STAFF REPORT FOR THE PLANNING COMMISSION MEETING OF MARCH 30, 2016

FILE NO: **TPUD-16-012** **AGENDA ITEM: F-3**

STAFF AUTHOR: Susan Dorr Pansky, AICP, Planning Manager

REQUEST: To consider a request from Silver Oak Development, L.P. (property owner: Silver Oak Development Co., Ltd.) to modify the Silver Oak Planned Unit Development to add 31 single family residential lots in a new phase to be known as Silver Oak Phase 21, on property zoned Single Family 12,000 – Planned Unit Development (SF12-P).

APPLICANT: Silver Oak Development, L.P.

OWNER: Silver Oak Development Co., Ltd.

LOCATION: 2951 Oak Ridge Drive

APN(s): 007-462-12

RECOMMENDED MOTION: "I move to recommend to the Board of Supervisors approval of TPUD-16-012, a modification to the Silver Oak Planned Unit Development to add 31 single family residential lots in a new phase known as Silver Oak Phase 21, on property zoned Single Family 12,000 – Planned Unit Development, located at 2951 Oak Ridge Drive, APN 007-462-12, based on the findings and subject to the conditions of approval in the staff report."

RECOMMENDED CONDITIONS OF APPROVAL

The following are general conditions of approval:

1. The applicant must sign and return the Notice of Decision including conditions of approval within 10 days of receipt of notification. If the Notice of Decision is not signed and returned within 10 days, the item may be rescheduled for the next Planning Commission meeting for further consideration.

2. The applicant shall provide construction plans to the Engineering Division for all required on-site and off-site improvements, prior to any submittals for approval of a Final Map.

3. Individual homes will require application for a Building Permit, issued through the Carson City Building Division. This will necessitate a complete review of the project to verify compliance with all adopted construction codes and municipal ordinances applicable to the scope of the project.

4. A Site Improvement Permit will be required for all site improvements intended to serve the entire site.

5. Hours of construction will be limited to 7:00 a.m. to 7:00 p.m., Monday through Friday, and 7:00 a.m. to 5:00 p.m. on Saturday and Sunday. If the hours of construction are not adhered to, the Carson City Building Division will issue a warning for the first violation, and upon a second violation, will have the ability to cause work at the site to cease immediately.

6. A Final Map, prepared in accordance with the Tentative Map, must be approved and recorded within four years after the approval of a Tentative Map unless a longer time is provided for in an approved development agreement with the City.

7. Prior to the recordation of the final map for any phase of the project, the improvements associated with said phase must either be constructed and approved by the City, or the specific performance of said work secured by providing the City with a proper surety in the amount of one hundred fifty percent (150 %) of the engineer's estimate. In either case, upon acceptance of the improvements by the City, the developer shall provide the City with a proper surety in the amount of ten percent (10 %) of the engineer's estimate to secure the Developers obligation to repair defects in workmanship and materials which may appear in the work within one year of acceptance by the City.

8. Landscaping shall be required in all areas not intended for development as roads or individual lots to the satisfaction of Planning Division staff. This includes the parking islands, the detention basins, the southwest portion of the parcel that contains the drainage easement and pathway, and the vacant portion of the parcel to the northwest of John Mankins Park. Staff may consider waiving the requirement for the vacant portion of the parcel northwest of the park if it becomes a part of the vacant parcels on the corner of Oak Ridge Drive and College Parkway (APN 007-462-14 and -15).

9. The landscaping of the common areas shall be completed with the site improvements for the project. The front and side yard landscaping of the individual homes shall be completed with the individual home construction.

10. All common open space areas shall be maintained by the homeowners' association.

11. Lots 1 and 31 shall be required to maintain a 15 foot street side yard setback. Lots 24 and 25 may utilize a 10 foot street side yard setback.

The following shall be included in the design of the Improvement Plans:

12. The new road which will serve as the access and egress point for the development will be implemented to align with an existing driveway on the west side of Oak Ridge Drive. The developer will implement a three-way STOP condition at the intersection of the new road being constructed where it intersects Oak Ridge Drive. The developer will submit plans for signing and striping to Carson City Development Engineering for approval prior to implementation.

13. In accordance with CCDS 12.10 and 12.11.10, pavement sections shall be based on subgrade strength values determined by Resistance (R) Value or California Bearing Ratio (CBR) as shown in the Soils Engineering Report. Refer to CCDS Division 17 for soils report requirements. In no case shall the proposed pavement section be less than the minimum section prescribed in standard drawing C-5.1.9 and C-5.1.9.1.

14. Storm drainage facility improvements shall be designed in accordance with CCDS Division 14. A Technical Drainage Study is required with submittal of Improvement Plans in accordance with CCDS 14.9 through 14.10.

15. The storm drain easement proposed for the property to the northwest must be obtained and recorded before construction drawings are approved.

16. The project must comply with 2012 IFC and Northern Nevada Amendments.

17. Fire hydrant spacing must comply with Appendix C of the 2012 IFC. Please ensure distances are reduced for dead end roads/cul-de-sacs. The submitted plans did not clearly indicate proposed hydrant locations.

18. The end of Boardwalk Drive where it ties into W. Nye Lane must connect through to W. Nye Lane with a smooth transition of pavement. Removable bollards with reflective striping, not locked, will be acceptable as traffic control to limit through traffic to emergency vehicles.

19. The Park Place Court naming scheme doesn't comply with Carson City Development Standards, Division 22 on street naming. The street can't use both Place and Court. Please rename.

20. This project must meet all applicable codes as found in 40 CFR 408, CCMC 12.06, CCMC 12.12 and 2012 UPC.

The following shall be conditions to be completed prior to obtaining a Construction Permit or Final Map:

21. Final improvement plans for the development shall be prepared in accordance with CCDS Division 19 and the Standard Specifications and Details for Public Works Construction, as adopted by Carson City.

22. The applicant shall obtain a dust control and stormwater pollution prevention permit from the Nevada Division of Environmental Protection (NDEP). The site grading must incorporate proper dust control and erosion control measures.

The following must be submitted or included with the Final Map:

23. All Final Maps shall be in substantial conformance with the approved Tentative Map.

24. The following notes shall be added to the Final Map:

    A. These parcels are subject to Carson City's Growth Management Ordinance and all property owners shall comply with provisions of said ordinance.

    B. All development shall be in accordance with the Jackson Village Planned Unit Development (TPUD-15-069).

    C. The parcels created with this Final Map are subject to the Residential Construction Tax payable at the issuance of Building Permits for residential units.

25. A copy of the signed Notice of Decision shall be provided with the submission of any Final Map.

26. The applicant shall provide evidence to the Planning Division indicating the all agencies' concerns or requirements have been satisfied and that all conditions of approval have been met.

27. All streets within the boundary of the subdivision shall be named in accordance with Carson City Development Standards, Division 22 – Street Naming and Address Assignment. Street names shall be reviewed and approved by Carson City GIS and shall be shown on the Final Map.

The following conditions are applicable to Building Permits for the individual homes:

28. All projects and improvements must be performed in accordance with Nevada State Revised Statutes (NRS) 623 & 624 and Carson City Municipal Code (CCMC) 15.05.020.

29. All repairs, replacement, and alterations must have proper building permits and comply with International Building and Residential Codes, Uniform Plumbing Code, Uniform Mechanical Code or International Mechanical Code, Fuel Gas Code, Electrical Code, Adopted International Energy Conservation Code, and Northern Nevada Amendments.

30. A developer can use a master plan approach for the build out. The full permit fee value will be imposed on the first review. The second application submitted will be 80 percent of the normal fee.

31. All Contractors are required to carry State and local license.

32. In order to assist in funding new fire facilities within the area (i.e. fire station), individual builders within Silver Oak Phase 21 shall work with the Carson City Fire Department to participate in a fee program implemented by Carson City which provides funds (to be paid at time of building permit) that are dedicated to fire improvements. In the absence of a current city wide impact fee program, fees shall be as follows for Silver Oak Phase 21: A minimum of $1000.00 per dwelling unit in single family or multi-family residential development.

33. In lieu of and as an alternative to the fire fee, it may be possible for individual builders within Silver Oak Phase 21 to work with the Carson City Fire Department to determine if

other mitigation measures may be available. Such measures could include, but are not limited to, providing improvements such as paving, utility extensions, etc. along with construction of new facilities, etc. These improvements shall be credited back to any applicable fire fee. This shall be reviewed on a case by case basis dependent on current Fire Department needs and demands.

34. New development within Silver Oak Phase 21 shall participate in any applicable impact fee program that is enacted by Carson City. This shall not exempt development from any impact fee program adopted post approval of this PUD.

LEGAL REQUIREMENTS: NRS Chapter 278A (Planned Development), CCMC Section 17.07 (Findings), CCMC Section 17.09 (Planned Unit Development)

MASTER PLAN DESIGNATION: Parks and Recreation (P&R)

ZONING DISTRICT: Single Family 12,000 – Planned Unit Development (SF12-P)

KEY ISSUES: Does the proposal meet the Planned Unit Development requirements and other applicable requirements?

SURROUNDING ZONING AND LAND USE INFORMATION:

NORTH: Retail Commercial-Planned Unit Development (RC-P) and Neighborhood Business-Planned Unit Development (NB-P)/Retail Shopping Center and Assisted Living Facility
SOUTH: Single Family 12,000-Planned Unit Development (SF12-P)/Residential Uses
WEST: Single Family 12,000-Planned Unit Development (SF12-P)/Residential Uses and Neighborhood Park
EAST: Residential Office-Planned Unit Development (RO-P) and Single Family 6,000 (SF6)/Office and Residential Uses

ENVIRONMENTAL INFORMATION:

FLOOD ZONE: Zone X Shaded (areas of minimal flooding)
SLOPE/DRAINAGE: Generally flat
SEISMIC ZONE: Zone I (Severe) – Fault within 200 feet of site

SITE DEVELOPMENT INFORMATION:

SUBJECT SITE AREA: 7.99 acres
EXISTING LAND USE: Vacant land
TOTAL RESIDENTIAL LOTS: 31 residential lots
PROPOSED LOT SIZES: 5,200 to 10,371 square feet
REQUIRED SETBACKS (per existing Silver Oak Planned Unit Development):

Front	Rear	Side	Street Side
20 feet	10 feet	5 feet	15 feet

PARKING REQUIRED: Two spaces per dwelling unit, plus one space for every two dwelling units for guest parking – 78 spaces required
VARIANCES REQUESTED: None

SITE HISTORY:

- CPUD-15-051 – Conceptual Planned Unit Development Map Review for 31 single family residential units (Silver Oak Phase 21)
- PM-06-182 – Parcel Map to create three parcels
- ABP-06-159 – Abandonment of two 15-foot wide public utility easements
- VAR-05-195 – Variance for setbacks in certain neighborhoods within Silver Oak
- U-96/97-16 – Special Use Permit for flag poles associated with the Silver Oak Development
- P-93/94-1 – Silver Oak Planned Unit Development for 1,181 residential units

BACKGROUND:

On June 2, 2015, the applicant participated with City staff in a Conceptual Planned Unit Development Map review (CPUD-15-051) for the proposed development per the Planned Unit Development process requirements of the Carson City Municipal Code. The purpose of the Conceptual Planned Unit Development Map review is for City staff to provide comments to the applicant regarding City requirements for the proposed subdivision.

The Conceptual Map proposal consisted of 31 single-family residential lots on a 7.99 acre parcel located at 2951 Oak Ridge Lane within the existing Silver Oak Planned Unit Development. Lot sizes of the proposed project range from 5,200 square feet to 10,371 square feet. Staff noted that a modification to the Silver Oak Planned Unit Development (Silver Oak PUD) would be required to pursue this project, as the property intended for development was originally planned for a school site, and because residential units were not approved for this area. Because the school district determined that the site was not needed, the developer has chosen to pursue residential development on the property.

As previously noted, the subject parcel is a part of the existing Silver Oak PUD that was created in 1994. At inception, the Silver Oak PUD had 1,181 single family residential units approved. Through various modifications to the PUD, a revised tentative map and reduction in actual recorded lots versus planned lots in various phases up to this point, the number of lots in the overall PUD has changed, as well as the number of remaining lots available for development. These changes are captured in the tables below.

	Unit Count
Original Silver Oak PUD Approval (1994)	**1181**
Revised Tentative Map (1998)	1207
Less removal of units as a result of land removed for Carson Tahoe Hospital (2003/2004)	79
New Total	**1128**
Less units lost through map recordation to date	71
Total Potential Units	**1057**

Recorded to Date	606
Remaining Approved	451
Total Potential Units (without PUD amendment)	**1057**

The applicant states that they intend to use the units lost through recordation elsewhere in the Silver Oak PUD, including within the currently proposed project. However, the Silver Oak PUD is not set up to allow for the transfer of density within the differently phases and cluster areas of the development. Each requested change in allowed single family residential density or units beyond what is currently approved in the Silver Oak PUD and approved 1998 tentative map is subject to approval as a modification to the Silver Oak PUD. Any future phase of development within the Silver Oak PUD is required to be in compliance with the 1998 revised tentative map with regard to design and unit count, otherwise a modification of the PUD will be required.

In the case of Silver Oak Phase 21, the applicant is requesting modification of the existing Silver Oak PUD to use 31 of the 71 units lost through map recordation to date. This would reduce the number of units lost through recordation to 40, and the total number of approved units at build out would still be under the total number of units allowed in the Silver Oak PUD.

DISCUSSION:

A Planned Unit Development is an area of land controlled by a landowner, which is to be developed as a single entity for a number of dwelling, commercial, and/or industrial units, the plan for which does not correspond in lot size, height, or size of dwelling, density lot coverage and required open space of the regulations established in any one use district.

Carson City Municipal Code, Section 17.09.005 (Statement of Objectives for Planned Unit Developments) identifies the following objectives for Planned Unit Developments:

> In order that the public health, safety and general welfare of the residents of Carson City be furthered in an era of increased urbanization, growing demand for housing of all types and desire for attractive commercial and industrial developments, there is enacted an ordinance controlling Planned Unit Developments.
>
> The purpose of the ordinance codified in this chapter (Chapter 17.09), in addition to the above, is to encourage more efficient use of the land and of public and private services in Carson City; to reflect the changes in technology of land development so the resulting economies benefit Carson City.
>
> It is the intention of this chapter to produce developments which meet or exceed the city standards of open space, access to light and air, pedestrian and vehicular circulation and produce a variety of land uses which complement each other and harmonize with the existing and proposed land uses in the vicinity. Additionally, this chapter insures increased flexibility of substantive regulations over land development that is administered in such a way as to encourage land development without undue delay, while controlling development in the best interests of the ecology, economy, public health, safety, morals and general welfare of the citizens of Carson City.

Silver Oak Phase 21 is a new single family residential phase within the existing Silver Oak Planned Unit Development. It consists of 31 single family residential units on a 7.99 acre site located on Oak Ridge Drive adjacent to John Mankins Park. The lot sizes for this proposed project range from 5,200 square feet to 10,371 square feet, with an average lot size of approximately 6,700 square feet.

The homes are proposed to be three- and four-bedrooms in single story structures with heights varying from 22 to 25 feet from finished grade. Staff notes that there is a condition of approval under the original Silver Oak PUD approval that residences will be limited to single story structures along the Silver Oak property line to the east where there is existing residential

development. This condition would apply to Silver Oak Phase 21 and, as presented, the development meets this condition. The home sizes will range from 1,700 to 2,500 square feet. Sample home elevations and floorplans have been provided by the applicant as a part of this request and may be found in the application attached to this staff report. This new phase of Silver Oak will be governed by the existing Silver Oak homeowners' association and will be subject to the same restrictive covenants (CC&Rs) and association dues as the other single family residential lots within the Silver Oak PUD.

The applicant is requesting to utilize minimum setbacks that meet or exceed the existing Silver Oak PUD for lot sizes in the 5,000 to 11,000 square foot range, with the exception of the street side yard setback. Staff notes that certain phases of the Silver Oak PUD are subject to different setbacks approved under VAR-05-195, but the remainder of Silver Oak utilizes the following setbacks for the lot size category noted above:

	Front	Side	Street Side	Rear
Minimum Setback – 5,000-11,000 sf lots	12 feet	5-8 feet	15 feet	10-13 feet

The applicant is proposing the following setbacks for Phase 21:

	Front	Side	Street Side	Rear
Minimum Setback – 5,000-11,000 sf lots	20 feet	5 feet	10 feet	10 feet

The applicant notes that because of multiple pedestrian routes around and through the proposed subdivision combined with sidewalk on one side of the street, a 15-foot street side yard setback will create unbuildable building envelopes on the lots that are subject to a street side setback, and only four lots would be subject to this requirement. These lots include Lots 1, 24, 25 and 31. Staff has no concerns with utilizing the 10-foot street side setback on lots 24 and 25, but suggests that the 15-foot street side setback remain for lots 1 and 31. These two lots are at the entrance of the phase, and providing a 15-foot setback on each side of the main entrance will create a larger opening in the fence line on Oak Ridge Drive in this location, supporting better sight distances for the intersection.

The applicant has indicated that the density for Phase 21 is four units per acre, which is in compliance with the maximum allowed density within a PUD for the underlying Single Family 12,000 zoning district.

The open space provided for the Silver Oak PUD at the time of its original approval in 1994 was 45 percent of the overall development, or approximately 293 acres. The applicant has provided an open space calculation indicating that 270 acres of the PUD has actually been developed as open space, but that this accounts for approximately 44 percent of the Silver Oak PUD. Staff notes that this open space calculation is not entirely accurate, as it left out a 21.67 acre parcel at the southwest corner of Medical Parkway and North Carson Street that is actually a part of the Silver Oak PUD. However, staff believes that the 270 acres of open space itself is accurate, and using this as a percentage of the 630.61 acres staff believes is currently in the PUD, 43 percent of open space is still achieved. With the addition of approximately 1.26 of open space within Phase 21 itself, a total of approximately 271.26 acres of open space will exist in the overall Silver Oak PUD.

