR
- APPROXIMATE INTERMEDIATE
- INTERMEDIATE DEPRESSION
- EDGE OF PAVEMENT
- DIRT ROAD
- JEEP/FOOT TRAIL
- CURB LINE
- GUTTER/CONCRETE EDGE
- GUARD–RAIL
- MEDIAN WALL
- FENCE
- RETAINING WALL
- FENCE ON RW
- BLOCK WALL
- STONE WALL
- TRENCH/STOPE
- SHEET BOUNDARIES
- TAILINGS/TOE
- PIPELINE
- WATER EDGE
- INTERMITTENT DRAINAGE
- DITCH
- TREELINE
- BRUSHLINE

- BUILDING
- DECK
- COVERED AREA
- SHED
- U/C — BLDG. UNDER CONSTR.
- MISCELLANEOUS BOUNDARIES
- RAILROAD
- N,E,Z CONTROL POINT
- Z ONLY CONTROL POINT
- SURVEY MONUMENT
- POWER POLES
- POLE ANCHOR
- TRANSMISSION TOWER
- LIGHT POLE
- POST/POLE
- S — SIGN
- FH — FIRE HYDRANT
- MH — MANHOLE
- VALVE COVER
- TRAFFIC SIGNAL
- RR XING SIGNAL
- MB — MAIL BOX
- MISC. OBJECT
- METER
- MARSH
- EXCAVATION
- SHAFT
- UTIL. VAULT/BOX
- METER BOX

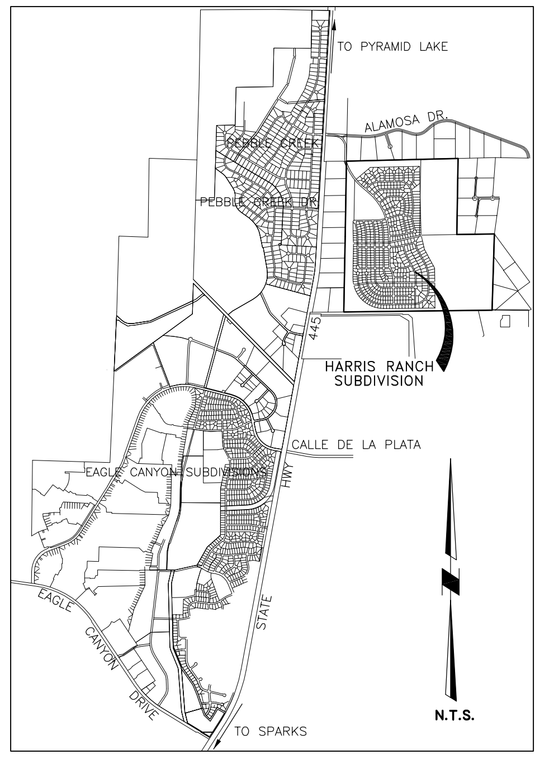
BASIS OF BEARINGS

NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE
GRID, NAD83/94

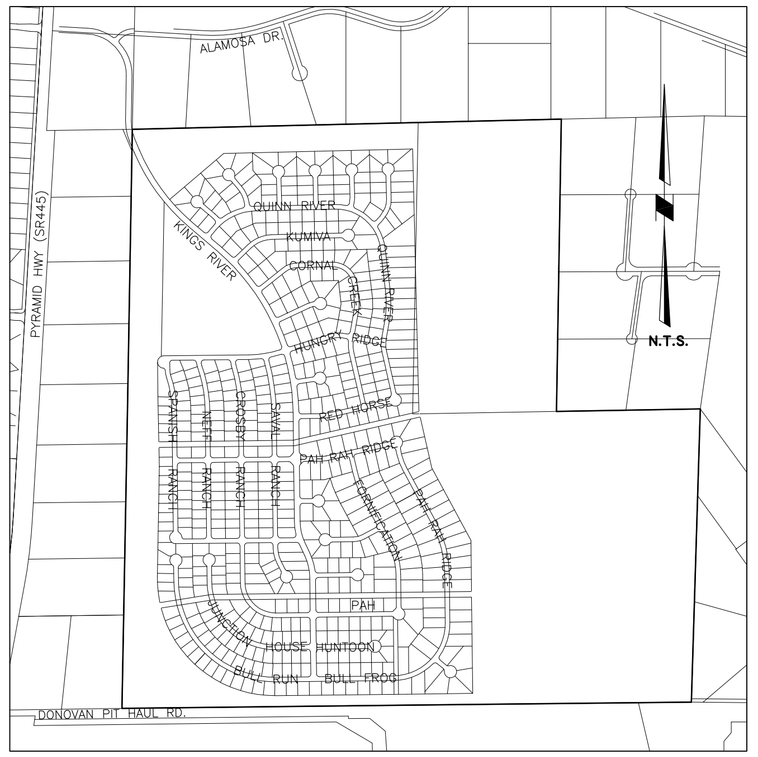
BASIS OF ELEVATION

NEVADA DEPARTMENT OF TRANSPORTATION BENCHMARK
ALUMINUM CAP ON REBAR STAMPED "277066"
ELEVATION=4527.81 (NGVD 1929)

WARNING:
PER PROVISIONS OF NRS 625, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.

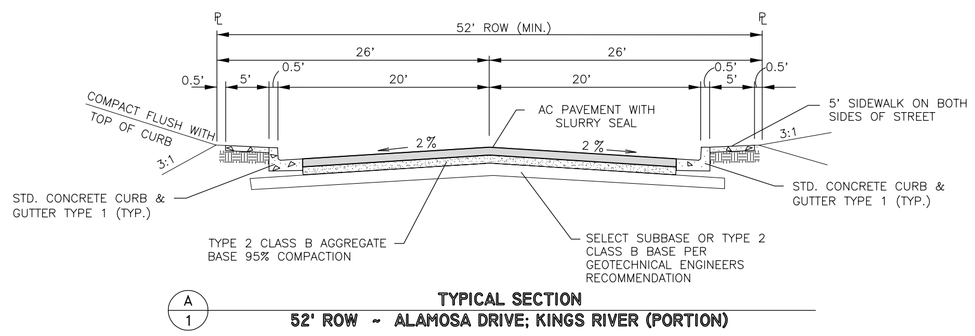


VICINITY MAP

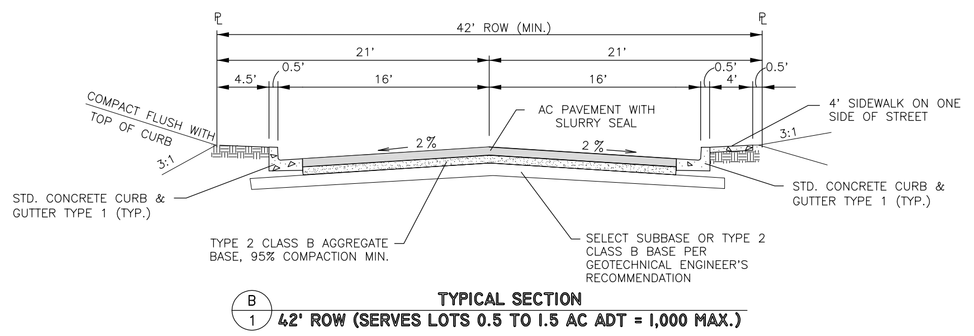


OVERALL LAYOUT

SHEET INDEX



A/1 **TYPICAL SECTION**
52' ROW ~ ALAMOSA DRIVE; KINGS RIVER (PORTION)



B/1 **TYPICAL SECTION**
42' ROW (SERVES LOTS 0.5 TO 1.5 AC ADT = 1,000 MAX.)

CIVIL ENGINEER

C & M ENGINEERING AND DESIGN, LTD.
5488 RENO CORPORATE DRIVE, SUITE 200B
RENO, NEVADA 89511

GENERAL NOTES:

1. BASED ON FLOOD INSURANCE RATE MAPS NOS. 32031C2855G (REV 10/14), 32031C2865G (REV 10/14), AND 32031C2860G (NOT PRINTED) PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), THE PROJECT SITE LIES IN FLOOD ZONE X (UNSHADED) INDICATING AREAS "OUTSIDE THE 500–YEAR FLOODPLAIN".
2. ALL STREETS TO BE PUBLIC UNLESS OTHERWISE NOTED.
3. ALL SLOPES ARE 3:1 MAX. UNLESS OTHERWISE NOTED.
4. MECHANICAL SLOPE STABILIZATION FOR SLOPES STEEPER THAN 3:1 – WHEN ROCK RIPRAP IS USED FOR SLOPE STABILIZATION, IT SHALL CONTAIN A MINIMUM OF FOUR FRACTURED FACES AND BE PLACED TO A MINIMUM DEPTH OF 12 INCHES. A MINIMUM OF 75% OF THE RIPRAP SHALL BE 8 INCH DIAMETER ROCK OR GREATER.
5. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:
   FERTILIZER – (16–20–0) 300#/acre
   GRASS, THE BROADCAST SEEDING RATE SHALL BE 12#/AC. OF SODAR WHEATGRASS AND 8#/AC. OF FAIRWAY CREATE WHEATGRASS. IF DRILLED, THE RATE SHOULD BE 6#/AC. OF SODAR WHEATGRASS AND 5#AC. OF FAIRWAY CREATED WHEATGRASS. STRAW MULCH 3000#/AC. ANCHORED BY A STRAW PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.

LAND USE DATA:

1. PRESENT LAND USE CLASSIFICATION: LDS
2. PROPOSED LAND USE CLASSIFICATION: LDS (COMMON OPEN SPACE DEVELOPMENT PER WCDC ARTICLE 408)
3. PROPOSED LAND APNS:
   534–600–01(480 AC), 534–600–02(76.36 AC), &
   076–290–44(53.96 AC) (FOR DENSITY–NO LOTS)
4. TOTAL LAND AREA: 610.34 AC.; LOT AREA: 208.18 AC
   STREETS: 43.92 AC; COMMON AREA: 358.24 AC
5. NUMBER OF UNITS: 610; DENSITY: 0.999 DU/AC
6. AVERAGE LOT SIZE:14,866 SF; MIN. LOT SIZE: 10,000 SF; MAX LOT SIZE SHOWN: 50,855 SF
7. MINIMUM LOT WIDTH: 80' FOR LOTS WITH PROPERTY LINES PARALLEL TO STREET
8. MINIMUM SETBACK:
   FRONT: 20'
   REAR: 20'
   SIDE: 8'

UTILITIES:

CABLE –	CHARTER COMMUNICATIONS
ELECTRICAL –	NEVADA ENERGY
SEWAGE DISPOSAL –	WASHOE COUNTY COMMUNITY SERVICES, CITY OF SPARKS
SOLID WASTE –	WASTE MANAGEMENT
TELEPHONE –	AT&T
GAS –	NV ENERGY
WATER –	TMWA

THESE PLANS (SHEETS 1 THROUGH 11) HAVE BEEN PREPARED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF THE WASHOE COUNTY DEVELOPMENT CODE, THE WASHOE COUNTY DEVELOPMENT CODE SHALL PREVAIL.

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR, SUITE 200B, RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC, LCM
DRAWN BY: LCM,VI
PROJECT NUMBER: 04–009.32

SUBMITTAL STATUS

PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGE UNTIL ALL GOVERNING AGENCIES SIGN, STAMP, AND APPROVE

MARK	DATE	REVISION DESCRIPTION

HARRIS RANCH SUBDIVISION
WASHOE COUNTY
NEVADA

TITLE SHEET

SHEET 1 OF 11

File: P:_04–009.32_Harris Ranch\dwg\tentmap\tentmapREV\ 01_TITLE.dwg
<timeonly> Tue, 12 Jul 2016 – 1:26pm

SCALE: 1"=100'

SEE SHEET S-2

SEE SHEET S-4

SEE SHEET SG-6

N 88°38'28" E 2599.48

N 01°00'33 E 2632.09'

240' COMMON AREA

076-290-37
Thrall Family Trust,
Roger M

076-290-36
Whelchel Living Trust

076-290-35
Savely Family Trust

15' DRAINAGE EASEMENT

15' DRAINAGE EASEMENT

15' DRAINAGE EASEMENT

30' SANITARY SEWER EASEMENT

30' DRAINAGE EASEMENT

30' DRAINAGE EASEMENT

30' DRAINAGE EASEMENT

50' DRAINAGE EASEMENT

50' DRAINAGE EASEMENT

42' WIDE ACCESS/ EASEMENT TO 10 ACRE PARCELS

42' WIDE ACCESS/ EASEMENT TO 10 ACRE PARCELS

ACCESS TO 10 ACRE PARCELS

ACCESS TO 10 ACRE PARCELS

ACCESS&UTILITY EASEMENT PER DOC# 3064829

300' COMMON AREA

295'-300' COMMON AREA

SETBACK TYP.