Planned Unit Development Findings

Per CCMC Section 17.07.005 (Findings) and Section 17.09.050 (Approval or Denial of Application), the approval or denial of a PUD shall be based on the specific findings outlined below. Staff will first address the findings outlined in Section 17.07.005, followed by the findings outlined in Section 17.09.050.

Section 17.07.005 (Findings):

1. *Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal.*

   Silver Oak Phase 21 will be required to obtain a dust control and stormwater pollution prevention permit from the Nevada Division of Environmental Protection (NDEP), and the site grading must incorporate proper dust control and erosion control measures. The PUD will also be required to connect to the City water and sewer system.

2. *The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision.*

   The project will connect to the City water system, which has sufficient quantity for the foreseeable needs of Silver Oak Phase 21. Sufficient water resources are addressed through the Growth Management building permit allocation system and other ongoing water management efforts.

3. *The availability and accessibility of utilities.*

   The project will connect to all available utilities that abut the site and serve the existing neighborhood.

4. *The availability and accessibility of public services such as schools, police protection, transportation, recreation and parks.*

   Silver Oak Phase 21 is an additional phase within the existing Silver Oak PUD that is served by existing schools, sheriff protection and transportation facilities. It is adjacent to the John Mankins Park that serves the surrounding neighborhoods. The proposed development will not overburden these services.

5. *Access to public lands. Any proposed subdivision that is adjacent to public lands shall incorporate public access to those lands or provide an acceptable alternative.*

   Silver Oak Phase 21 is not adjacent to public lands, therefore incorporating access is unnecessary.

6. *Conformity with the zoning ordinance and land use element of the City's Master Plan.*

   Silver Oak Phase 21 is consistent with the zoning ordinance and existing Silver Oak PUD. The request is also consistent with the City's Master Plan by promoting a variety of housing options and infill development on underutilized land in the City.

7. *General conformity with the City's Master plan for streets and highways.*

The proposed development meets the City's Master plan for streets and highways. As an infill phase for the existing Silver Oak PUD, this project is adding internal streets to the development only.

8. *The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision.*

While the existing public streets, namely Oak Ridge Drive, are adequate to accommodate the traffic generated by Silver Oak Phase 21, Transportation staff notes that adding traffic to Oak Ridge Drive will further deteriorate an existing problem of speeding on this street. This issue is discussed in detail in Transportation's comments on this project. As a result, Transportation staff has recommended a condition of approval that will require the applicant to align the entrance road of Silver Oak Phase 21 appropriately and create a three-way stop at the intersection to address these concerns.

9. *The physical characteristics of the land such as flood plains, earthquake faults, slope and soil.*

The project site is flat and does not contain a flood plain, nor are there any unusual soil concerns. There is a fault zone within 200 feet of the site, making earthquake potential highly likely. The subdivision will be required to make drainage improvements so as not to impact nearby flood hazard zones or adjacent properties.

10. *The recommendations and comments of those entities reviewing the subdivision request pursuant to NRS 278.330 thru 278.348, inclusive.*

The recommendations of reviewing departments and other entities have been incorporated into the conditions of approval for the proposed subdivision, as applicable.

11. *The availability and accessibility of fire protection including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires including fires in wild lands.*

The project is located within the existing Silver Oak PUD and adjacent to residential, park and commercial areas that are served by fire protection services in the area. Adequate water is provided in the area to meet fire demands, and the project will be required to install additional fire hydrants and meet required fire flows.

12. *Recreation and trail easements.*

Silver Oak Phase 21 has existing sidewalk along Oak Ridge Drive that connects to John Mankins Park to the northwest of the project. No additional recreation or trail easements are required on the subject property.

Section 17.09.050 (Approval or Denial of PUD Application):

1. *In what respects the plan is or is not consistent with the statement of objectives of the Planned Unit Development ordinance.*

The proposed plan for Silver Oak Phase 21 is consistent with the statement of objectives outlined in the Planned Unit Development ordinance. Phase 21 will develop an underutilized piece of property within the existing Silver Oak PUD that was originally

planned for a school, with the intention of providing more variety to the housing type currently found in Silver Oak.

2. *The extent to which the plan departs from zoning and Planned Unit Development regulations otherwise applicable to the property, including but not limited to density, size and use, and the reasons such departures are or are not deemed to be in the public interest.*

   The proposed plan for Silver Oak Phase 21 is consistent with the overall Silver Oak PUD and the Planned Unit Development regulations with regard to lot size, density and use and does not depart from what is currently allowed in the Silver Oak PUD.

3. *The purpose, location and amount of the open space in the Planned Unit Development, the reliability of the proposals for maintenance and conservation of the open space and the adequacy or inadequacy of the amount and purpose of the open space as related to the proposed density and type of residential development.*

   At the time of the original approval of the Silver Oak PUD in 1994, Carson City's Planned Unit Development ordinance required a minimum of 40 percent open space. Silver Oak planned for 45 percent, but ended up developing closer to 43 percent as discussed in detail previously in this staff report. Carson City's current ordinance requires only 30 percent open space. The applicant has provided 1.26 additional open space as a part of Phase 21. With or without this additional open space, the Silver Oak PUD continues to exceed the 40 percent open space required at the time it was approved.

4. *A physical design of the plan and in the manner in which such design does or does not make adequate provision for public services, provide adequate control over vehicular traffic, parking requirements, and further the amenities of light and air, recreation and visual enjoyment.*

   As detailed in the Engineering Division comments, the physical design of the plan does make adequate provisions for public services. As discussed previously, Transportation staff has recommended a condition of approval related to the location of the main entrance intersection with Oak Ridge Drive to accommodate a three-way stop.

5. *The relationship, beneficial or adverse, of the proposed Planned Unit Development to the neighborhood in which it is proposed to be established.*

   Silver Oak Phase 21 is proposed as a single family residential development similar to that type of residential development that exists in the area, in both the existing Silver Oak PUD and in other adjacent residential neighborhoods. Because it is a similar residential use proposed on an underutilized vacant parcel, the approval of this project is anticipated to be a benefit to the neighborhood in which it will be established.

6. *In the case of a plan which proposes a development over a period of years, the sufficiency of the terms and conditions intended to protect the interest of the public and the residents of the Planned Unit Development in the integrity of the plan.*

   According to the applicant, the project will be built in one phase and be fully completed 24 months after approval. Development over a large period of years is not anticipated.

With the recommended conditions of approval, the findings to grant approval have been met by the applicant. Therefore, it is recommended that the Planning Commission approve application TPUD-16-012 based on the required findings as noted above.

PUBLIC COMMENTS: Public notices were mailed to 40 adjacent property owners within 300 feet of the subject site on March 11, 2016. As of the writing of this report, no comments in support or in opposition of the proposed project have been received. Any comments that are received after this report is completed will be submitted to the Planning Commission prior to or at the meeting on March 30, 2016, depending on the date of submission of the comments to the Planning Division.

OTHER CITY DEPARTMENT OR OUTSIDE AGENCY COMMENTS: Comments were received from various city departments and are outlined below. Recommendations have been incorporated into the recommended conditions of approval, where applicable.

Engineering Division:

GENERAL: The Engineering Division has considered the elements of NRS 278.349, the Carson City Municipal Code and the Carson City Development Standards in its review of the tentative map.

This recommendation for 'approval with conditions' from the Engineering Division is based on conceptual level analysis that indicates the development as proposed will currently meet or will meet with concurrent improvements, prior to final map approval, Nevada Revised Statutes, the Carson City Municipal Code and the Carson City Development Standards. With the request for final approval of any and all phases, detailed engineering analysis addressing the following issues and recommending system improvements will be submitted to the Engineering Division.

FINDINGS: The Conceptual Findings by the Engineering Division are:

(a) *Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal;*

The development is required to comply with all applicable environmental and health laws concerning water and air pollution and disposal of solid waste.

(b) *The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision;*

Water supplied to the development will meet applicable health standards. Carson City's water supply capability will not be exceeded by final approval of this development.

(c) *The availability and accessibility of utilities;*

All other utilities are available in the area to serve this development.

(d) *General conformity with the governing body's master plan of streets and highways;*

It appears that access will be acceptable after half street improvements are completed.

(e) *The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;*

In general, the development will not cause adverse impacts to the existing street system. There may be some minor improvements required at the intersection with Oak Ridge Dr.

(f) *Physical characteristics of the land such as floodplain, slope and soil.*

The physical characteristics of the area do not preclude the development as proposed.

RECOMMENDATION: If the tentative map is approved, the Engineering Division has the following recommended conditions of approval for the project:

A. Specific Conditions to be included in the Design of the Improvement Plans:

1. In accordance with CCDS 12.10 and 12.11.10, pavement sections shall be based on subgrade strength values determined by Resistance (R) Value or California Bearing Ratio (CBR) as shown in the Soils Engineering Report. Refer to CCDS Division 17 for soils report requirements. In no case shall the proposed pavement section be less than the minimum section prescribed in standard drawing C-5.1.9 and C-5.1.9.1.

2. Storm drainage facility improvements shall be designed in accordance with CCDS Division 14. A Technical Drainage Study is required with submittal of Improvement Plans in accordance with CCDS 14.9 through 14.10.

3. The storm drain easement proposed for the property to the northwest must be obtained and recorded before construction drawings are approved.

B. Conditions to be Completed Prior to Submitting for Construction Permit or Final Map

1. Final improvement plans for the development shall be prepared in accordance with CCDS Division 19 and the Standard Specifications and Details for Public Works Construction, as adopted by Carson City.

2. The applicant shall obtain a dust control and stormwater pollution prevention permit from the Nevada Division of Environmental Protection (NDEP). The site grading must incorporate proper dust control and erosion control measures.

C. General Conditions

1. Prior to the recordation of the final map for any phase of the project, the improvements associated with said phase must either be constructed and approved by the City, or the specific performance of said work secured by providing the City with a proper surety in the amount of one hundred fifty percent (150 %) of the engineer's estimate. In either case, upon acceptance of the improvements by the City, the developer shall provide the City with a proper surety in the amount of ten percent (10 %) of the engineer's estimate to secure the Developers obligation to repair defects in workmanship and materials which may appear in the work within one year of acceptance by the City.

DISCUSSION BULLETS: The following discussion is offered within Engineering Division areas of purview relative to the proposed Tentative Map:

- All public water mains will require locator risers and boxes at all direction changes.
- The public utility easement requirement for all street frontages is 10 feet in width.
- All City sidewalks must be a minimum of 5 feet in width.

- All detention basin areas and backyard drainage facilities must be privately maintained. The pipes in the street will be maintained by the City.
- Please use detail C-5.1.9.1 for the special street section.
- For utility locations, please use detail C-1.2.4.
- Plan and profile sheets must be included for all utilities to be maintained by the City.
- The grading plan must include street and curb grades.
- Please include a typical lot drainage detail and add a note stating that each home will have a separate grading and drainage plan as part of the home construction submittal.
- An erosion control plan must be included with the construction drawings.
- Please include applicable standard details with the plan set.
- For all new pavement sections, type 2 asphalt concrete is required. Type 3 is for patches and overlays.
- Please show the sight lines for the landscape plans. Sight lines cannot be blocked.
- The PUD map must be tied to two accepted control points.
- Sewer, domestic water, and fire flow capacity studies will be required.
- It appears from the preliminary water analysis that water mains must be 8" diameter. This is the minimum required size, anyway.
- The 8" main in Nye Lane must be checked to see if the additional flows will be able to be handled by the City system.

Conceptual Drainage Report

- The existing sidewalk/path also serves as a channel for the 100 year flow coming from the west. Please show on a map the 100 year flow path for both on and off site through this project.
- Table 2 doesn't seem to represent off site peak flows. A map is needed to show the upstream subarea draining through the project.
- List in the main report some key pipe velocities and flows given the various storm events for the existing and proposed systems.
- Is it possible to provide more distance between the inlet and outlet of the detention basins to provide better water quality benefits? Please address.
- The report will need to address maintenance of any public and private systems. The City will maintain pipe in the street and to the detention facilities, but the ponds themselves must be privately maintained.

These comments are based on very general plans. All applicable code requirements will apply whether mentioned in these comments or not.

Transportation Division:

There are continued concerns with traffic and speeding in this area and specifically right in the area where this proposed development will access Oak Ridge Drive. The design of the neighborhood has limited connectivity, causing Oak Ridge Drive to be used as a through route, not just to access residences. The Public Works Department has received numerous complaints about this situation and recently conducted traffic counts which show that the speeding issue persists. The park is also very popular, and users of that park and residents in the homes recently constructed on the west side of Oak Ridge Drive are among those who have expressed concerns. Public Works implemented several measures last year in this area including a centerline, striping for the parking at the park, and concrete islands on the east side of the road. While those improvements were valuable and appreciated, concerns remain.

As it relates to this project, the additional traffic at this location is cause for greater concern. With the connection to Nye Lane on the east side being for emergency access only, that means all traffic will be focused to and from Oak Ridge Drive right in the area of concern. The appropriate action will be to install STOP signs on Oak Ridge Drive at the new three-way intersection created when this development is constructed. However, the design does not take into account where the new road will intersect with Oak ridge Drive and interact with the driveways for the homes on the west side of the street. As currently designed, the new street will not line-up with a driveway. If the development is constructed as currently designed, there will be negative consequences for motorists and the property owners on the west side of the road. When installing the STOP signs, the two homeowners would lose all street parking between their homes because that would be part of the three-way intersection. Additionally, the installation of the STOP signs will be awkward as best, as Public Works would be installing them and the associated striping around the existing driveways.

The solution is to modify the design of the planned development to line-up the new street with one of the existing driveways. I understand that the developer will view this change negatively, but if this change is not made, the City and the residents of this development and current residents will have to deal with additional negative traffic impacts indefinitely. The city would need to look into further modification of this road at city cost because the design did not appropriately address the concerns. There is already a difficult situation with safety concerns which is gotten worse with each development in this area. While this is not a "perfect" solution, I strongly believe we need to consider the traffic issues in this area very carefully.

Building Division:

1. All projects and improvements must be performed in accordance with Nevada State Revised Statutes (NRS) 623 & 624 and Carson City Municipal Code (CCMC) 15.05.020.

2. All repairs, replacement, and alterations must have proper building permits and comply with International Building and Residential Codes, Uniform Plumbing Code, Uniform Mechanical Code or International Mechanical Code, Fuel Gas Code, Electrical Code, Adopted International Energy Conservation Code, and Northern Nevada Amendments.

3. A developer can use a master plan approach for the build out. The full permit fee value will be imposed on the first review. The second application submitted will be 80 percent of the normal fee.

4. All Contractors are required to carry State and local license.

Fire Department:

1. The project must comply with 2012 IFC and Northern Nevada Amendments.

2. Fire hydrant spacing must comply with Appendix C of the 2012 IFC. Please ensure distances are reduced for dead end roads/cul-de-sacs. The submitted plans did not clearly indicate proposed hydrant locations.

3. The end of Boardwalk Drive where it ties into W. Nye Lane must connect through to W. Nye Lane with a smooth transition of pavement. Removable bollards with reflective striping, not locked, will be acceptable as traffic control to limit through traffic to emergency vehicles.

4. The Park Place Court naming scheme doesn't comply with Carson City Development Standards, Division 22 on street naming. The street can't use both Place and Court. Please rename.

5. In order to assist in funding new fire facilities within the area (i.e. fire station), individual builders within Silver Oak Phase 21 shall work with the Carson City Fire Department to participate in a fee program implemented by Carson City which provides funds (to be paid at time of building permit) that are dedicated to fire improvements. In the absence of a current city wide impact fee program, fees shall be as follows for Silver Oak Phase 21: A minimum of $1000.00 per dwelling unit in single family or multi-family residential development.

6. In lieu of and as an alternative to the fire fee, it may be possible for individual builders within Silver Oak Phase 21 to work with the Carson City Fire Department to determine if other mitigation measures may be available. Such measures could include, but are not limited to, providing improvements such as paving, utility extensions, etc. along with construction of new facilities, etc. These improvements shall be credited back to any applicable fire fee. This shall be reviewed on a case by case basis dependent on current Fire Department needs and demands.

7. New development within Silver oak Phase 21 shall participate in any applicable impact fee program that is enacted by Carson City. This shall not exempt development from any impact fee program adopted post approval of this PUD.

Parks and Recreation Department:

No comments received.

School District:

No comments received.

Environmental Control Division:

This project must meet all applicable codes as found in 40 CFR 408, CCMC 12.06, CCMC 12.12 and 2012 UPC.

Health and Human Services:

No concerns.

Attachments

Aerial Photo
City Comments
Conceptual Map Letter (CPUD-15-051)
Phase 21 Open Space Calculation
Application (TPUD-16-021)


College Parkway
Oak Ridge Drive
W. Nye Lane
Marvin Drive
N

February 22, 2016

TPUD-16-012:

1. All projects and improvements must be performed in accordance with Nevada State Revised Statute (NRS) 623 & 624 and Carson City Municipal Code (CCMC) 15.05.020.
2. All Repairs, Replacement, and Alterations must have proper building permits and comply with International Building and Residential Codes, Uniform Plumbing Code, Uniform Mechanical Code or International Mechanical Code, Fuel Gas Code, Electrical Code, Adopted International Energy Conservation Code, and Northern Nevada Amendments.
3. A developer can use a master plan approach for the build out. The full permit fee value will be imposed on the first review. The second application submitted will be 80 percent of the normal fee.
4. All Contractors are required to carry State and local license.