SETBACK TYP.

POTENTIAL SCHOOL/ PARK AREA ~21.1 AC

VINEGAR PEAK (PUBLIC)

SHEEP PASS (PUBLIC)

BEDELL FLAT (PUBLIC)

BARS (PUBLIC)

N. QUINN RIVER (PUBLIC)

KUMIVA PEAK (PUBLIC)

N. CORNAL CREEK (PUBLIC)

HALFPINT (PUBLIC)

HUNGRY RIDGE (PUBLIC)

DOLLY VARDEN (PUBLIC)

RED HORSE (PUBLIC)

KINGS RIVER (PUBLIC)

SAVAL RANCH (PUBLIC)

W. CROSBY RANCH (PUBLIC)

NEFF RANCH (PUBLIC)

N. SPANISH RANCH (PUBLIC)

KINGS RIVER (PUBLIC)

DRAINAGE AREA

DRAINAGE AREA

DRAINAGE AREA

534-600-12
Dixon, Kenneth K
& Surinder A

534-600-11
Wright, Bette

534-600-10
Reeve, Carolyn L

534-600-09
Carestia, Kimberly A etal

534-600-08
Fishermans Trust

534-600-07
Phillips, John P

NOTES

[1] BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)

KEY PLAN

S-1

ALAMOSA

PYRAMID LAKE HIGHWAY

File: P:\04-009.32 Harris Ranch\dwg\rententmap\tentmapREV\ 02_Site1.dwg
Changed: Tue, 3 Jul 2018 - 1:29pm

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR. STE. 200B RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM/VI
PROJECT NUMBER: 04-009.32

SUBMITTAL STATUS

PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:

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MARK	DATE	REVISION DESCRIPTION

HARRIS RANCH SUBDIVISION
GEOMETRICS
NEVADA
WASHOE COUNTY

SHEET S-1 OF 11

SCALE: 1"=100'

076-290-32
Holt, John S

076-290-31
Lightner, John

076-290-38
Thrall Family Trust,
Roger M

534-600-02
Spanish Springs Associates
Limited Partnership

COMMON AREA
OPEN SPACE

EX PROPERTY LINE

240' COMMON AREA

SETBACK TYP.

50' DRAINAGE EASEMENT

1307.80

SUGARLOAF PEAK (PUBLIC)

WILDCAT PEAK (PUBLIC)

VINEGAR PEAK (PUBLIC)

E. QUINN RIVER (PUBLIC)

E. CORNAL CREEK (PUBLIC)

N. QUINN RIVER (PUBLIC)

N. CORNAL CREEK (PUBLIC)

KUMIVA PEAK (PUBLIC)

HUNGRY RIDGE (PUBLIC)

HAYPINE RIDGE (PUBLIC)

DOLLY VARDEN (PUBLIC)

RED HORSE (PUBLIC)

N. PAH RAH RIDGE (PUBLIC)

DRAINAGE AREA

SEE SHEET S-1

SEE SHEET S-3

NOTES

[1] BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)

KEY PLAN

S-2

ALAMOSA

PYRAMID LAKE HIGHWAY

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200B RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC

DRAWN BY: LCM,VI

PROJECT NUMBER: 04-009.32

SUBMITTAL STATUS

PRELIMINARY DATE:

INITIAL DATE:

FINAL DATE:

PLANS ARE SUBJECT TO CHANGE UNTIL ALL GOVERNING AGENCIES SIGN, STAMP, AND APPROVE

MARK	DATE	REVISION DESCRIPTION

HARRIS RANCH SUBDIVISION

GEOMETRICS

WASHOE COUNTY NEVADA

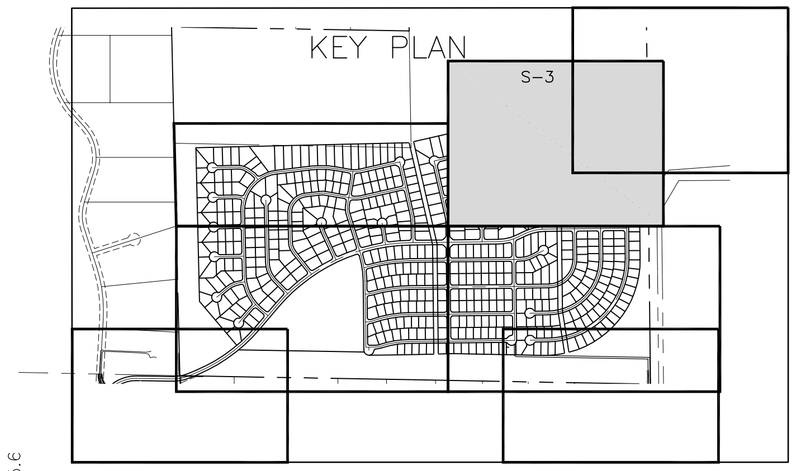
SHEET S-2 OF

File: P:\04-009.32 Harris Ranch\dwg\revitentmap\entmapREVI_03_Site2.dwg
Conversion: Tue, 2 Jul 2019 - 1:29pm

NOTES

1. BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)

KEY PLAN



SCALE: 1"=100'

SEE SHEET SG-6

534-521-01
Washoe County

2615.6

EX PROPERTY LINE

COMMON AREA
OPEN SPACE

50' DRAINAGE EASEMENT

30' WATERLINE EASEMENT

1307.80

EX PROPERTY LINE

50' DRAINAGE EASEMENT

SETBACK TYP.

E. PAH RAH RIDGE (PUBLIC)

N. PAH RAH RIDGE (PUBLIC)

RED HORSE (PUBLIC)

DRAINAGE AREA

E. FORTIFICATION (PUBLIC)

GRIFFITH CANYON (PUBLIC)

NUGENT HOLE (PUBLIC)

S. FORTIFICATION (PUBLIC)

HUNTOON (PUBLIC)

BULL FROG (PUBLIC)

BELTED

40' WATERLINE/ ACCESS EASEMENT

UTILITY COORIDOR/TRAIL ACCESS

100' COMMON AREA

20' DRAINAGE EASEMENT

30' WATERLINE EASEMENT

PEDESTRIAN ACCESS FOR TRAIL CONNECTION TO REGIONAL TRAIL

20' DRAINAGE EASEMENT

SEE SHEET S-2

SEE SHEET S-4

WARNING:
PER PROVISIONS OF NRS 625, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.