Shawn Keating CBO
"There's no use talking about the problem unless you talk about the solution"
Building Official
Carson City Community Development Department
Web page http://www.carson.org/index.aspx?page=172
skeating@carson.org
Office 775-887-2310 X 7052
Fax 775-887-2202
Cell 775-230-6623

March 3, 2016

Comments for TPUD 16-012:

1. Project must comply with the 2012 IFC and adopted amendments.
2. Fire hydrant spacing must comply with Appendix C of the 2012 IFC. Please ensure distances are reduced for dead end roads/cul de sacs. The submitted plans did not clearly indicate proposed hydrant locations.
3. End of Boardwalk Drive where it ties into W. Nye Lane must connect through to W. Nye Lane with a smooth transition of pavement. Removable bollards with reflective striping, not locked, will be acceptable as a traffic control to limit through traffic to emergency vehicles.
4. Park Place Court naming scheme doesn't comply with CCMC T18 Div22 Development Standards on street naming. The street can't use both Place and Court. Please rename.
5. In order to assist in funding new fire facilities within the area (i.e. fire station), individual builders within Silver Oak Phase 21 shall work with the Carson City Fire Department to participate in a fee program implemented by Carson City which provides funds (to be paid at time of building permit) that are dedicated to fire improvements. In the absence of a current city wide impact fee program, fees shall be as follows for Silver Oak Phase 21: A minimum of $1000.00 per dwelling unit in single family or multi-family residential development.
6. In lieu of and as an alternative to the fire fee, it may be possible for individual builders within Silver Oak Phase 21 to work with the Carson City Fire Department to determine if other mitigation measures may be available. Such measures could include, but are not limited to, providing improvements such as paving, utility extensions, etc. along with construction of new facilities, etc. These improvements shall be credited back to any applicable fire fee. This shall be reviewed on a case by case basis dependent on current Fire Department needs and demands.
7. New development within Silver oak Phase 21 shall participate in any applicable impact fee program that is enacted by Carson City. This shall not exempt development from any impact fee program adopted post approval of this PUD.

Dave Ruben
Fire Marshal
Carson City Fire Department
777 S. Stewart Street
Carson City, NV 89701

Direct 775-283-7153
Main 775-887-2210
FAX 775-887-2209

MEMORANDUM

DATE: March 11, 2016

TO: Susan Pansky and Kathe Green – Planning

FROM: Rory Hogen – Engineering

RE: TPUD 16-012 Tentative PUD Map for Silver Oak Ph 21 PUD
Engineering Text for Planning Commission Staff Report

The following text is offered for inclusion in the Planning Commission staff report for the above referenced land use proposal:

GENERAL: The Engineering Division has considered the elements of NRS 278.349, the Carson City Municipal Code and the Carson City Development Standards in its review of the tentative map described above.

This recommendation for 'approval with conditions' from the Engineering Division is based on conceptual level analysis that indicates the development as proposed will currently meet or will meet with concurrent improvements, prior to final map approval, Nevada Revised Statutes, the Carson City Municipal Code and the Carson City Development Standards. With the request for final approval of any and all phases, detailed engineering analysis addressing the following issues and recommending system improvements will be submitted to the Engineering Division.

FINDINGS: The Conceptual Findings by the Engineering Division are:

(a) *Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal;*
The development is required to comply with all applicable environmental and health laws concerning water and air pollution and disposal of solid waste.

(b) *The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision;*
Water supplied to the development will meet applicable health standards. Carson City's water supply capability will not be exceeded by final approval of this development.

(c) *The availability and accessibility of utilities;*
All other utilities are available in the area to serve this development.

(d) *General conformity with the governing body's master plan of streets and highways;*
It appears that access will be acceptable after half street improvements are completed.

(e) *The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;*
In general, the development will not cause adverse impacts to the existing street system. There may be some minor improvements required at the intersection with Oak Ridge Dr.

(f) *Physical characteristics of the land such as floodplain, slope and soil.*
The physical characteristics of the area do not preclude the development as proposed.

RECOMMENDATION: If the tentative map is approved, the Engineering Division has the following recommended conditions of approval for the project:

A. Specific Conditions to be included in the Design of the Improvement Plans:

1. In accordance with CCDS 12.10 and 12.11.10, pavement sections shall be based on subgrade strength values determined by Resistance (R) Value or California Bearing Ratio (CBR) as shown in the Soils Engineering Report. Refer to CCDS Division 17 for soils report requirements. In no case shall the proposed pavement section be less than the minimum section prescribed in standard drawing C-5.1.9 and C-5.1.9.1.
2. Storm drainage facility improvements shall be designed in accordance with CCDS Division 14. A Technical Drainage Study is required with submittal of Improvement Plans in accordance with CCDS 14.9 through 14.10.
3. The storm drain easement proposed for the property to the northwest must be obtained and recorded before construction drawings are approved.

B. Conditions to be Completed Prior to Submitting for Construction Permit or Final Map

1. Final improvement plans for the development shall be prepared in accordance with CCDS Division 19 and the Standard Specifications and Details for Public Works Construction, as adopted by Carson City.
2. The applicant shall obtain a dust control and stormwater pollution prevention permit from the Nevada Division of Environmental Protection (NDEP). The site grading must incorporate proper dust control and erosion control measures.

C. General Conditions

1. Prior to the recordation of the final map for any phase of the project, the improvements associated with said phase must either be constructed and approved by the City, or the specific performance of said work secured by providing the City with a proper surety in the amount of one hundred fifty percent (150 %) of the engineer's estimate. In either case, upon acceptance of the improvements by the City, the developer shall provide the City with a proper surety in the amount of ten percent (10 %) of the engineer's estimate to secure the Developers obligation to repair defects in workmanship and materials which may appear in the work within one year of acceptance by the City.

DISCUSSION BULLETS: The following discussion is offered within Engineering Division areas of purview relative to the proposed Tentative Map:

- All public water mains will require locator risers and boxes at all direction changes.
- The public utility easement requirement for all street frontages is 10 feet in width.
- All City sidewalks must be a minimum of 5 feet in width.
- All detention basin areas and backyard drainage facilities must be privately maintained. The pipes in the street will be maintained by the City.
- Please use detail C-5.1.9.1 for the special street section.
- For utility locations, please use detail C-1.2.4.
- Plan and profile sheets must be included for all utilities to be maintained by the City.
- The grading plan must include street and curb grades.
- Please include a typical lot drainage detail and add a note stating that each home will have a separate grading and drainage plan as part of the home construction submittal.
- An erosion control plan must be included with the construction drawings.
- Please include applicable standard details with the plan set.
- For all new pavement sections, type 2 asphalt concrete is required. Type 3 is for patches and overlays.
- Please show the sight lines for the landscape plans. Sight lines cannot be blocked.
- The PUD map must be tied to two accepted control points.
- Sewer, domestic water, and fire flow capacity studies will be required.
- It appears from the preliminary water analysis that water mains must be 8" diameter. This is the minimum required size, anyway.
- The 8" main in Nye Lane must be checked to see if the additional flows will be able to be handled by the City system.

Conceptual Drainage Report

- The existing sidewalk/path also serves as a channel for the 100 year flow coming from the west. Please show on a map the 100 year flow path for both on and off site through this project.
- Table 2 doesn't seem to represent off site peak flows. A map is needed to show the upstream subarea draining through the project. See attached information.
- List in the main report some key pipe velocities and flows given the various storm events for the existing and proposed systems.
- Is it possible to provide more distance between the inlet and outlet of the detention basins to provide better water quality benefits? Please address.
- The report will need to address maintenance of any public and private systems. The City will maintain pipe in the street and to the detention facilities, but the ponds themselves must be privately maintained.

These comments are based on very general plans. All applicable code requirements will apply whether mentioned in this letter or not.

Freedom Ct
Combs Ci
Vanpatten Av
Murphy Dr
Firewood Dr
Brush Dr
N Winnie Ln
Foothill Dr
Combs Canyon Rd
Harvard Dr
Yale Dr
Chaparral Dr
W Winnie Ln
Chaise Dr
Calash Dr
Cabriolet Dr
Clydesdale Dr
El Rancho Dr
Pyrenees St
Alpine St
Glenn Dr
Marvin Dr
Harriett Dr
Mountain St
Mountain St
Mountain St
Jean Dr
Carol Dr
W Nye Ln
Richard Dr
Ivy St
Michael Dr
N Division St
N CARSON ST (BUSINESS US 395)
COLLEGE PY


W College Pkwy
12"PVC
21"RCP
12"PVC
27"RCP
27"RCP
27"RCP
12"RCP
27"RCP
12"RCP
24"RCP
36"RCP
W Nye Ln
18"RCP
24"RCP
Oak Ridge Dr
18"RCP
SILVER OAK #1
Mountain St
Weninger Dr
15"RCP
Marvin Dr
Turnpike Ct
15"RCP
2012 Carson City, Douglas County GIS

March 14, 2016

TPUD-16-012 Silver Oak Ph 21

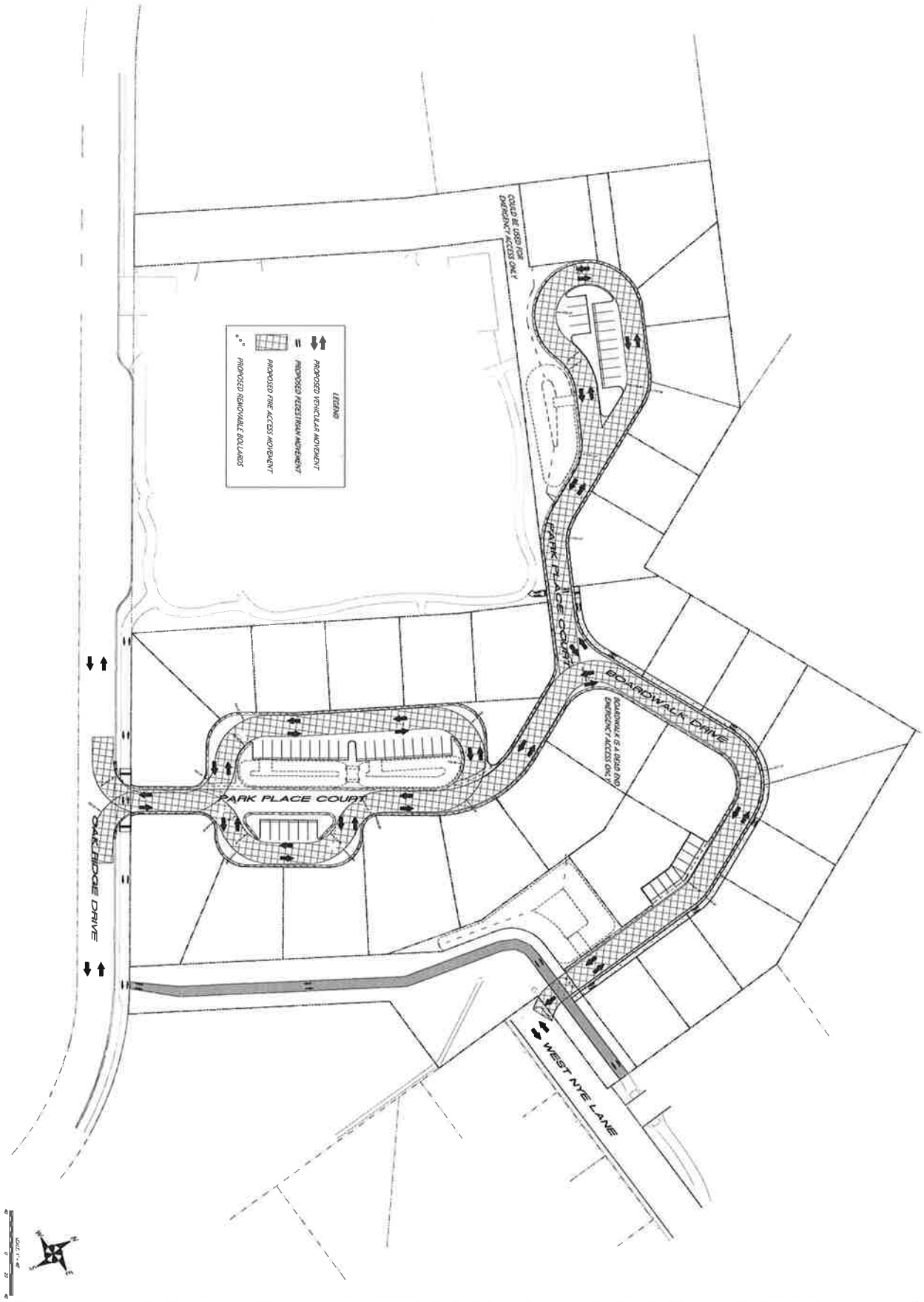
After further review of the proposed development and additional experience with Oak Ridge Drive, I have additional comments.

There are continued concerns with traffic and speeding in this area and specifically right in the area where this proposed development will access Oak Ridge Drive. The design of the neighborhood has limited connectivity, causing Oak Ridge Drive to be used as a through route, not just to access residences. The Public Works Department has received numerous complaints about this situation and recently conducted traffic counts which show that the speeding issue persists. The park is also very popular, and users of that park and residents in the homes recently constructed on the west side of Oak Ridge Drive are among those who have expressed concerns. Public Works implemented several measures last year in this area including a centerline, striping for the parking at the park, and concrete islands on the east side of the road. While those improvements were valuable and appreciated, concerns remain.

As it relates to this project, the additional traffic at this location is cause for greater concern. With the connection to Nye Lane on the east side being for emergency access only, that means all traffic will be focused to and from Oak Ridge Drive right in the area of concern. The appropriate action will be to install STOP signs on Oak Ridge Drive at the new three-way intersection created when this development is constructed. However, the design does not take into account where the new road will intersect with Oak ridge Drive and interact with the driveways for the homes on the west side of the street. As currently designed, the new street will not line-up with a driveway. If the development is constructed as currently designed, there will be negative consequences for motorists and the property owners on the west side of the road. When installing the STOP signs, the two homeowners would lose all street parking between their homes because that would be part of the three-way intersection. Additionally, the installation of the STOP signs will be awkward as best, as Public Works would be installing them and the associated striping around the existing driveways.

The solution is to modify the design of the planned development to line-up the new street with one of the existing driveways. I understand that the developer will view this change negatively, but if this change is not made, the City and the residents of this development and current residents will have to deal with additional negative traffic impacts indefinitely. The city would need to look into further modification of this road at city cost because the design did not appropriately address the concerns. There is already a difficult situation with safety concerns which is gotten worse with each development in this area. While this is not a "perfect" solution, I strongly believe we need to consider the traffic issues in this area very carefully.

Thank you, and please contact me if you'd like to discuss this further.
Patrick Pittenger, AICP, PTP
Transportation Manager, Carson City Public Works
3505 Butti Way, Carson City, NV, 89701
775-283-7396
ppittenger@carson.org



C11 of 11

PRELIMINARY CIRCULATION PATTERN

APN: 007-462-12

SILVER OAK PHASE 21 - OAK RIDGE DRIVE

CARSON CITY NV

Silver Oak Development, L.P.
3075 College Drive
Carson City, NV 89703

PH (775) 882-6302

February 26, 2016

Major Project Review Committee

Re: # T PUD – 16-012

Dear Kathe,

After initial plan review the Carson City Environmental Control Authority (ECA), a Division of Carson City Public Works Department (CCPW), has the following requirements per the Carson City Municipal Code (CCMC) and the Uniform Plumbing Code (UPC) for the T PUD 16-012 – Silver Oak Phase 21 Project request:

1. This project must meet all applicable codes as found in 40 CFR 408, CCMC 12.06., CCMC 12.12, and 2012 UPC.

Please notify Mark Irwin if you have any questions regarding these comments, I can be reached at 775-283-7380.

Sincerely;

Mark Irwin
Environmental Control Officer 3

c: Kelly Hale, Environmental Control Supervisor

March 14, 2016

TPUD-16-012

Carson City Health and Human Services has no concerns with the project as submitted.

Dustin Boothe, MPH, REHS
Carson City Health and Human Services
900 E. Long St.
Carson City, NV 89706
(775) 887-2190 ext. 7220

dboothe@carson.org

Carson City Planning Division

108 E. Proctor Street
Carson City, Nevada 89701
(775) 887-2180
www.carson.org
www.carson.org/planning

June 17, 2015

Mr. Mark Turner
Silver Oak Development, L.P.
3075 College Drive
Carson City, NV 89703

SUBJECT: CPUD-15-051 – Conceptual Planned Unit Development Review
Silver Oak Phase 21
31 Residential Lots

REVIEW DATE: June 2, 2015

SITE INFORMATION:

APNs:	007-462-12
Project Size:	7.99 acres
Master Plan Designation:	Parks and Recreation
Zoning:	Single Family 12,000 – Planned Unit Development (SF12-P)

The following is a summary of the comments provided from City Staff at the Conceptual Review meeting held on June 2, 2015 regarding the proposed Phase 21 of the Silver Oak Development.

PLANNING DIVISION – Contact Susan Dorr Pansky, Planning Manager

An application to modify the existing Silver Oak Planned Unit Development (P-93/94-1) must be submitted in accordance with the Carson City Municipal Code, Section 17.09, Planned Unit Development (PUD), in order to subdivide the property as proposed on the Conceptual Map. PUD applications may include any other zoning applications pertaining to the development regulations including, but not limited to, Special Use Permits and Variances. The following information and requests must be included as a part of the PUD application and addressed within the application submittal:

1. Provide the total number of units in the Silver Oak Development with the addition of this phase and in comparison with the original PUD approval.

2. Provide an updated tabulation of the overall open space for the Silver Oak Development with the addition of this phase and in comparison with the original PUD approval.

3. Per Carson City Municipal Code Section 17.09.095(3)(a), no structure (except fences) can be within 20 feet of an adjacent property at the periphery of the PUD. Setbacks at the periphery shall be the same as the underlying zoning for front and street side setbacks. As discussed in the Conceptual Review meeting, the applicant will need to

identify whether any portion of the subject property is at the periphery of the Silver Oak PUD to determine if these setback requirements are applicable. If the applicant finds that periphery setbacks apply and would like to modify them, the inclusion of a Variance request in the PUD application will be necessary.