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5488 RENO CORPORATE DR, STE. 200B RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM, VI
PROJECT NUMBER: 04-009.32

SUBMITTAL STATUS

PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:

PLANS ARE SUBJECT TO CHANGE UNTIL ALL GOVERNING AGENCIES SIGN, STAMP, AND APPROVE

MARK	DATE	REVISION DESCRIPTION

HARRIS RANCH SUBDIVISION
GEOMETRICS
WASHOE COUNTY NEVADA

SHEET S-3 OF =

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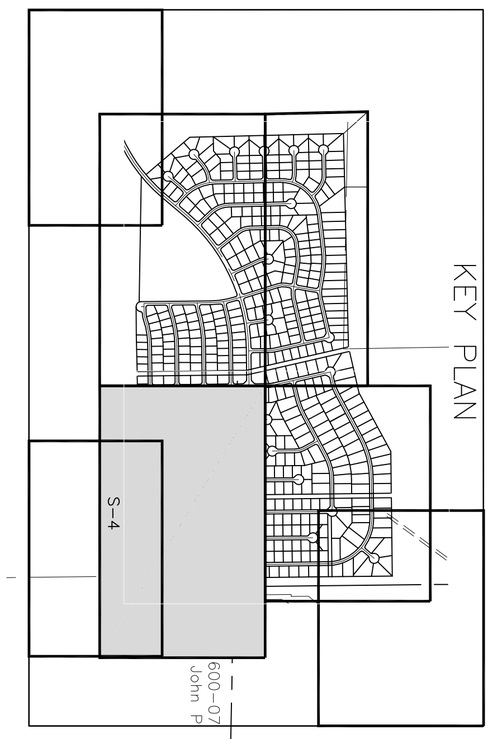
WARNING:
PER PROVISIONS OF NRS 625, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.



SCALE: 1"=100'

50' DRAINAGE EASEMENT

SEE SHEET S-1

50' DRAINAGE EASEMENT

NEFF RANCH (PUBLIC)

W. CROSBY RANCH (PUBLIC)

DRAINAGE AREA

50' DE

N. PAH RAH RIDGE (PUBLIC) R=200' L=43'

RANCH HAND (PUBLIC)

SPANISH RANCH (PUBLIC)

SAVAL RANCH (PUBLIC)

KINGS RIVER (PUBLIC)

MAJUBA (PUBLIC) L=197'

SETBACK TYP.

GRIFFITH CANYON (PUBLIC) R=50' L=256'

S. SPANISH RANCH (PUBLIC)

NUGENT HOLE (PUBLIC) L=409'

SEE SHEET S-3

50' DRAINAGE EASEMENT

S. FORTIFICATION (PUBLIC)

S. CROSBY RANCH (PUBLIC) L=1115'

JUNCTION HOUSE (PUBLIC) L=896'

HUNTOON (PUBLIC)

BULL RUN CT. (PUBLIC)

JUNCTION HOUSE CT. (PUBLIC)

BULL RUN (PUBLIC) L=1058'

BULL FROG (PUBLIC)

SAVAL RANCH CT R=50'

COMMON AREA 300'

42' SANITARY SEWER/ WATERLINE EASEMENT

ACCESS TO 10 ACRE PARCELS

N 01°03'22" E 2631.67'

534-600-06
Hearn Family Trust

534-600-05
Greiner, Gloria L

42' WIDE ACCESS/ EASEMENT TO 10 ACRE PARCELS

50' DRAINAGE EASEMENT

30' WIDE EMERGENCY ACCESS/ SANITARY SEWER/WATERLINE EASEMENT

20' WIDE PERMANENT EMERGENCY ACCESS ROAD

60' ACCESS AND UTILITY EASEMENT PER DOC 1195532

50' EMERGENCY ACCESS PER DOC. 3429759

30' WIDE EMERGENCY ACCESS/ SANITARY SEWER/WATERLINE EASEMENT

534-600-03
Hall, Bruce C & Emily F

SEE SHEET SG-6

2591.50

DONOVAN HAUL ROAD

534-591-01
RT Donovan Company INC

534-591-08
Ryder Shadow LLC

20' DRAINAGE EASEMENT

20' DRAINAGE EASEMENT

100' COMMON AREA

NOTES

[1] BLANKET DRAINAGE EASEMENT IN COMMON OPEN SPACE (DITCHES, STORM DRAIN AND STORM DETENTION FACILITIES)

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<lmenante> Tue, 12 Jul 2016 - 1:32pm

SHEET S-4 OF 11

HARRIS RANCH SUBDIVISION

GEOMETRICS

WASHOE COUNTY NEVADA

MARK	DATE	REVISION DESCRIPTION	BY

PLANS ARE SUBJECT TO CHANGE UNTIL ALL GOVERNING AGENCIES SIGN, STAMP, AND APPROVE

PRELIMINARY DATE:
INITIAL DATE:
FINAL DATE:

SUBMITTAL STATUS

DESIGNED BY: SC
DRAWN BY: LCM, VI
PROJECT NUMBER: 04-009.32

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200B RENO, NV 89511
PHONE: (775) 856-3312

SCALE: 1"=100'

KEY PLAN

WATER MAIN TO TANK

SUGAR LOAF TANK

FURTHER INFORMATION AVAILABLE AT TMWA

WATER MAIN IN BLANKET EASEMENT DOC# 3149661

CONNECT TO EXISTING 18"ø WATERLINE

18"ø

30' WATERLINE EASEMENT

VERTICAL/HORIZONTAL ALIGNMENT AND SECTION OF ACCESS ROAD FOR WATER MAIN TO BE IN ACCORDANCE WITH TMWA REGULATIONS

WATER MAIN

SEE SHEET G-3

WATERLINE PLAN

SCALE: 1"=100'

EXTEND SANITARY SEWER LINE (APPROX. 206LF TO AN EXISTING SSMH)

EXISTING PEBBLE CREEK UNIT 3

LANDMARK DRIVE

PYRAMID LAKE HWY (SR 445)

KEY PLAN

MAIN ENTRANCE

EXIST. 12" WATER PER PEBBLE CREEK UNIT 3 PLANS BY C&M ENGINEERING

SPANISH SPRINGS ASSOCIATES LTD PARTNERSHIP APN 76-290-44

SEE SHEET G-1

KINGS RIVER

EDGE OF PAVEMENT 599.8 EG

EXIST. ALAMOSA DRIVE

CARL D. & JILL M. SAVELY APN 76-290-35

MAIN ENTRANCE PLAN

SCALE: 1"=100'

LANDMARK DRIVE

PYRAMID LAKE HWY (SR 445)

100' ROW

KEY PLAN

MAIN ENTRANCE

SPANISH SPRINGS ASSOCIATES LTD PARTNERSHIP APN 76-290-44

SEE SHEET S-1

KINGS RIVER

EX. PL

COMMON AREA 30,292 SF

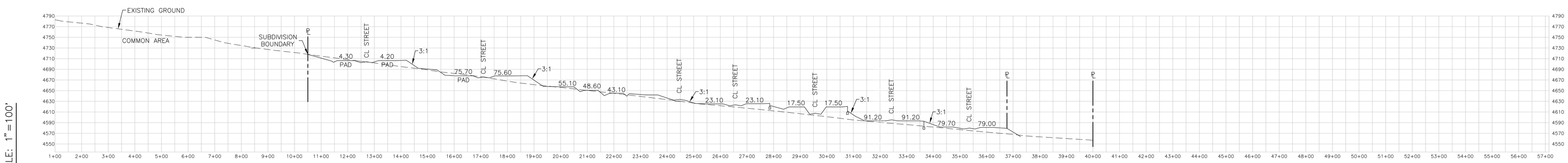
ALAMOSA DRIVE

EX. 60' ACCESS AND P.U.E.

CARL D. & JILL M. SAVELY APN 76-290-35

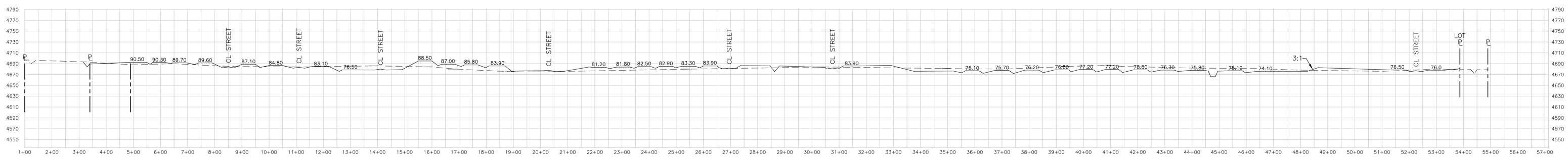
MAIN ENTRANCE PLAN

VERT. SCALE: 1"=100'



A / SG6 SECTION (EAST-WEST DIRECTION)

HORIZ. SCALE: 1"=200'



B / SG6 SECTION (NORTH-SOUTH DIRECTION)

WARNING:
PER PROVISIONS OF NRS 625, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.

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5488 RENO CORPORATE BLVD, STE. 2003, RENO, NV 89511
PHONE: (775) 856-3312

DESIGNED BY: SC
DRAWN BY: LCM, VI
PROJECT NUMBER: 04-009.32

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FINAL DATE:

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MARK	DATE	REVISION DESCRIPTION	BY

HARRIS RANCH SUBDIVISION

GEOMETRICS/GRADING

NEVADA

WASHOE COUNTY

SHEET SG-6 OF 11

File: P:\04-009.32 Harris Ranch\dwg\revtentmap\tentmapREV\ 06_Site-Grad6.dwg
<timename> Tue, 12 Jul 2016 - 1:50pm

HARRIS RANCH SUBDIVISION
GRADING

WASHOE COUNTY — NEVADA

SHEET G-1 OF 11

C & M ENGINEERING AND DESIGN, LTD
5468 RENO CORPORATE DR., STE. 200B, RENO, NV 89511
PHONE: (775) 856-3312

MARK	DATE	DESCRIPTION	BY

DESIGNED BY: SC
DRAWN BY: LCM/VI
PROJECT NUMBER: 04-009.32

SUBMITTAL STATUS

PRELIMINARY DATE:
FINAL DATE:
PLANS ARE SUBJECT TO CHANGES DUE TO ANY COMMENTS MADE DURING PLAN REVIEW AND PERMIT ISSUANCE PROCESS

WARNING:
PER PROVISIONS OF NRS 624, DRAWINGS AND DESIGNS ARE CONSIDERED PROPERTY OF THE ENGINEER.

File: P:\04-009.32 Harris Ranch\dwg\exhibits\mpl\EXH_07_grade1.dwg
Plotted On: Feb 12, 2018 - 1:13pm

HARRIS RANCH GRADING NOTES:

1. DISTURBED AREAS: APPROXIMATELY 266 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
   FILL: 780,000 CY,
   CUT: 785,000 (EXCESS TO BE USED ON SITE)
3. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:

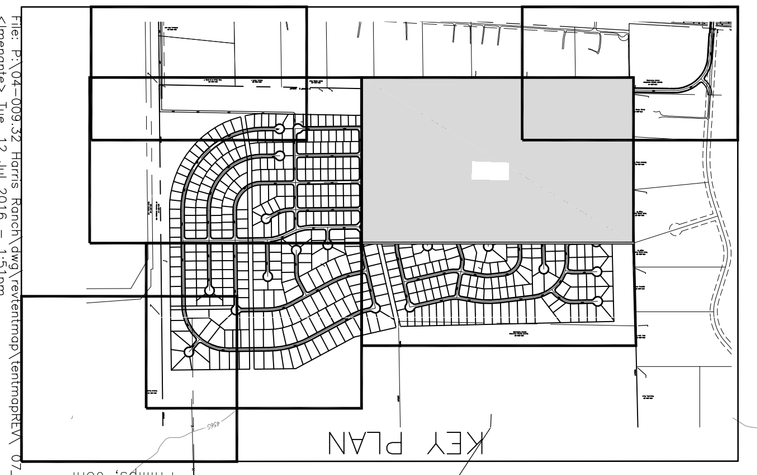
FERTILIZER – (16-20-0)	300#/ACRE		
GRASS, THE BROADCAST SEEDING RATE SHALL BE	12#/AC. OF		
SODAR WHEATGRASS AND	8#/ACRE OF	FAIRWAY	CREATE
WHEATGRASS. IF DRILLED, THE RATE SHOULD BE	6#/ACRE OF		
SODAR WHEATGRASS AND	8#/ACRE OF	FAIRWAY	CREATE
WHEATGRASS, STRAW MULCH	3000#/ACRE	ANCHORED BY	A STRAW

4. PRIOR TO CONSTRUCTION OR AS SOON AS PRACTICABLE, THE PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.
5. ALL FERTILIZER OF ALL AREAS TO BE GRADED SHALL HAVE A SILT FENCE. IN ADDITION, ALL STORM DRAIN INLETS TO HAVE FIBER ROLLS. WASHOE COUNTY BEST MANAGEMENT PRACTICES TO BE FOLLOWED.