Should a Variance be necessary, the applicant must address the Variance findings listed in Carson City Municipal Code Section 18.02.085 as a part of the PUD application.

4. The proposed setbacks are acceptable under Title 17.09 with the possible exception of the periphery setbacks outlined above. As noted below, the proposed setbacks for Phase 21 are different from the currently allowed setbacks in Silver Oak. Please provide explanation and justification for the proposed modification.

	Front	Side	Street Side	Rear
Existing Silver Oak Setbacks (excluding VAR-05-195)*	12'	5' – 8'	15'	10' – 13'
Proposed Setbacks for Phase 21	20'	5'	5'	10'

*For lot sizes in same range as the proposed Phase 21 – 5,000 to 11,000 square feet

5. The proposed density for Phase 21 at four units per acre meets the requirements of the PUD ordinance. As a part of the PUD application, provide the overall density of the Silver Oak Development with the addition of this phase and in comparison to the original approval.

6. The proposed parking at 62 spaces for 31 residential units (two per unit) and 47 guest parking spaces (for a total of 109 spaces) is acceptable and significantly more than required. A total of 78 parking spaces are required for the proposed phase.

7. Indicate in the application whether the streets are intended to be public or private and whether or not the project will be gated.

8. Sidewalks will be required but, as discussed in the Conceptual Review meeting, staff will accept sidewalk on one side of the street only.

9. Provide proposed building elevation drawings for the residential units including the proposed heights of buildings. If available, provide floorplans for the proposed units as well.

10. Provide a landscape plan for all common areas as a part of the PUD application.

11. Indicate on the plans that the access onto Nye Lane is emergency access only.

12. Show cluster mailbox location(s) on the plans. It is recommended that the applicant meet with the post office before submittal of the PUD modification to establish appropriate locations for mailboxes.

13. Provide perimeter fence details.

14. It is recommended that the applicant meet with the School District to address a bus stop location to serve the phase or to identify the nearest school bus stop that would serve the development.

15. Concerns from adjacent property Donna DePaw regarding this project were received by the Planning Division on August 18, 2014 as outlined below. According to Ms. DePaw, the following were discussed and agreed upon:

    a. No two-story homes or high pitched roofs on single stories.

    b. No foundations built up to provide two-story appearance of home or garage.

    c. Drip system to be provided by Silver Oak to water existing trees planted 20 years ago on Nye Lane.

    d. Trees and irrigation be provided for the existing brick wall to coordinate with trees planted at the former K-Mart site.

    e. Discussed fire department opening in area of fence line, approximately 10 feet with removable barriers.

    f. Current drainage ditch isn't going to exist anymore but new drainage and barrier is being created.

    g. West Nye Lane won't be extended in any form.

    h. Fence at the end of the street (Nye?) won't be moved for any reason. Fence at end of street will most likely belong to a home that is placed there.

ENGINEERING DIVISION – Contact Rory Hogen, Assistant Project Manager

1. Any engineering work done on this project must be wet stamped and signed by an engineer licensed in Nevada. This will include site, grading, utility and erosion control plans as well as standard details.

2. All construction work must be to Carson City Development Standards (CCDS) and meet the requirements of the Carson City Standard Details.

3. Fresh water must be used for dust control. Contact our Public Works Dept. at 887-2355.

4. New electrical service must be underground.

5. A Conceptual Drainage Study must be submitted to address drainage issues with the Tentative Subdivision map. Please address 5 year and 100 year flows and show how the new detention basins can adequately store water that is stored here now with the present conditions. Please see Section 14 of CCDS.

6. Please address how the drainage will be handled that flows in the streets toward W. Nye Ln.

7. Please address the issue of the sidewalk and pedestrian access. A five foot sidewalk on one side of the street will be required.

8. Generally the street section requirement calls for a crowned section with a 2% cross slope in both directions. We would be willing to accept a street without a crown, but minimum slope must be 2%.

9. Please see Section 14.2 and 14.3 of CCDS for information about the percentage of the street that can be occupied by drainage flow. These requirements must be met.

10. A sealed traffic study must be submitted with the Tentative Map.

11. Please submit a sewer, water and fire flow study with the Tentative Map.

12. This project will need a Storm Water Pollution Prevention Permit and a Dust Control permit from Nevada Division of Environmental Protection.

13. A sealed Geotechnical Report for the whole site should be submitted with the Tentative Map.

14. Street lighting requirements must be met. Please see Section 12 of CCDS.

15. On subsequent submittals, please show clearly what improvements are private and what are public. This includes utilities, streets and drainage (especially at the backs of the lots).

16. Why does the drainage channel need to be regraded and lowered? It appears to be rather flat with the new design. This must be discussed in the drainage study.

BUILDING DIVISION – Contact Shawn Keating, Chief Building Official

1. The 2009 IECC will change by state statue during the upcoming year. There will be an overlap time of accepting both codes. It may make sense to design everything to the 2012 IECC so house plans would not have to be redone when permitting and construction begins. The Codes will be locked in on the application date of the address site plan.

2. No other codes changes are expected until 2018.

3. Permit fees value will be based upon $112.65 living and $43.33 for Utility. This is the ICC current data table from the Building Journal as of February 2015 and will change every year.

4. All projects and improvements must be performed in accordance with Nevada State Revised Statutes (NRS) 623 & 624 and Carson City Municipal Code (CCMC) 15.05.020.

5. Improvements, Repairs, Replacement, and Alterations must comply with 2012 International Building Codes, 2012 Uniform Plumbing Code, Uniform Mechanical Code or 2012 International Mechanical Code, 2012 Fuel Gas Code, 2011 Electrical Code, Adopted International Energy Conservation Code, and 2012 Northern Nevada Amendments.

6. List on the plans any requested deferred submittal.

7. All improvements would have to comply with current Accessible Standards.

8. All Contractors are required to carry State and local license.

FIRE DEPARTMENT – Contact Dave Ruben, Fire Marshal

1. The project must comply with the 2012 IFC and Northern Nevada Fire Code Amendments.

2. Fire hydrant spacing must comply with Appendix C of the 2012 IFC. Please ensure distances are reduced for dead-end roads/cul de sacs.

3. Provide adequate turn radius into and through parking lots including the turn around on the west end of the project. Design to a minimum 20 foot wide fire access road with a 30 foot inside radius/50 foot outside radius.

4. The end of road where it ties into W. Nye Lane must connect through to W. Nye Lane with a smooth transition of pavement. Removable bollards with reflective striping, not locked, will be acceptable as a traffic control to limit through traffic to emergency vehicles.

TRANSPORTATION DIVISION – Contact Dan Doenges, Senior Transportation Planner

1. ADA curb ramps are shown at the drive access off of Oak Ridge Drive but not the access from Nye Lane. Please ensure that they are at both locations.

2. The type of curb ramps shown at the Oak Ridge Drive access are not appropriate for this location. They are angled and direct the pedestrian toward the street, but they should be oriented directly across from each other, ensuring a straight path of travel across the driveway, which should also be ADA-compliant. The same would hold true for the Nye Lane Access.

3. An ADA accessible connection should be made from within the subdivision to the path and John Mankins Park.

PARKS AND RECREATION DEPARTMENT – Contact Vern Krahn, Park Planner

No comments received.

HEALTH DEPARTMENT – Contact Dustin Boothe, Division Manager

No comments received.

ENVIRONMENTAL CONTROL – Contact Mark Irwin, Environmental Control Officer

No comments.

ASSESSOR – Contact Kimberly Adams, Chief Deputy Assessor

No comments received.

Thank you for your cooperation and willingness to work with City staff regarding this matter. It appears that this will be an innovative addition to Carson City and we look forward to working with you on the development process. If you have further questions, please contact the Planning Division at (775) 887-2180.

Planning Division –
Susan Dorr Pansky, Planning Manager
(775) 283-7076
Email: spansky@carson.org

Engineering Division –
Rory Hogen, Assistant Project Manager
(775) 887-2300
Email: rhogen@carson.org

Building Division –
Shawn Keating, Chief Building Official
(775) 887-2310
Email: skeating@carson.org

Fire Prevention –
Dave Ruben, Fire Marshal
(775) 283-7153
Email: druben@carson.org

Transportation –
Dan Doenges, Senior Transportation Planner
(775) 283-7387
Email: ddoenges@carson.org

Parks and Recreation –
Vern Krahn, Park Planner
(775) 283-7343
vkrahn@carson.org

Health Department –
Dustin Boothe, Division Manager
(775) 283-7220
Email: dboothe@carson.org

Environmental Control Division –
Mark Irwin, Environmental Control Officer
(775) 283-7380

Sincerely,
Community Development Department, Planning Division

Susan Dorr Pansky, AICP

cc: Conceptual Review Committee
CPUD-15-051

Phase 21 Open Space Total

Phase 21 Open Space Parcels	Square Feet
Large Parking Island at entry	5929
Small Parking Island at entry	689
Lot 50 (walk from Oakridge to Nye)	27916
Lot 51 (drainage basin)	7783
Lot 52 (tip of lot 6)	2178
Lot 54 (end of park place)	1744
Lot 53 (park place basin)	8524
Total open space footage	54763

SILVER OAK PHASE 21 INFORMATION BOOKLET FOR TENTATIVE MAP

REVISED 2/29/2016

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APPLICATION

Carson City Planning Division
108 E. Proctor Street· Carson City NV 89701
Phone: (775) 887-2180 • E-mail: planning@carson.org

FOR OFFICE USE ONLY:

FILE # TPUD – 16 - TPUD-16-012

TENTATIVE MAP FOR A PUD

APPLICANT Silver Oak Development L.P
PHONE # 775-745-0881

MAILING ADDRESS, CITY, STATE, ZIP 3075 College Drive Carson City NV 89703

ENGINEER Brian Matthews, P.E.
PHONE # 775-230-8125

MAILING ADDRESS, CITY, STATE, ZIP 245 Como Lane, Dayton, NV 89703

EMAIL ADDRESS bamatthews@yahoo.com

PROPERTY ADDRESS, CITY, STATE, ZIP 2951 Oak Ridge Drive

PRESENT ZONING SF 12-P
APN(S) 007-462-12

STATE FEES: See checklist. Submit the two state checks at the time of initial application submittal.

FEE: **$3,450.00** + noticing fee + CD containing application digital data (all to be submitted once the application is deemed complete by staff)

SUBMITTAL PACKET
See checklist (fill out checklist and return to staff with the application packet)

Application Reviewed and Received By:

RECEIVED
MAR 01 2016
CARSON CITY
PLANNING DIVISION

REQUEST: In accordance with the provisions of Title 17 of the Carson City Municipal Code, application is hereby made for a Planned Unit Development on property situated at:

The required modifications to Carson City's Land Use Regulations are as follows:
31 Unit infill subdivision within the boundaries of the Silver Oak PUD

ACKNOWLEDGMENT OF APPLICANT: (a) I certify that the foregoing statement are true and correct to the best of my knowledge and belief; (b) I agree to fulfill all conditions established by the Board of Supervisors.

Applicant's Signature — Date: 2-29-2016

PROPERTY OWNER'S AFFIDAVIT

I, Mark B. Turner, being duly deposed, do hereby affirm that I am the record owner of the subject property, and that I have knowledge of, and I agree to, the filing of this application.

Signature — Address: 3075 College Drive CC NV 89703 — Date: 2-29-2016

Use additional page(s) if necessary for other names.

STATE OF NEVADA)
COUNTY CARSON CITY)

On March 1, 2016, personally appeared before me, a notary public, MARK B. TURNER, personally known (or proved) to me to be the person whose name is subscribed to the foregoing document and who acknowledged to me that he/~~she~~ executed the foregoing document.

Elaine Kusisto
Notary Public

ELAINE KUSISTO
NOTARY PUBLIC
STATE OF NEVADA
APPT. No. 15-1816-3
MY APPT. EXPIRES OCT. 3, 2018

NOTE: In order to avoid unnecessary time delays in processing your develop project, it is important that it be as complete as possible when submitted. A checklist is available to assist you and your engineer. If you have further questions regarding your application, please call the Planning Division at 775-887-2180.

PUD Submittal Checklist

Yes	No		
✓		1.	Conceptual Map conference held previous to submittal of the Tentative PUD application.
✓		2.	21 copies of Tentative Map (1 Original + 20 Copies) (folded 8½ x 11).
✓		3.	10 copies of Informational Booklet.
✓		4.	State fee payment (2 checks).
✓		5.	Application form completed.
✓		6.	3 wet stamped maps for State offices and Engineering Division.

Note: Digital data is required on a CD after the application is deemed complete by staff.

The tentative submittal packet must include all of the following information. Packets which do not contain this information or information requested at the conceptual may not be scheduled on the next available Planning Commission agenda. It Is up to the applicant to ensure that all required information is submitted in order for staff and the Planning Commission to make a proper recommendation. In addition to the brief description of your project and proposed use, provide additional page(s) to show a more detailed summary of your project and proposal.

Yes	No		
✓		1.	The location and size of the site, the lot layout and the lot lines of the proposed development, including a legal description of the land and the owners interest in the land proposed to be developed, by an affidavit of ownership.
✓		2.	The density of land use to be allocated to parts of the site to be developed; a tabulation of the total land area and the percentage designed for the various uses.
✓		3.	The location, size of any park land or open space, and the form of organization proposed to own and maintain any common open space, and amount of recreational improvements. Provide three copies of proposed C.C.&R.'s.
✓		4.	The subdivision/PUD name, and name and address of the developer and engineer and date of map.
✓		5.	The proposed circulation pattern including the design of all public and private streets, name and width of streets and the location of adjoining streets, sidewalks and bikeways.
✓		6.	Provide a street grading plan.
✓		7.	Adjacent subdivision, land uses, zoning, and ownership abutting the project.
✓		8.	Number, size, square footage and use of proposed parcels. Blocks and parcels are to be numbered consecutively and the dimension of all parcels are to be shown.
✓		9.	A proposed grading plan meeting department of public works standards and requirements showing all cuts and retaining walls to be designated.
✓		10.	Provide a landscape plan for the development.
✓		11.	Topographic map with contour intervals of two and one-half feet for slopes of less than 10% and five feet for slopes of greater than 10%.
✓		12.	A note indicating location of all utility easements proposed and existing.
✓		13.	The layout of water, sewer, and storm drainage systems.
✓		14.	A soils report including soil types, seasonal high water table, and percolation rates (if on septic).
✓		15.	North arrow and scale, all sheets to be numbered.
✓		16.	Location of existing buildings.
✓		17.	Building setbacks to be noted on plat. If applying to Planning Commission for staggered setback approvals, separate set of 12 plans to be submitted.
✓		18.	Areas not a part of the subdivision to be designated as "not a part".
✓		19.	Provide a conceptual drainage study meeting the standards and requirements of the Carson City Development Standards Division 14.8.
✓		20.	An indication of the type of water system to be used, its water sources and engineering data on fire flows.
✓		21.	Location of all natural drainage features shown. Yes No

✓	___	22.	An erosion control plan including stream protection, road drainage, erosion prevention, prevention of untreated discharge to streams, if applicable.
✓	___	23.	Solid waste provision.
✓	___	24.	Height, size, location and use of all structures, fences and walls are to be shown.
✓	___	25.	An indication of method of sewage disposal to be used and area of disposal.
✓	___	26.	A map showing a 100 year flood plan, as determined by recognized methods, for those areas subject to flooding; show earthquake fault lines through the proposed development with building setbacks from fault line as recommended by a geotechnical study.
✓	___	27.	The development shall be described by 40 acre subdivision, section, township and range.
✓	___	28.	Indicate master plan designation for the project.
✓	___	29.	A master plan for potential development of the property under the ownership or control of the developer in the area of the proposed development.
___	___	30.	Location, dimensions of all vehicle parking and/or boat/RV storage areas, if applicable.
✓	___	31.	In the case of plans which call for development over a period of years, a schedule showing proposed time within which applications for final approval of all sections of the development are intended to be filed.
___	___	32.	Shall prove that no tax is delinquent by placing a certificate signed by the city treasurer to this effect (NRS.278.349(5)) on the plat.
✓	___	33.	Traffic study stating average daily trips generated from the project.
✓	___	34.	A written document indicating the benefits of the development to Carson City, any adverse impacts which may arise from the development and the mitigation programs, and how the proposed development will enhance or benefit the surrounding areas and stating how dust will be controlled. Address how your project complies with the attached NRS278.349(3); addressing each section item by item.
✓	___	35.	A written document addressing the Master Plan Policy Checklist for a Conceptual Map for a Planned Unit Development of the five items that appear in the Carson City Master Plan. Each theme looks at how a proposed development can help achieve the goals of the Carson City Master Plan. Address each theme; a check indicates that the proposed development meets the applicable Master Plan Policy. In your own words provide written support of the policy statement. You may want to acquire a free CD or purchase a paper copy of the Master Plan from the Planning Division, or review the copy in the Planning Office or in the reference section of the Carson City Public Library on Roop Street, or use our website at www.carson.org.
✓	___	36.	Application complete_____ Date_____

The State Division of Environmental Protection will now require fees for the review of subdivision and planned unit development applications. This fee is in addition to the fees required by State Consumer Health and State Water Resources. They also require wet stamped original maps.

To assure the necessary reviews are completed, the Planning Division will require payment of the State fees at the time of the City application submittal. This can be handled by submitting two checks to this office: one payable to NDEP for $500 per map plus $4.00 per lot; the second check payable to STATE WATER RESOURCES in the amount of $180 per map plus $1.00 per lot. The checks will be routed to the State offices with their copy of the application packet. The alternative method is to pay the State offices directly and submit the receipts with your City application.

The State Division of Environmental Protection will also require a non-refundable fee of $50 for each review of final subdivision and planned unit development maps.

NOTE: Fees are subject to change. It is applicant's responsibility to ensure their checks are submitted for current required fees.