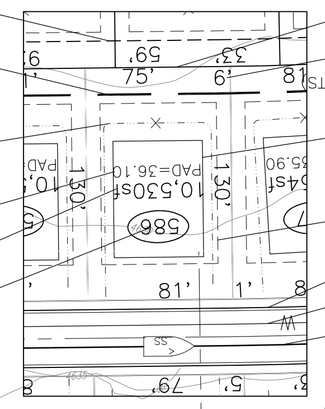
CHANNEL INFORMATION

CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

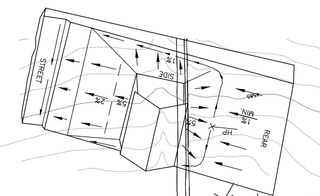
KEY PLAN



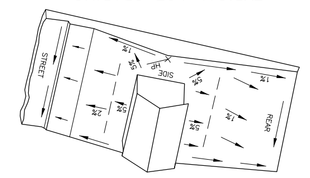
TYPICAL LOT LAYOUT



TYPICAL LOT GRADING TYPE A



TYPICAL LOT GRADING TYPE B

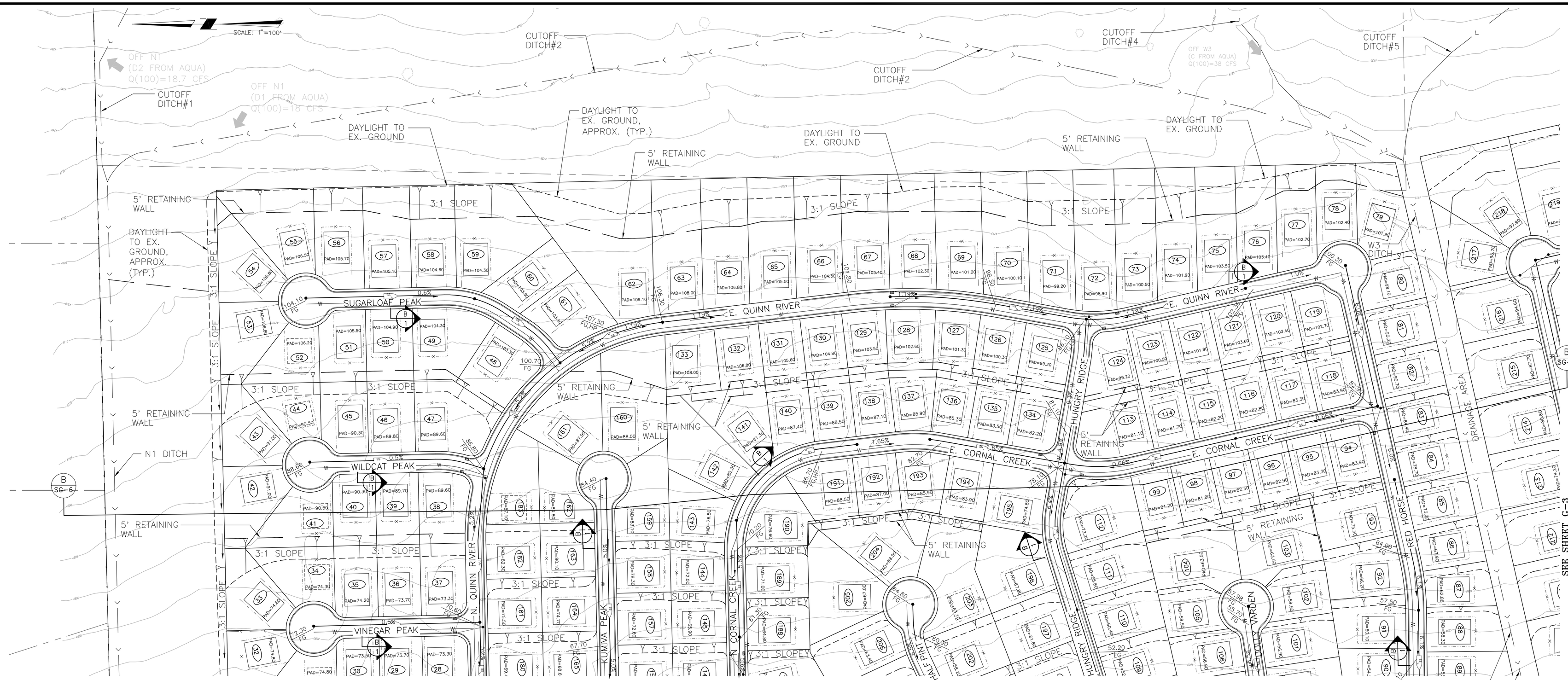


SEE SHEET G-4

SEE SHEET G-2

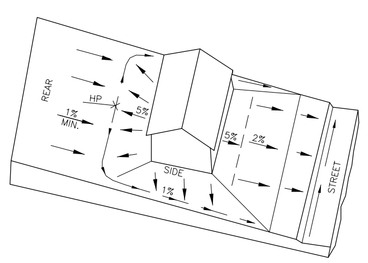
SEE SHEET S-5

SCALE: 1"=100'

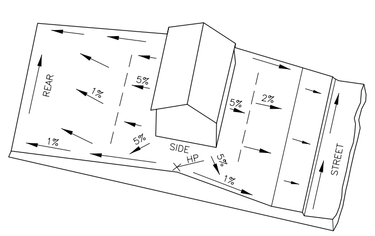


A/1 SEE TYPICAL CROSS SECTIONS A–A ON SHEET 1/11

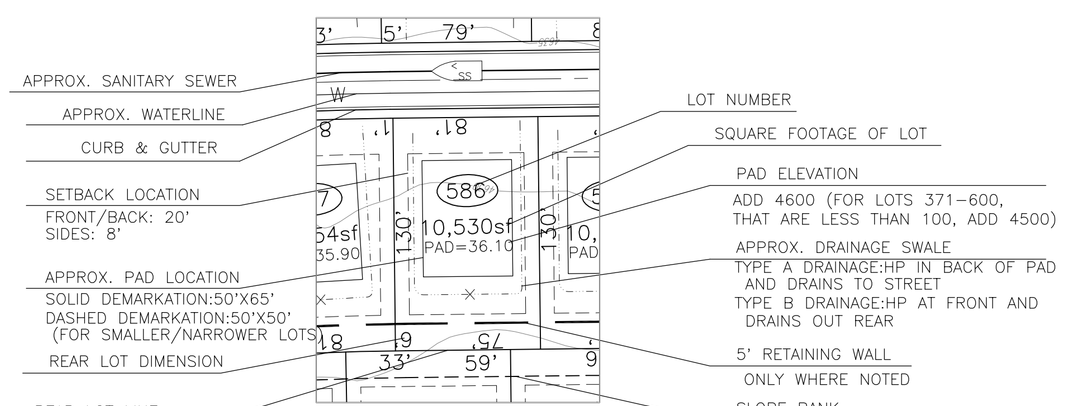
B/1 SEE TYPICAL CROSS SECTIONS B–B ON SHEET 1/11