OTHER REQUIREMENTS FOR PLANNED DEVELOPMENTS

YES	NO	
✓		Character materials, texture of the buildings and grounds (color perspective) and elevation perspectives of structures in relation to adjacent buildings shown and provided.
✓		The landscaping plan provided.
✓		The required modifications in Carson City's land use regulations (otherwise applicable to the subject property) provided.
		A master plan for the potential development of the property in the area of the proposed PUD which calls for development over a period of years shown.
✓		A schedule showing the proposed time within which applications for final approval of the sections of the PUD are intended to be filed provided.
		Other information as required by Carson City:

1. Minimum site area – 5 acres (unless modified by the Board of Supervisors).
2. Minimum number of units – 5 dwelling units.
3. Minimum periphery setback – 20 feet.
4. Maximum height of structures – 45 feet.
5. Parking standards – as required by Development Standards Division 2.
6. Open space requirement – 30% of gross area of site. Open space can be common or private areas. Private open space shall not constitute more than 25% of the total open space area. Open space shall not include streets (public or private), parking areas, storage, laundry or utility facilities, R.V. and boat storage areas, or areas covered by residential structures.

INTRODUCTION AND DISCUSSION OF PROJECT AND CHECKLIST POINTS

SILVER OAK PHASE 21 TENTATIVE MAP INFORMATIONAL BOOKLET
2/29/2016 UPDATE

INTRODUCTION

Silver Oak Development Company, L.P. is the owner of parcel 007-462-12 also known as 2951 Oak Ridge Drive which is adjacent to the John Mankin's Park located within the Silver Oak Planned Unit Development. It is bounded to the east by the "Kmart" complex, the north by Sierra Place and John Mankin's Park, the west by Silver Oak Phase 17 and Oak Ridge Drive, and to the south by Nye Lane and Silver Oak Phase 17.

The subject parcel, owned by Silver Oak Development since inception, was a potential school site in the original master plan. A school was not built because it was not needed by the district and the site has been vacant for 20 years. Silver Oak Development has paid property taxes on this parcel since its creation.

PROJECT DESCRIPTION

Silver Oak Development Company is making application to the Carson City Planning Division for a tentative map to develop this 7.99 acre parcel already within the boundaries of the Silver Oak PUD in an "infill" manner with residential homes that are larger than the homes in the Nye Lane area (outside of the PUD) and smaller than the homes in Silver Oak Phase 17 (along Oak Ridge Drive).

It has created a conceptual map that will yield 31 lots in the 5000-8000 foot range and homes approximately 1600 to 2300 square feet in size that will be priced from the mid 300K range and anticipates that the majority of the homes, if not all, will be single story.

A major project review meeting and conceptual map review was held in June of 2015 and a letter was generated by Carson City Planning on 6/17/2015 detailing items to be addressed in the TPUD application.

PROJECT DENSITY AND OTHER SPECIFICS

The Silver Oak PUD has 86 unused density units as of the date of this document (recently calculated and verified with Carson City Planning and found later in this packet) that can be applied to this development. This development would reduce that number to 55 unused density units if approved. An analysis is attached. The project is a straightforward and simple residential concept very similar to what currently exists in the area at a density of 4 units to the acre (31 units/ 7.99 acres)

Silver Oak Development worked with Manhard Consulting to calculate and review total open space vs total acreage in the Silver Oak PUD. This information is included later in this packet. Any questions regarding the content of this analysis can be directed to Chris Baker at Manhard who coordinated the completion of the analysis.

PROPOSED SETBACKS

The proposed setbacks for this project are as follows:

Front Yard 20 feet
Side Yard 5 feet
Rear Yard 10 feet
Street Side 10 feet

In response the letter from Susan Pansky asking for discussion on the "street side" setback, Silver Oak is proposing a 10' street side setback instead of 5'. In this development, there are only four lots that have "street side" yard; lots 1,31,24,25. The development is comprised of smaller lots and homes with sidewalk on one side of the street near lots 24 and 25. There are multiple pedestrian routes through and around the subdivision including the 10' walk from Nye to Oak Ridge and another walk from Boardwalk Drive to an access point to Mankin's Park. A street side setback of 15' on these parcels will create building envelopes that are unbuildable. Therefore we would propose a compromise of 10' for these parcels.

There were some questions by Carson City Planning about the rear setback of homes to be built along the east periphery of the PUD, however the entire Kmart Complex was part of the original PUD and the increased setbacks along the periphery in Phase 1, Phase 5, and Phase 17 were for the sole benefit of adjoining residential parcels along the east boundary of the PUD who were concerned about view loss and encroachment of new development and NOT for commercial parcels. This proposed development IS NOT directly adjacent any existing residential parcels outside the Silver Oak PUD.

OUTREACH ACTIVITY

Representatives from Silver Oak have met with Nye Lane neighbor, Donna Depauw, on several occasions to discuss concerns and share information related to the development of this parcel. The subject property is currently vacant and has been an attractive nuisance with unwanted activities such as vandalism, illegal off road vehicle use, graffiti (most recent graffiti event was 2/26/2016), and illegal dumping taking place within its boundaries. It also serves as an unauthorized access point for the Mankin's Park making it more difficult for Park Rangers to control unwanted activity at the Park as rule violators can enter and leave the park through this property.

Silver Oak has sent out an introductory letter via US Mail with a description of the project and a tentative map to residents that are in the notification radius. This letter was sent out in early January and urged concerned parties to contact Silver Oak or the Carson City Planning Department for more information if needed. As of 3/1/2016 no responses of any kind have been received by Silver Oak.

DUST CONTROL

Silver Oak will use water trucks to control dust on the site during the construction phase with potable water as requested by Carson City Engineering. Silver Oak will obtain grading permits, dust control permits, and SWPPP permits as well.

CONDITIONS, COVENANTS, AND RESTRICTIONS

Upon approval, Silver Oak Phase 21 will be governed by the covenants and restrictions currently in place for the Silver Oak PUD and will be annexed into the Silver Oak Community Association. HOA fees will be charged at the same rate per parcel as the remainder of the Silver Oak PUD. The CCR's are already on file with the City of Carson for the Silver Oak PUD and will not require any changes to be used with this contemplated phase of development.

DEVELOPMENT SCHEDULE

Silver Oak intends to proceed with development of the lots and subsequent home construction as soon as approvals are obtained. With current market conditions in place we expect to be built out 24 months from the date of approval.

MASTER PLAN POLICY CHECKLIST DISCUSSION

MASTER PLAN POLICY CHECKLIST

CHAPTER 3 BALANCED LAND USE PATTERN

The project accomplishes the following objectives because it is already within the boundaries of an existing PUD:

1. Promotes growth within areas already served by community water and wastewater facilities as it is surrounded on all sides with existing infrastructure
2. Is an "infill development", adjacent to similar residential development, and surrounded by existing development.
3. Does not create land use conflicts as it is single family residential that is of similar density to the surrounding development.
4. Is not adjacent to State or Federal lands
5. Is within existing service areas for law enforcement, fire, and school districts.
6. Does not require rezoning and will not create friction zones.
7. Is not in a flood plain or seismic zone
8. Is not in an SPA as defined in the Master Plan Document

CHAPTER 4 EQUITABLE DISTRIBUTION OF RECREATIONAL OPPORTUNITIES

1. The project will provide additional controlled access points as well as defined walking routes to the John Mankin's Park for both the residents of the new development as well as those who might walk or bike to the park from the areas outside of the Silver Oak PUD.
2. Surrounding the park with residential units will increase the number of "eyes on the park" and allow for more efficient community policing of this asset to Carson City. Lack of supervision and visibility on the east and north side of the park has enabled vandalism, drug dealing, and other unwanted activities at the park in the past.
3. The project is consistent with the Carson City Open Space Master Plan (4.3a)

CHAPTER 5 ECONOMIC VITALITY

1. The proposed development with continue to support jobs in the construction industry which is an important job-base in Carson City.
2. The proposed development will bring a more affordable price point for housing in the Silver Oak PUD thus broadening the mix of housing options available.
3. The proposed project will bring more potential customers to struggling retail developments in the north part of Carson City. (5.2a, 5.2b)
4. The project will not impact tourism, historic resources, or the downtown core in a meaningful way due to it's location. (5.4a,5.6a,5.6c)

CHAPTER 6 LIVABLE NEIGHBORHOODS AND ACTIVITY CENTERS

1. The proposed project is compatible with the surrounding development of residential home and commercial uses and will be a good transition from the smaller homes of the Nye Lane area to the larger homes of Oak Ridge Drive in Silver Oak (6.2a)
2. The proposed project offers another variety of housing in addition to that which exists on Oak Ridge Drive and Nye Lane, bridging the gap between the two forms of existing housing in a tiered cost and size manner. Future residents will not have to travel far by foot, bike, or

car to reach commercial areas such as the intersection of Carson Street and College Parkway. (7.1a,b)
3. The proposed project is not spot zoned. It is residential development in between areas of residential development and is compatible with existing development. (9.4b)

CHAPTER 7 A CONNECTED CITY

1. The proposed project will allow for easy pedestrian and bicycle access to Carson Street and the businesses and services located in that corridor via Nye Lane or Oak Ridge to College Parkway. (11.2b)
2. The proposed project does not place unmanageable burdens on existing roads and will not add to vehicular traffic on Nye Lane as memorialize in an analysis by Soleagui Engineers. (11.2c)
3. The proposed project will allow for pedestrian and bicycle passage through the development both leading into and out of the Silver Oak PUD and will not allow vehicular traffic through to Nye Lane except in emergency situations. (12.1a,c)?

OUTREACH LETTER

OUTREACH LETTER

The following outreach letter was mailed to residents within the notification radius for this project in early January of 2016 using the addresses supplied to us by Carson City Planning Division.

This was done to determine if there were any neighbor concerns about the proposed development before submitting an application to Carson City Planning Department.

As of 2/29/2016, no responses of any kind have been received by Silver Oak Development and we are not aware of anyone who has tried to contact the City regarding this matter.

January 6, 2016

Dear Neighbor:

We are pleased to announce plans to develop the eight acre parcel owned by Silver Oak Development Company that surrounds the John Mankin's Park in the Silver Oak Planned Unit Development along Oak Ridge Drive. We have included a vicinity map of this parcel for your reference as well as a lot layout.

The development will include 31 homesites for new single story homes in the 1700-2400 foot range starting in the low to mid 300's and is expected to begin construction after issuance of permits and approvals in the second half of 2016. We hope to complete the development by Summer of 2017 if market conditions allow.

We welcome your comments and will be happy to meet with you to answer any questions you may have. Enclosed please find our contact information:

Silver Oak Development Company
3075 College Drive
Carson City, NV 89703
775-882-6302

For fastest response please email us at: info@silveroakhomes.com . We will make every effort to reply within 1 business day.

Sincerely yours,

Mark B. Turner
Silver Oak Development Company

FENCE DETAIL

PROJECT FENCING

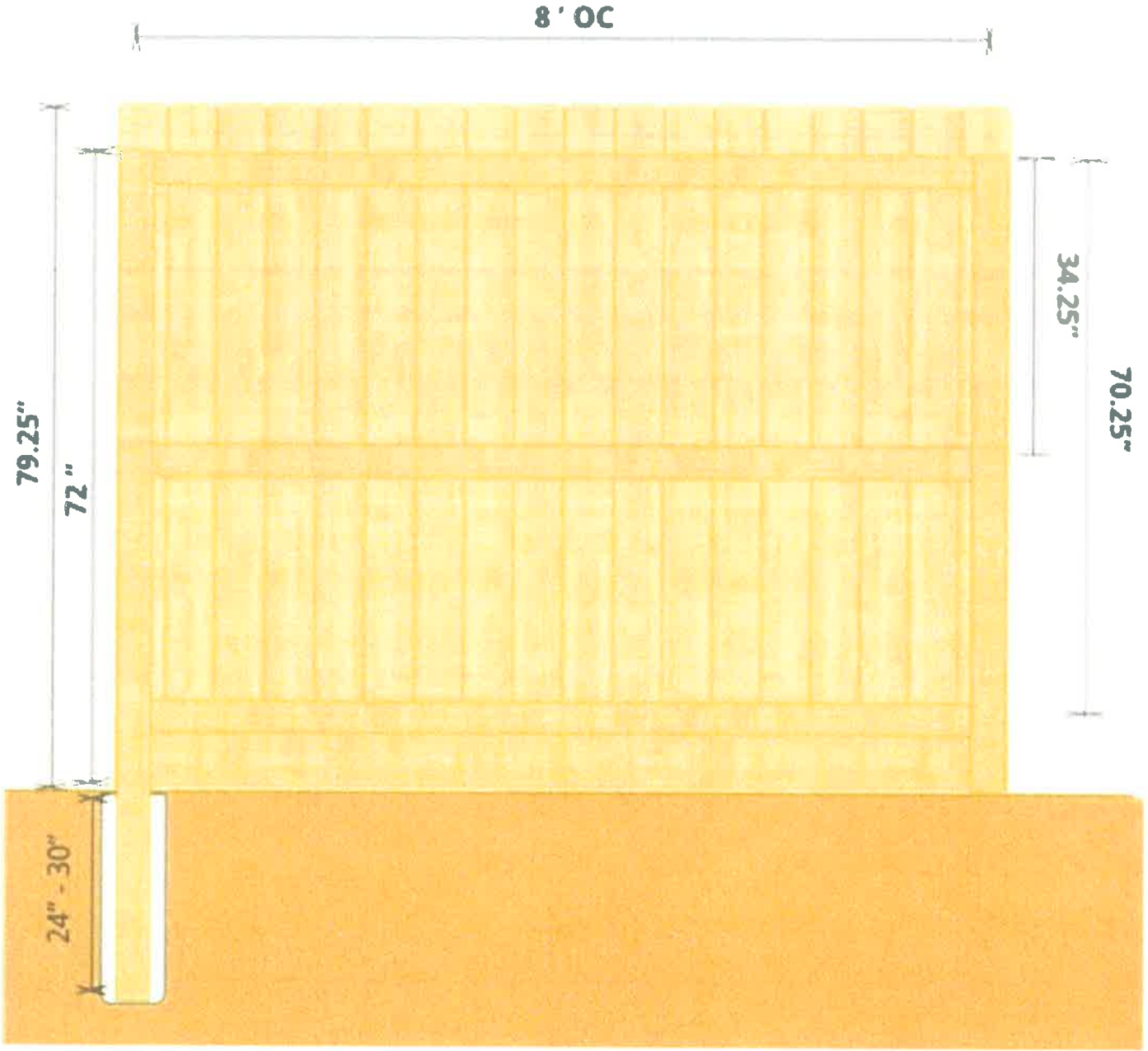
The fencing that will surround the currently unfenced areas of the project is a 6' redwood dog-eared style fence, stained in a neutral earth tone consistent with what already exists in Silver Oak.

A large portion of the proposed development area is already fenced.

1. Mankins Park is fully fenced with chain link fence
2. Sierra Place is fenced with 6' wrought iron fencing
3. Kmart complex is separated with a 6' block wall
4. Nye Center is fenced with 6' redwood fencing.

Other than yard fencing for each specific lot which will also be 6' redwood, perimeter fencing for this project will be installed along the south border of the project between the lots and the walkway from Oak Ridge Drive to Nye Lane and along Oak Ridge Drive from the walkway to Nye Lane extending North to the border of Mankins Park.

Please see fence detail on next page.


8' OC
79.25"
72"
34.25"
70.25"
24" - 30"

DENSITY ANALYSIS

SILVER OAK PROJECT DENSITY

The Silver Oak PUD was originally approved in 1994 for a specific number of residential units in the residential PUD portions of the project.

The various phases of Silver Oak were approved for a maximum number of residential units for each phase. For example, Phase 1 was approved for 70 residential units and 70 units were constructed in this phase.

Subsequently, several units of development were approved for a higher density than was actually built. For example, Silver Oak Phase 9 was approved for 25 residential units, however the phase was designed for only 19 units. This left 6 units of density that were not used in this phase and that can carry forward. This has happened in numerous phases.

As of this date there have been 17 phases of residential development in Silver Oak. Silver Oak has not used all of the density units that were originally approved for each phase. As a result there are 86 units of density in total that were approved, but not used as development has proceeded. These units are essentially "banked" for future use (with approval) in subsequent phases.

This unused density can be attributed to changes in market demand for lot size as time has passed. We anticipate using all of the slack or unused density units in future phases of development as demand for larger lots has shifted with (mostly retired) buyers looking for smaller parcels with less maintenance required.

The following table illustrates the various phases that have been built, what the approved maximum density was, and what was used.

Silver Oak Residential Lot Phases					
	Units Approved	Units/Lots Recorded	Difference		
Phase 1	70	70	0		
Phase 2	114	107	-7		
Phase 3	21	21	0		
Phase 5	33	33	0		
Phase 6 *	*	53			
Phase 7 *	*	22			
Phase 9	25	19	-6		
Phase 11	50	39	-11		
Phase 12 *	*	60			
Phase 14	55	42	-13		
Phase 15	26	20	-6		
Phase 16	62	57	-5		
Phase 17	17	15	-2		
Phase 18	21	21	0		
Phase 19	10	10	0		
Phase 20	15	17	2		
* Phase 6 non-cluster portion	13	13	0		
* Phase 6, 7, 12 cluster area "BB" ***	160	122	-38		
Remaining:					
Blocks I, J & K	58				
Cluster Block "CC"	145				
Cluster Block "DD"	92				
Blocks G & H	39				
Cluster Block "EE"	91				
Block ?? (NW corner)	26				
Total Remaining:	451				
Total**:	1,143	606	-86		
Total potential units (remaining approved + recorded)	1,057				
** Excludes phases removed by Carson Tahoe Hospital, 79 units					
*** 160 cluster units approved per original map and Development Agreement					
Updated July 2015 through Phase 20 final map.					

OPEN SPACE ANALYSIS

Open Space Requirements: Silver Oak PUD

Required Space:	40%

Proposed Space in Silver Oak PUD:	45%
Components:	
Golf Course:	62%
Hill:	23%
Landscape Area:	9%
Peripheral:	6%

Remaining Development Phases (acres):	84.52

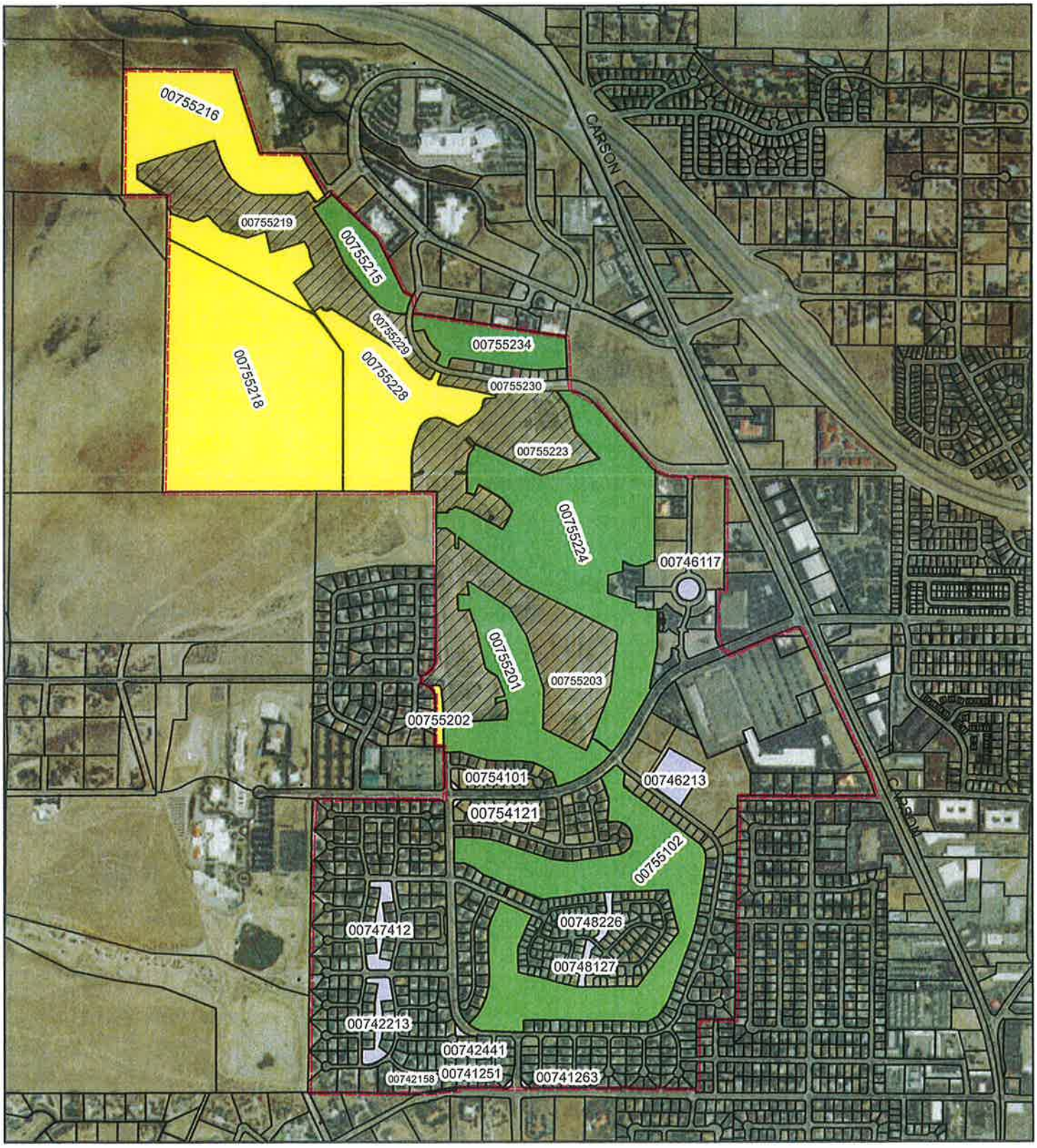
APNs:	Acreage of Open Space:	Description:
007-552-19	25.47	Block EE
007-552-23	22.82	Block DD
007-552-30	1.18	Corner of DD
007-552-29	0.83	Corner of EE
007-552-03	34.22	Block CC
Total:	84.52	

Additional Open Space Needed:	
Percentage:	Acreage:
1%	4.63

* Original area in Silver Oak PUD was 651 acres. Parcels on northeast corner sold and now contain properties not within Silver Oak PUD. Recalculated space is 612 acres according to new property boundary.

Actual Space:	44%
Total Open Space (acres):	270.77
Total Space (acres): *	612

Components:	%:	APNs of Open Space:	Acreage of Open Space:
Golf Course:	50.4%	007-551-02	44.32
		007-552-31	9.79
		007-552-15	7.79
		007-552-24	54.1
		007-552-01	20.36
		Total:	136.36
Natural Open Space:	46.2%	007-552-28	35.22
		007-552-18	64.6
		007-552-16	25.29
		Total:	125.11
Residential Common Area:	3.4%	007-474-12	1.92
		007-482-22	0.13
		007-422-13	1.97
		007-482-26	0.71
		007-462-13	3.1
		007-482-21	0.18
		007-421-51	0.07
		007-412-63	0.08
		007-424-41	0.15
		007-541-01	0.07
		007-541-21	0.12
		007-421-58	0.08
		007-461-17	0.72
		Total:	9.3



- Property Boundary
- Open Space Parcels
- Proposed Development
- Golf Course
- Parks/Common Area
- Natural Open Space

N

0 400 800 1,600 Feet

Silver Oak PUD Open Space
1251 Country Club Dr, Carson City, NV 89703
Existing Open Space Map

Manhard CONSULTING LTD

SAMPLE FLOOR PLANS AND ELEVATIONS

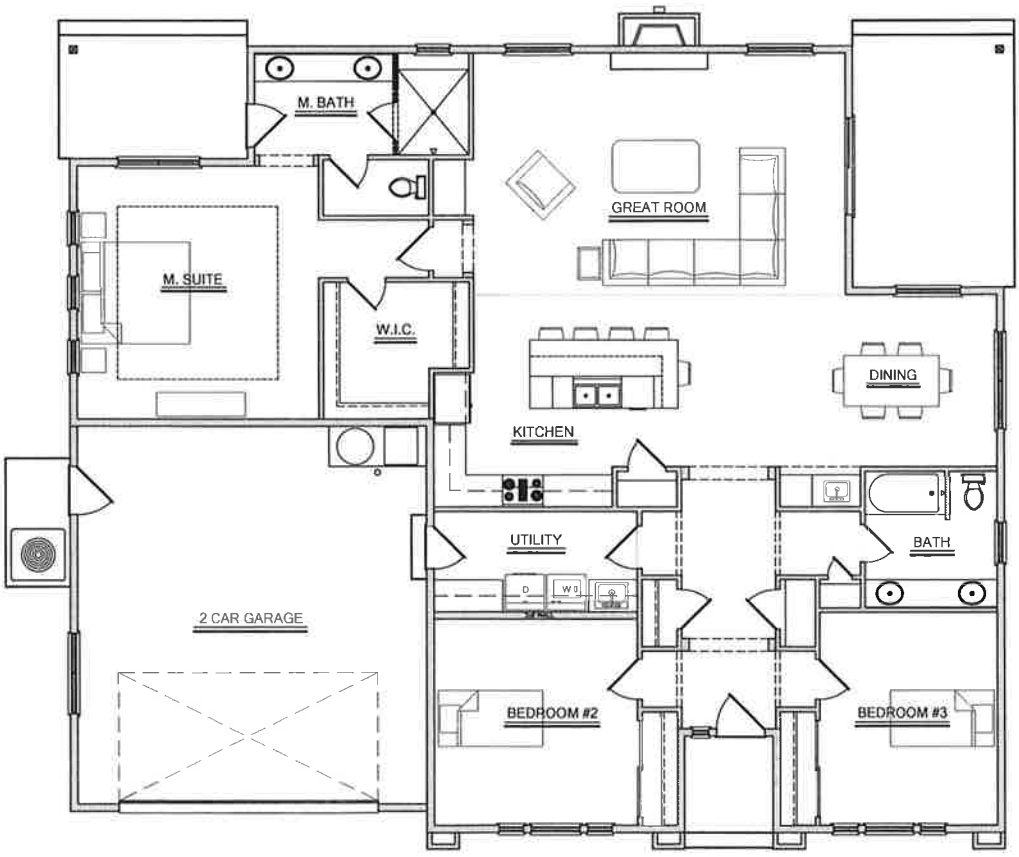
SAMPLE HOME PLANS

Silver Oak plans to construct homes sized from 1700-2500 square feet with some variations in the plans being possible to fit the building envelopes of the lots.

Roofs will be composition, hip design, with roof peak heights varying from 22-25' from finished grade and exteriors will be stucco and siding.

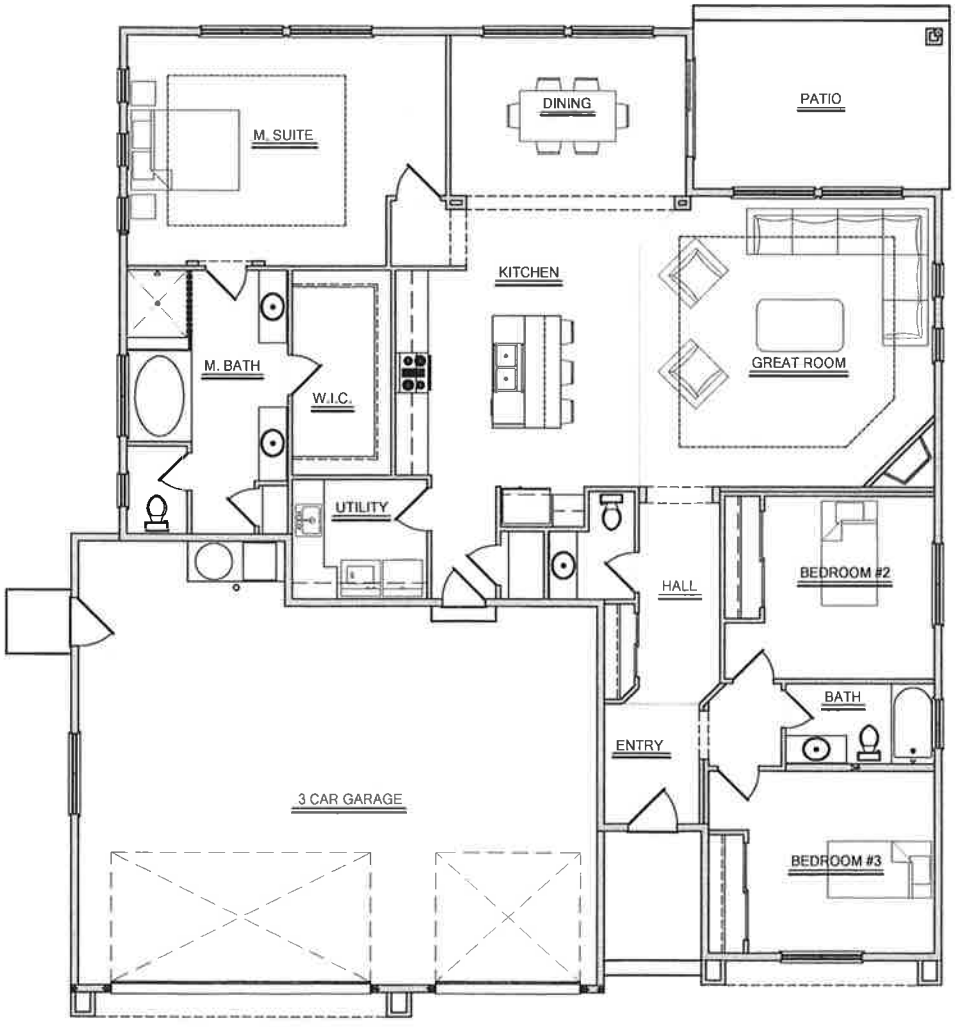
Interior plate heights will be 9' with 6/12 roof pitches.


22'-10"


M. BATH
M. SUITE
W.I.C.
GREAT ROOM
DINING
KITCHEN
UTILITY
BATH
2 CAR GARAGE
BEDROOM #2
BEDROOM #3

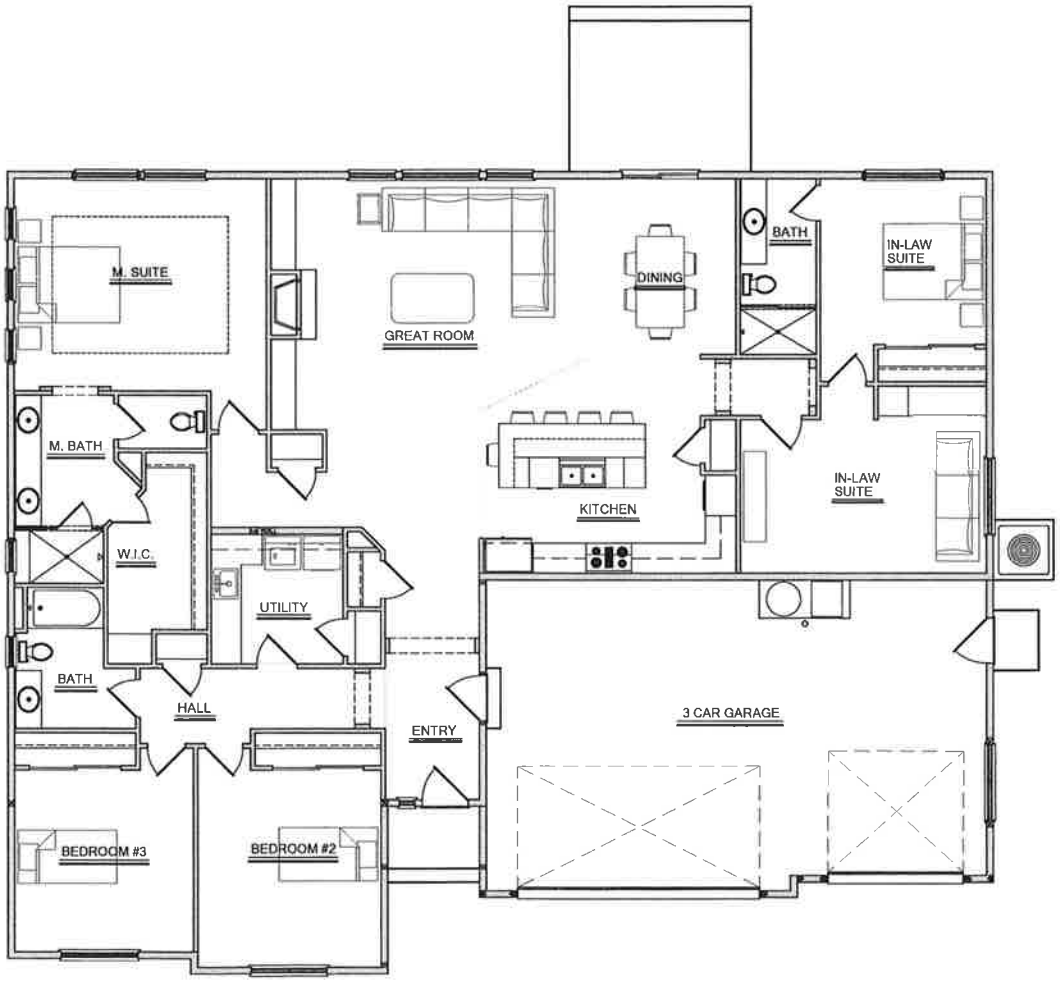
PLAN 2032


23'-8"


M. SUITE
DINING
PATIO
KITCHEN
M. BATH
W.I.C.
GREAT ROOM
UTILITY
HALL
BEDROOM #2
BATH
ENTRY
3 CAR GARAGE
BEDROOM #3

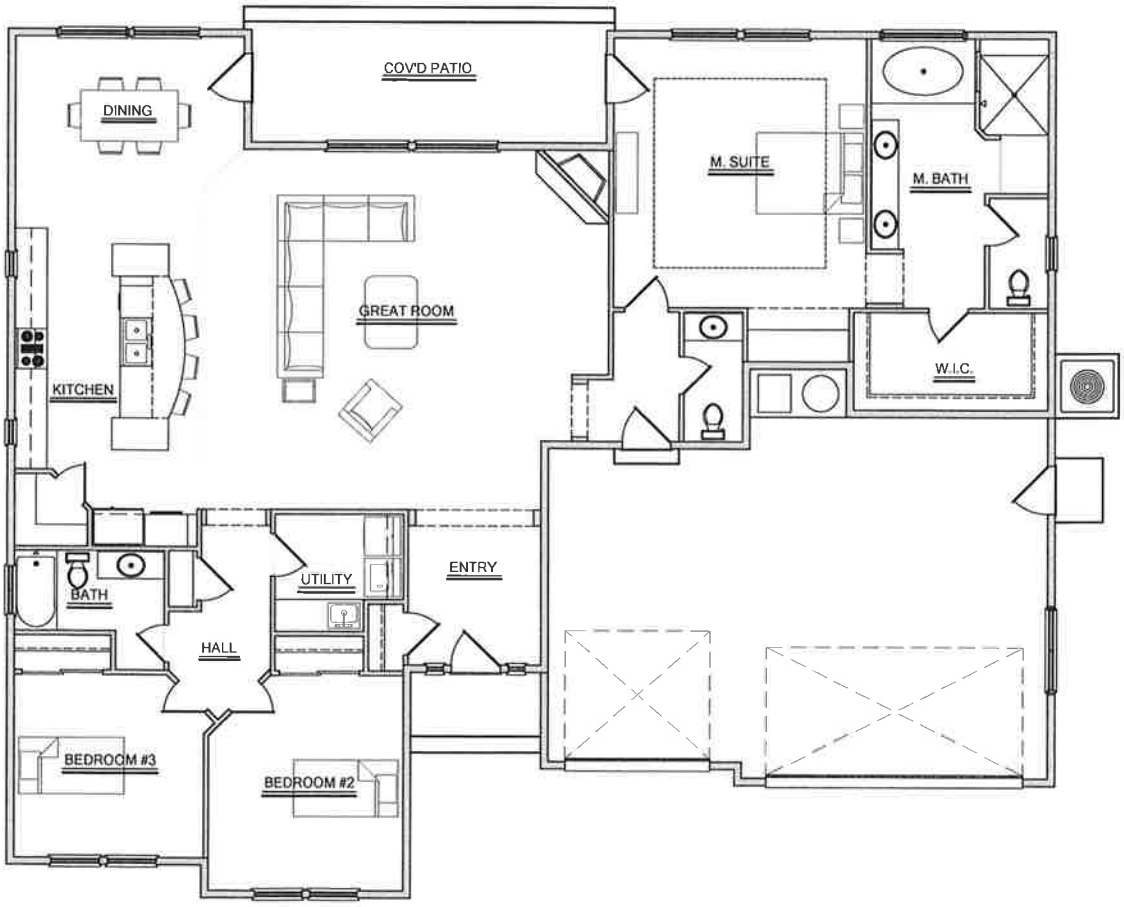
PLAN 2060


22'-5"


M. SUITE
GREAT ROOM
DINING
BATH
IN-LAW SUITE
M. BATH
KITCHEN
IN-LAW SUITE
W.I.C.
UTILITY
BATH
HALL
ENTRY
3 CAR GARAGE
BEDROOM #3
BEDROOM #2

PLAN 2490


21'-11"


COV'D PATIO
DINING
M. SUITE
M. BATH
GREAT ROOM
KITCHEN
W.I.C.
ENTRY
UTILITY
BATH
HALL
BEDROOM #3
BEDROOM #2

PLAN 2292

SOLAEGUI
ENGINEERS

December 1, 2014

Mr. Patrick Pittenger
Carson City Public Works
3505 Butti Way
Carson City, Nevada 89701

Re: Silver Oak Lots

Dear Patrick:

This letter contains the findings of our traffic engineering review of the proposed new lots in Silver Oak. The attached parcel map and two preliminary lot lay outs show the property. Primary access will be provided from Oak Ridge Drive to West College Parkway. An emergency gated access is planned to West Nye Lane. Pedestrian access may be allowed. There are two alternate lot plans. One with 37 lots and the other with 31.