TYPICAL LOT GRADING
TYPE A



TYPICAL LOT GRADING
TYPE B



TYPICAL LOT LAYOUT
NTS

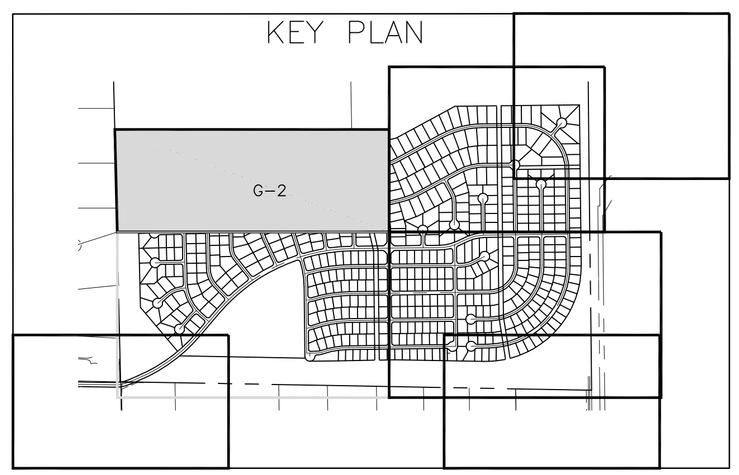
CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

CHANNEL INFORMATION

HARRIS RANCH GRADING NOTES:

1. DISTURBED AREAS: APPROXIMATELY 266 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
FILL: 780,000 CY,
CUT: 785,000 (EXCESS TO BE USED ON SITE)
3. ALL AREAS DISTURBED AND LEFT UNDEVELOPED FOR A PERIOD OF MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED BY THE APPLICATION OF DUST PALLIATIVE AND IF LEFT MORE THAN NINETY (90) DAYS PLANTED AS FOLLOWS:
FERTILIZER – (16–20–0) 300#/ACRE
GRASS, THE BROADCAST SEEDING RATE SHALL BE 12#/AC. OF SODAR WHEATGRASS AND 8#/ACRE OF FAIRWAY CREATE WHEATGRASS. IF DRILLED, THE RATE SHOULD BE 6#/ACRE OF SODAR WHEATGRASS AND 5#/ACRE OF FAIRWAY CREATED WHEATGRASS. STRAW MULCH 3000#/ACRE ANCHORED BY A STRAW PUNCHING TOOL OR COVERED WITH NETTING AND STAPLED.
4. PRIOR TO CONSTRUCTION OR AS SOON AS PRACTICABLE, THE LOW PERIMETER OF ALL AREAS TO BE GRADED SHALL HAVE A SILT FENCE. IN ADDITION, ALL STORM DRAIN INLETS TO HAVE FIBER ROLLS. WASHOE COUNTY BEST MANAGEMENT PRACTICES TO BE FOLLOWED.

KEY PLAN



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BY	MARK	DATE	REVISION DESCRIPTION

HARRIS RANCH SUBDIVISION
GRADING
WASHOE COUNTY NEVADA

SHEET G-2
OF
11

File: P:\04-009.32 Harris Ranch\dwg\revitentmap\tentmapREV\ 08_Grade2.dwg
Converted: Tue, 12 Jul 2016 - 1:59pm

CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

CHANNEL INFORMATION

SCALE: 1"=100'

FOR CONTINUATION OF WATERLINE SEE SG-6

SEE SHEET G-2

SEE SHEET G-4

TYPICAL LOT GRADING TYPE A

TYPICAL LOT GRADING TYPE B

TYPICAL LOT LAYOUT
NTS

APPROX. SANITARY SEWER
APPROX. WATERLINE
CURB & GUTTER
SETBACK LOCATION
FRONT/BACK: 20'
SIDES: 8'
APPROX. PAD LOCATION
SOLID DEMARKATION:50'X65'
DASHED DEMARKATION:50'X50'
(FOR SMALLER/NARROWER LOTS)
REAR LOT DIMENSION
REAR LOT LINE
LOT NUMBER
SQUARE FOOTAGE OF LOT
PAD ELEVATION
ADD 4600 (FOR LOTS 371–600, THAT ARE LESS THAN 100, ADD 4500)
APPROX. DRAINAGE SWALE
TYPE A DRAINAGE:HP IN BACK OF PAD AND DRAINS TO STREET
TYPE B DRAINAGE:HP AT FRONT AND DRAINS OUT REAR
5' RETAINING WALL
ONLY WHERE NOTED
SLOPE BANK
ONLY WHERE NOTED

HARRIS RANCH GRADING NOTES:

1. DISTURBED AREAS: APPROXIMATELY 266 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
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KEY PLAN

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200, RENO, NV 89511
PHONE: (775) 856-3312

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DRAWN BY: LCM/VI
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MARK	DATE	REVISION DESCRIPTION	BY

HARRIS RANCH SUBDIVISION
GRADING
WASHOE COUNTY NEVADA

SHEET G-3 OF 11

File: P:\04-009.32 Harris Ranch\dwg\revtentmap\tentmapREV1_09_Grade3.dwg
Cmenendez Tue, 12 Jul 2016 - 1:54pm

SCALE: 1"=100'

SEE SHEET G-3

SEE SHEET G-1

SEE SHEET OW-1

W3 DITCH

W4 DITCH

S1 DITCH

DRAINAGE SWALE ≈5' DEEP, 3:1 SIDE SLOPES

DRAINAGE AREA

N. PAH RAH RIDGE

MAJUBA

NUGENT HOLE

HUNTOON

BULL FROG

KINGS RIVER

KINGS CANYON

SAVAL RANCH

SAVAL RANCH CT

S. CROSBY RANCH

W. CROSBY RANCH

JUNCTION HOUSE

JUNCTION HOUSE CT

BULL RUN

BULL RUN CT

NEFF RANCH

RANCH HAND

W. SPANISH RANCH

SPANISH RANCH

DONOVAN HAUL ROAD

20' DRAINAGE EASEMENT

5' RETAINING WALL

3:1 SLOPE

3:1 SLOPE (MAX.)