Trip generation calculations are based on the Ninth Edition of *ITE Trip Generation* (2012). The calculation sheets are attached for ITE land uses #201: Single Family Detached Housing. Table 1 shows the trip generation summary for the 37 lot plan.

TABLE 1
TRIP GENERATION

LAND USE	ADT	AM PEAK HOUR IN	AM PEAK HOUR OUT	AM PEAK HOUR TOTAL	PM PEAK HOUR IN	PM PEAK HOUR OUT	PM PEAK HOUR TOTAL
Single Family Detached Housing 37 Dwelling Units	352	7	21	28	23	14	37

As indicated in Table 1, the average daily trip total is 352 trips with 28 AM peak hour trips and 37 PM peak hour trips. These volumes are below the Carson City traffic study thresholds of 500 daily trips or 80 peak hour trips which trigger the need for a full traffic study. Based on these trip totals a full traffic study is not required. We trust that this information will be adequate for your review. Please contact us if you have any questions or comments.

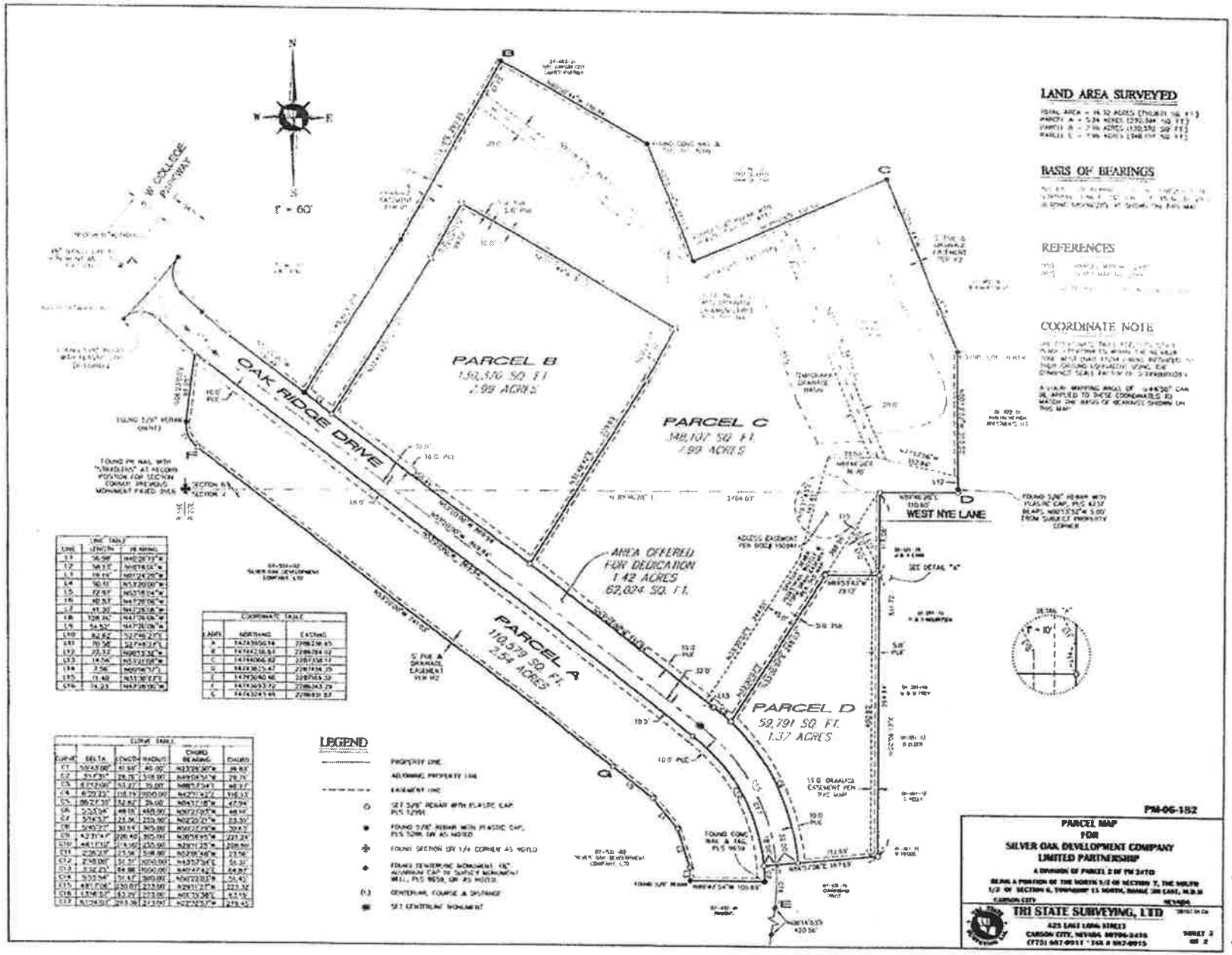
Very truly yours,
SOLAEGUI ENGINEERS, LTD.

Paul W. Solaegui, P.E.
CIVIL
7103

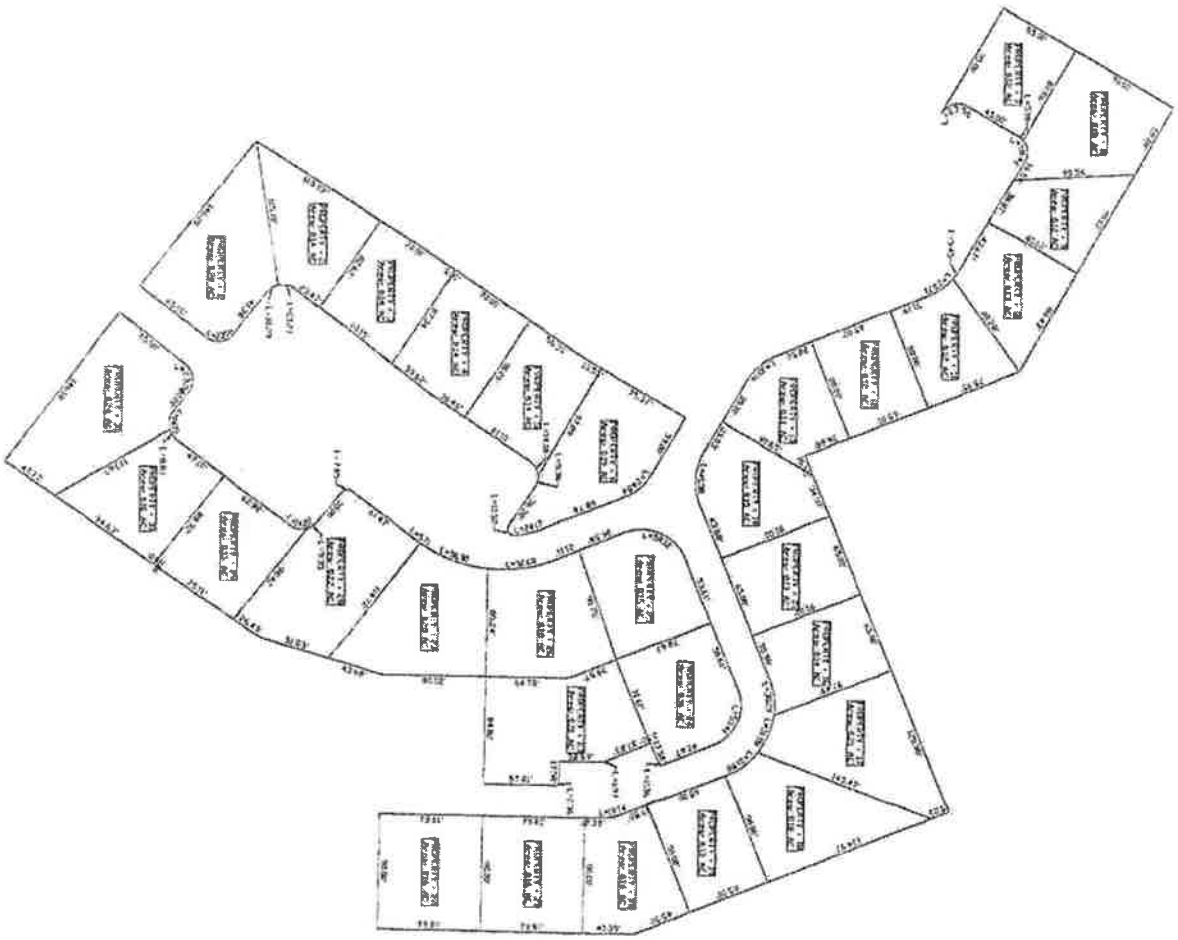
12-1-14
EXP 6-30-16

Enclosures
Letters/Silver Oak

Solaegui Engineers Ltd. • 715 H Street • Sparks, Nevada 89431 • 775/358-1004 • FAX 775/358-1098
Civil & Traffic Engineers
e-mail: psolaegui@aol.com


LAND AREA SURVEYED
BASIS OF BEARINGS
REFERENCES
COORDINATE NOTE
PARCEL B
1,50,376 SQ. FT.
7.99 ACRES
PARCEL C
148,137 SQ. FT.
7.99 ACRES
PARCEL A
110,379 SQ. FT.
2.54 ACRES
PARCEL D
59,791 SQ. FT.
1.37 ACRES
AREA OFFERED FOR DEDICATION
1.42 ACRES
62,024 SQ. FT.
OAK RIDGE DRIVE
W. COLLEGE PARKWAY
WEST NYE LANE
LEGEND
PARCEL MAP
FOR
SILVER OAK DEVELOPMENT COMPANY
LIMITED PARTNERSHIP
TRI STATE SURVEYING, LTD
PM-06-152

2661-B



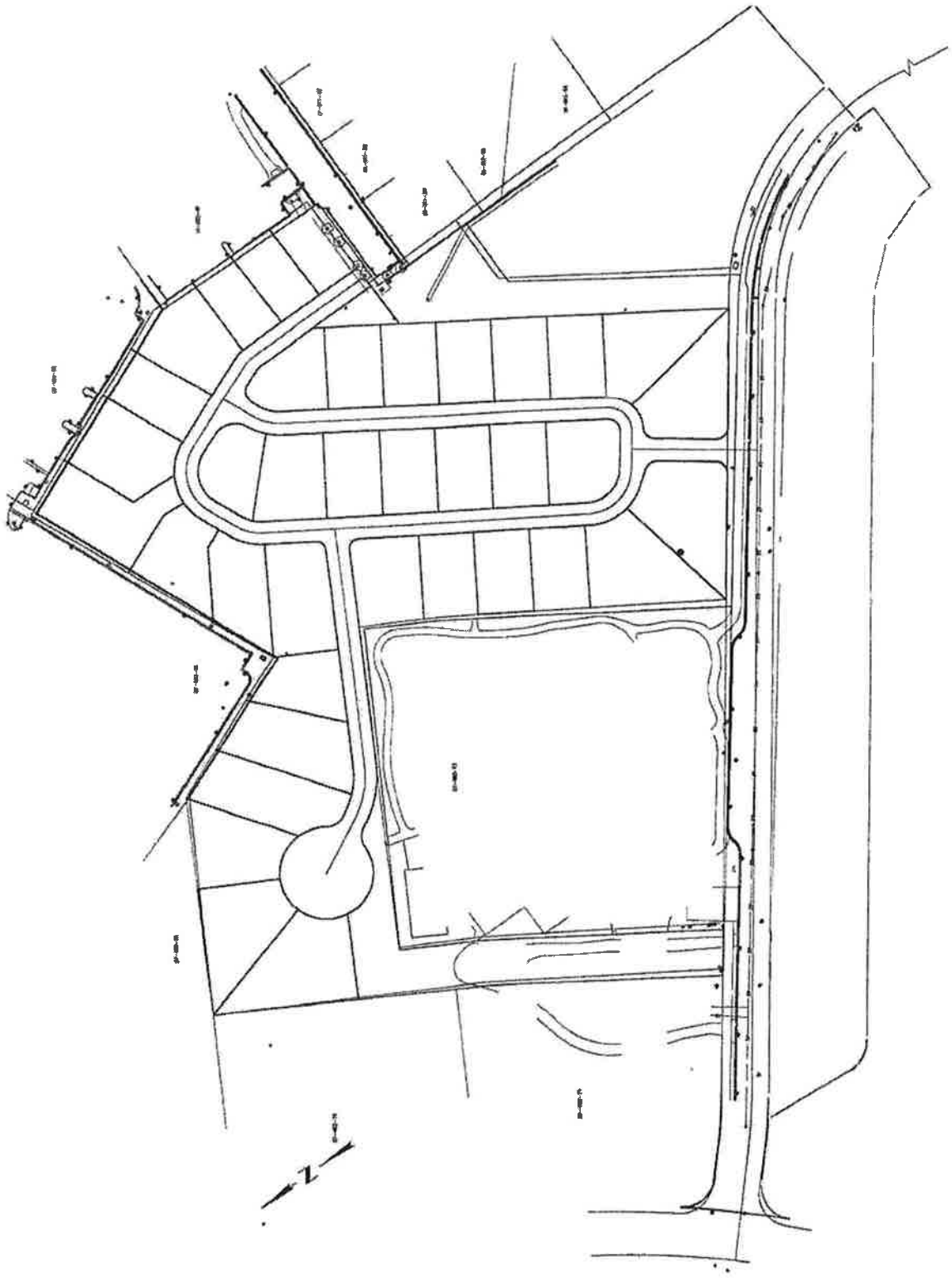
C2

SITE & UTILITY PLAN

APN: 007-322-23

2186 CANTERBURY LANE

CARSON CITY NV



WATER AND SEWER CAPACITY VERIFICATION

WATER AND SEWER CAPACITY VERIFICATION

Silver Oak has verified with Carson City Engineering that adequate capacity for water and sewer exists for the project. Correspondence from Carson City Engineering staff to this effect is in the following pages.

Brian Matthews
245 Como Lane
Dayton, NV 89403
(775) 230-8125

Rory Hogen
Carson City Building Department
2621 Northgate Lane, Suite 54
Carson City, NV 89706

February 12, 2016
File No.: 116-002-001

RE: Silver Oak Phase 21 PUD, Oak Ridge Drive, APN: 007-462-12

Dear Mr. Hogen,

This letter is provided to address Section 15.3 of the Carson City Development Standards as it relates to sewer main analysis.

The sewer main analysis was performed by Darren Anderson, Project Manager of Carson City Engineering Capital Projects on November 19, 2014. At that time the preliminary layout of the PUD and the sewer main were prepared in a sufficient state that an analysis could be performed.

The analysis was used to complete the pipe sizes for the design. After the analysis the adjacent property owner to the north-west requested that a sanitary sewer stub be provided to his property. An e-mail was sent to Tom Grundy on January 20, 2015 regarding this matter and a final response was submitted back to me on January 29, 2016. The response from Darren Anderson read "I checked the flows by putting everything to the stub and there are no issues with capacity" (see attached e-mail string).

Since that time the number of lots has remained the same and only slight modifications have been made to the horizontal and vertical of the main. I believe that the attached analysis represents the intent of the design.

Should you have any questions or concerns please contact me at (775) 230-8125.