DAYLIGHT TO EX. GROUND APPROX. (TYP.)

DETENTION POND, (APPROX.)

30' WIDE EMERGENCY ACCESS/ SANITARY SEWER/ WATERLINE EASEMENT

42' WIDE ACCESS/ EASEMENT TO 10 ACRE PARCELS

30' GATE EMERGENCY ACCESS ROAD TO DONOVAN'S HAUL ROAD

50' EMERGENCY ACCESS PER DOC# 3429759

KEY PLAN

HARRIS RANCH GRADING NOTES:

1. DISTURBED AREAS: APPROXIMATELY 266 ACRES WILL BE DISTURBED
2. APPROXIMATE DIRT QUANTITY:
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CUT: 785,000 (EXCESS TO BE USED FOR LANDSCAPE BERMS)
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CHANNEL	DEPTH	SIDE SLOPES	RIPRAP
N1	3'	3:1	YES
W1	3'	3:1	YES
W2	3'	3:1	YES
W3	3'	3:1	YES
W4	3'	3:1	YES
S1	3'	3:1	YES

CHANNEL INFORMATION

TYPICAL LOT GRADING TYPE A

TYPICAL LOT GRADING TYPE B

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PHONE: (775) 856-3312

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DRAWN BY: LCM
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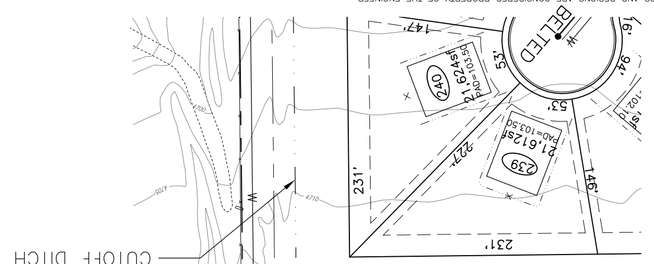
BY	DESCRIPTION	REVISION	DATE	MARK

HARRIS RANCH SUBDIVISION
GRADING
WASHOE COUNTY NEVADA

SHEET G-4 OF 11

File: P:\04-009.32 Harris Ranch\dwg\vertentmap\entmapREV\ 10_Grade4.dwg
Converted: Tue, 12 Jul 2016 - 1:05pm



CUTOFF DITCH

534-521-01
Washoe County
APN 76-401-46

2585.14'

30' WATERLINE EASEMENT

COMMON AREA
OPEN SPACE

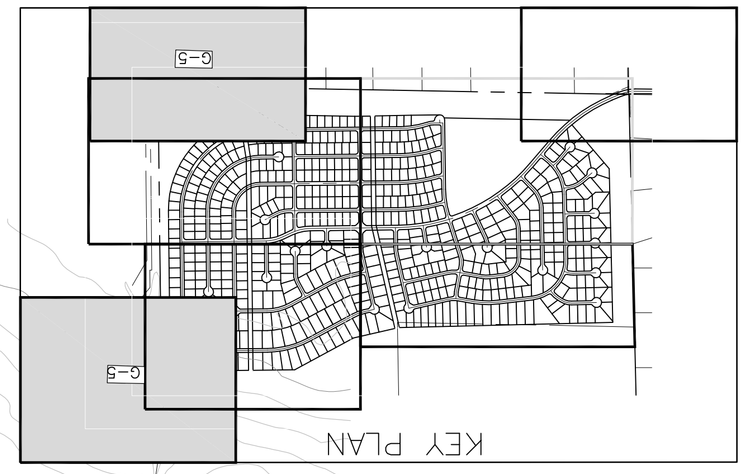
VERTICAL/HORIZONTAL ALIGNMENT AND SECTION OF ACCESS ROAD PER TMWA REGULATIONS

APN 76-401-51

30' WATERLINE EASEMENT

SCALE: 1"=100'

SEE SHEET S-6



KEY PLAN

CONNECT TO EXISTING 16"ø WATERLINE (APPROX. 855 LF)

EXISTING SANITARY SEWER

PYRAMID LAKE HIGHWAY (SR 445)

CAMPO RICO LANE

EX. ROAD 17.5' ROW

EX. 60' ACCESS/ PUE

GATE 20'

20' SANITARY SEWER EASEMENT PER DOC. # 3429760

18' WIDE UTILITY ACCESS ROAD

534-600-04
Ahlstrom, Eric etal

50' EMERGENCY ACCESS PER DOCUMENT NO. 3429759

EXISTING 60' ACCESS AND UTILITY EASEMENT PER DOCUMENT NO. 1195532

534-600-03
Hall, Bruce C & Emily F
APN 76-360-62

534-600-05
Greiner, Gloria L
APN 76-360-71

30' GATE EMERGENCY ACCESS GATE TO DONOVAN HAUL ROAD

42' WIDE ACCESS/ EASEMENT TO 10 ACRE PARCELS

30' EMERGENCY ACCESS/ WATERLINE/ SANITARY SEWER EASEMENT

20' WIDE PERMANENT EMERGENCY ACCESS ROAD

30' EMERGENCY ACCESS/ WATERLINE/ SANITARY SEWER EASEMENT

APN 76-401-46

DONOVAN HAUL ROAD

2591.5'

BULL RUN CT.

SCALE: 1"=100'

SEE SHEET G-4

SEE SHEET S-4/G-4

File: P:\14-009.32 Harris Ranch\dwg\revtentmap\tentmapREV 11_OW-1.dwg
Plotted on: Mar 12, 2015 - 1:35pm

HARRIS RANCH SUBDIVISION
OFFSITE WATER

WASHOE COUNTY NEVADA

SHEET OW-1 OF 11

MARK	DATE	DESCRIPTION	BY

DESIGNED BY: SC
DRAWN BY: LCM
PROJECT NUMBER: 04-009.32

SUBMITTAL STATUS

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PLANS ARE STRICTLY TO CEASE UNTIL ALL COVENANTS AGENCY SIGN, STAMP, AND APPROVE

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., STE. 200B, RENO, NV 89511
PHONE: (775) 856-3312