Sincerely,

Brian A. Matthews, P.E.
Design Engineer

PUBLIC WORKS DEPARTMENT

ADMINISTRATION
3505 Butti Way
Carson City, NV 89701-3498
Ph: 775-887-2355
Fx: 775-887-2112

FLEET SERVICES
3303 Butti Way, Building 2
Carson City, NV 89701-3498
Ph: 775-887-2356
Fx: 775-887-2258

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ENGINEERING/ TRANSPORTATION/ CAPITAL PROJECTS
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BUILDING and SAFETY PERMIT CENTER
108 E. Proctor Street
Carson City, NV 89701-4240
Ph: 775-887-2310
Fx: 775-887-2202

PLANNING
108 E. Proctor Street
Carson City, NV 89701-4240
Ph: 775-887-2180
Fx: 775-887-2278

HEARING IMPAIRED
Dial 711

CARSON CITY NEVADA

Consolidated Municipality and State Capital

Date: November 19, 2014

To: Brian Matthews, P.E.

From: Darren Anderson, Project Manager

Subject: Sewer Main Capacity Analysis
APN 007-462-12

The sanitary sewer for the new development proposed on APN 007-462-12 is shown connecting to an existing 8" PVC line in Nye Lane. The 8" PVC sewer main connects to a 10" in Carson St. where is continues to a 12" in College Parkway, extends east past the Highway 395, south on Lompa Lane, and over to the Carson City Waste Water Reclamation Plant.

The new development includes 31 new lots. By using an equivalent dwelling unit (EDU) of 150 gallons per day (gpd) and a peaking factor of 3, the downstream sewer lines where checked for an additional flow of 13,950 gpd or 9.7 gpm in order to consider the impact of the new development.

The additional flows were added to a sewer model of the Carson City Sewer System. The resultant d/D ratios for the 8", 10", and 12" pipes were 0.09, 0.09, and 0.47 respectively. As the sewer main increased in size downstream, the d/D ratio steadily decreased. The new development was determined to have a negligible impact on the City's sewer system. No improvements will be necessary due to the additional flows from the proposed development on parcel 007-462-12.

Developments Effect On Line Capacity

	Size (in)	Prior d/D	Post d/D
P1: Nye Lane	8	0.06	0.09
P2: Carson Street	10	0.08	0.09
P3: College Parkway	12	0.47	0.47
P4: College Parkway	15	0.15	0.15
P5: College Parkway	18	0.02	0.02


NORTH
P1: 8"
P2: 10"
P3: 12"
P4: 15"
P5: 18"
N CARSON ST (BUSINESS US 395)
HOT SPRINGS RD
N Roop St
N ROOP ST

Brian Matthews
245 Como Lane
Dayton, NV 89403
(775) 230-8125

Rory Hogen
Carson City Building Department
2621 Northgate Lane, Suite 54
Carson City, NV 89706

February 12, 2016
File No.: 116-002-001

RE: Silver Oak Phase 21 PUD, Oak Ridge Drive, APN: 007-462-12

Dear Mr. Hogen,

This letter is provided to address Section 15.3 of the Carson City Development Standards as it relates to water main analysis.

The water main analysis was performed by Tom Gundy, P.E. Senior Project Manager of Carson City Engineering Capital Projects on December 4, 2014. At that time the preliminary layout of the PUD and the water main were prepared in a sufficient state that an analysis could be performed.

The analysis was used to complete the pipe sizes for the design. Since that time the number of lots has remained the same and only slight modifications have been made to the location of the main. I believe that the attached analysis represents the intent of the design.

Should you have any questions or concerns please contact me at (775) 230-8125.

Sincerely,

Brian A. Matthews, P.E.
Design Engineer

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Ph: 775-887-2180
Fx: 775-887-2278

HEARING IMPAIRED
Dial 711

CARSON CITY NEVADA

Consolidated Municipality and State Capital

Date: December 4, 2014

To: Brian Matthews, P.E.

From: Tom Grundy, P.E., Senior Project Manager

Subject: Water Main Capacity Analysis
APN 007-462-12

A water main analysis for the new development proposed on APN 007-462-12 was analyzed pursuant to CCDS 15.3.1 for pressure and fire flows. The proposed pipe network was provided by the developer's engineer, Brian Matthews, P.E. The pipe material was assumed to be PVC. The new development includes 31 new lots. The analysis was performed using the Carson City Water Model.

Two points of connection were proposed. The first point of connection is to the existing 10" PVC main in Silver Oak Drive (J-20617). The second point of connection is to the existing 8" PVC main in West Nye Lane (J-1669).

Pressures were found to be in excess of 60 psi at both points of connection.

A fire flow analysis was then performed for the proposed development. All results were rounded per NFPA 291. The proposed pipe network obtained from the developers engineer was composed exclusively of 6" pipe. The model indicated that fire flows at the northwest corner of the development (J-20627) would be below 1,500 gpm. A number of scenarios were run, using a mixture of 6" and 8" mains.

One scenario was run with 8" pipe simulated for all single mains between Oak Ridge Dr. and Nye Ln., and a 6" main supplying the northwest portion f the development. That scenario resulted in a 1,500 gpm fire flow at J-20627, a value which provides no factor of safety.

An additional scenario was run with 8" single mains between Oak Ridge Dr. and the northwest corner of the development. The looped area near Oak Ridge Dr. was modeled with 6" pipe. That scenario resulted in an estimated 2,000 gpm fire flow minimum for all modeled hydrants in the development.

The modeled pipe network is shown in Figure 1, along with modeled pipe sizes for the "8" From SO and NW Spur" scenario. Existing piping is shown in black.

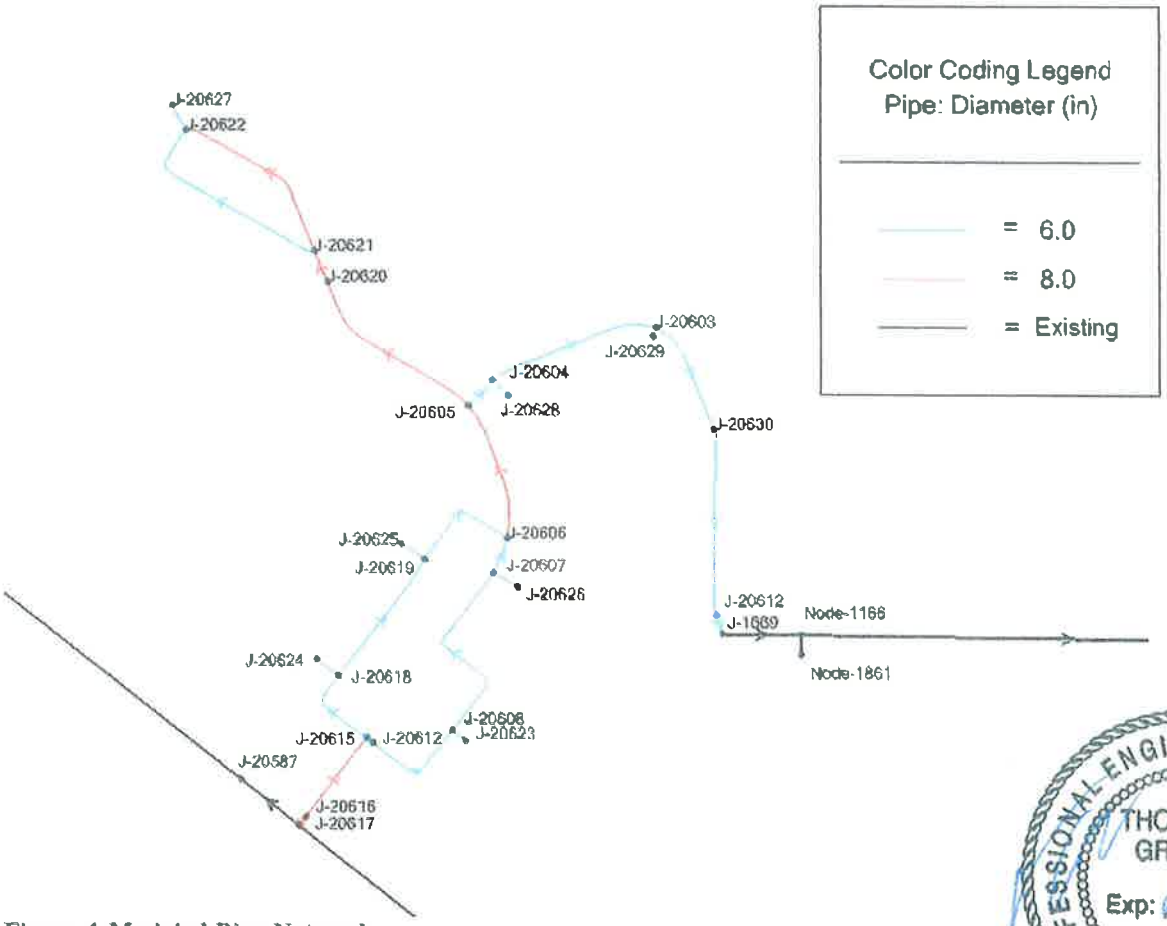


Figure 1 Modeled Pipe Network

The results for all model runs are shown in Table 1.

Table 1 Model Results

Node	All 6"	8" single throughs	8" All single	8" from SO and NW Spur
J-20616	2,993	3,100	3,100	3,000
J-20625	2,144	2,400	2,400	2,400
J-20626	2,190	2,400	2,500	2,400
J-20627	1,414	1,500	2,100	2,000
J-20629	2,135	2,500	2,500	2,300

PROFESSIONAL ENGINEER STATE OF NEVADA
THOMAS B. GRUNDY
Exp: 6/30/15
CIVIL
No. 18808
12-4-14

GEOTECHNICAL INVESTIGATION BY APPLIED ENGINEERING

APPLIED ENGINEERING
CONSULTANT SERVICES

4825 Convair Drive, Suite 17; Carson City, Nevada 89706
Telephone (775) 888-9939, Fax (775) 888-9469

November 16, 2015
Project No. 124-44-15

Mr. Mark Turner
Silver Oak Development
3075 College Drive
Carson City, Nevada 89703

Re: Geotechnical Investigation
Proposed Phase 21 Single Family Residential Development
Silver Oak Planned Unit Development
Oak Ridge Drive (APN: 007-462-12)
Carson City, Nevada

Dear Mr. Turner:

This report presents the results of our Geotechnical Investigation performed for the Proposed Phase 21 Single Family Residential Development Project to be located on Oak Ridge Drive (APN: 007-462-12) within the Silver Oak Planned Unit Development in Carson City, Nevada. A project vicinity map for the sinle family residential development is presented on Plate 1.

Our scope of work was to excavate several test pits within the proposed Phase 21 Residential Development boundaries, evaluate the subsurface soils encountered, and provide site specific recommendations to aid in the design and construction of the proposed residential structures and associated improvements. These recommendations addressed Portland Cement Concrete foundation and slab-on-grade preparation procedures, including overexcavation requirements, if needed, asphaltic concrete pavement structural sections and other relevant site specific items.

We understand the proposed single family residential development will consist of 31 parcels on Oak Ridge Drive (APN: 007-462-12) within Phase 21 of the Silver Oak Planned Unit Development in Carson City, Nevada. The project site is bounded by Oak Ridge Drive and the Silver Oak Park Site adjacent to the southern boundary; the existing closed K-Mart Commercial Parcel adjacent to the northern boundary; by a proposed future school parcel to the west and by existing single family residential lots and the Nye Lane Medical Building Complex to the east. Our firm has previously prepared a geotechnical investigation and earthquake fault review for the Phase 17 Residential Subdivision dated April 4, 2013 in the vicinity of the proposed Phase 21 Residential Subdivision. Our firm also provided review of previously prepared geotechnical investigations for the K-Mart Shopping Center, prepared by

SEA Incorporated, dated August 13, 1993 and the overall Silver Oak Planned Community Site Feasibility Study, prepared by Pezonella and Associates dated January 12, 1994. The Phase 21 Residential Subdivision geotechnical investigation encompasses both the past established geotechnical information and the current geotechnical data / information obtained.

It is also our understanding that the project will consist of an approximate 8.0 acre site. Tentative construction plans include conventional Portland Cement concrete foundations and slab-on-grade with wood framed walls and a wood panelized roofing system. We are anticipating minimal earthwork to attain proper drainage. However, overexcavation of unsuitable soils may be needed pending in-place soil characteristics and subsequent geotechnical recommendations to attain acceptable structural support. Exterior site improvements including flexible asphaltic concrete and Portland cement concrete flatwork are also anticipated.

The project is located in the northern portion of Carson City, which is within the western portion of Eagle Valley. Eagle Valley is a structural basin bounded to the west by the Carson Range (a spur of the Sierra Nevada Mountains), to the north by the Virginia Range and to the east by the Pine Nut Mountains. To the south, an alluvial divide separates Eagle Valley from Carson Valley.

The valley sediments are unconsolidated and partially consolidated materials derived from erosion of the surrounding mountains, which are composed of Tertiary and Quaternary volcanic rocks and Mesozoic granodiorites and metavolcanics. Sediments in the basin are mid- to late- Pleistocene alluvial deposits consisting of silty sands and gravels with some interbeds of sandy silts and clays. The subsurface soils would be considered to be within the Soil Profile Type Sd as shown within Table 16-J of the 2012 International Building Code (I.B.C.). The site lies within Seismic Zone 3 as categorized by the Uniform Building Code and has a corresponding Seismic Zone factor (Z) of 0.30.

The Earthquake Hazards Map – Carson City Quadrangle by Trexler and Bell (1979) published by the Nevada Bureau of Mines and Geology indicated that the Phase 21 residential development site lies within the vicinity of a southwest to northeast trending indeterminate (questionable) Holocene aged faults (less than 10,000 years old). The Nevada Earthquake Safety Council has developed the criteria for the evaluation of the Quaternary age earthquake faults and defines active faulting as those exhibiting displacement within the last 10,000 years. Furthermore two (2) Master Theses were prepared by Kirkham (1976) and Rogers (1975) and inferred that several faults also cross within the southeastern boundaries of the Silver Oak Planned Unit Development. Based upon our review the mapped faulting in the vicinity of the residential development is not considered to be present on the property and that no further mitigation of the fault hazard was recommended.

The Geologic Mapping completed by Trexler (1977) Carson City Folio, Nevada Bureau of Mines and Geology (Map 1Ag) indicates that the proposed single family residential development is underlain by Quaternary Aged (Qal) soils consisting of alluvial - plain sand, silt, and gravel deposits which are considered to be moderately to poorly bedded, poorly to

moderately sorted, angular to subrounded materials placed within broad surfaces of low gradient areas.

The criteria for the evaluation of Quaternary earthquake faults was not previously regulated by the State of Nevada. Most previously accepted geological constraints in Nevada relied on criteria methods established by the State of California. The Alquist-Priolo Act of 1972 (California) defined active faults as those with evidence of displacement within the past 11,000 years (Holocene Aged). The faults with evidence of displacement during the Pleistocene time period (11,000 to 2,000,000 years ago) are generally considered potentially active. The Nevada Earthquake Safety Council (1998) had adopted the criteria regarding Holocene Quaternary age earthquake faults less than 10,000 years. Holocene Active Faults normally require a minimum setback of 50 feet for occupied structures. Occupied structures are defined as having a human occupancy rate of more than 2,000 hours per year. Furthermore no "Critical Facility" is permitted to be placed over a fault trace of a Late Quaternary Active Fault, which are defined as evidence of movements within the past 130,000 years. "Critical Facility" is defined as buildings or structures that are considered critical to the function of a community such as hospitals, fire stations, emergency management operations centers and schools. The single family residence structures are considered to be occupied non-critical structures and the intended construction methodology is considered to be suitable to resist earthquake induced stresses without experiencing catastrophic failure.

Holocene faulting within the vicinity are considered to have the potential for a large magnitude ($M \geq 7$ Type) earthquake and have Slip Rates (SR) less than 5 mm/year. The maximum credible earthquake for the vicinity of the project is 7.5 in magnitude. In accordance with the USGS the ground motion corresponding to a 2% probability of exceeding in 50 years is 0.84g and the ground motion corresponding to a 10% probability of exceeding in 50 years is 0.43g.

We would recommend that the structural seismic design be evaluated in accordance with the 2012 International Building Code (IBC) as adopted by the Carson City Building Department. The following Site Specific IBC Geotechnical Seismic Design Parameters should be utilized for the on-site soil profile classification of an IBC Site Class D soil. A Seismic Source Type B may be assumed for the site.

IBC SEISMIC DESIGN PARAMETERS

Parameter	Factors	IBC Reference
Site Class	D	2012 IBC
Spectral Acceleration	S_s = 2.453 S_l = 0.912	Section 1613.3.1
Seismic Coefficient, F_a	F_a = 1.0	Table 1613.3.3(1)
Seismic Coefficient, F_v	F_v = 1.5	Table 1613.3.3(2)
Spectral Response Acceleration Parameter	Sms=2.453 Sml=1.368	Equation (16-37) Equation (16-38)
Design Special Response Acceleration Parameter	SDs=1.636 SDI=0.912	Equation (16-39) Equation (16-40)

Carson City is located in Seismic Zone 3 as categorized by the Uniform Building Code. This represents a moderately to highly active seismic area. Per the Carson City Quadrangle Geologic Map, the proposed site has been identified as having the potential for moderate severity in regards to liquefaction potential (ground failure) during significant seismic events. Liquefaction occurs during strong dynamic accelerations which causes severe movement of any overlying improvement, including foundation settlement or loss of bearing. The most susceptible soils for liquefaction are saturated loose to medium dense cohesionless (clean) sands and silts, within the upper 30- to 50- feet of the surface. Various subsurface sands encountered at the depths explored are considered to be within gradation parameters of potentially susceptible liquefiable soils.

Extensive liquefaction could occur with projected peak horizontal accelerations of 0.7g or higher, which may be generated by 7- to 7.5- magnitude earthquakes. Probabilistic ground accelerations in the range of 0.4g or less may also produce minor settlements of the overlying structures. Potentially costly remedial measures such as deep piles, dynamic compaction, mat foundations, or gravel piers can be utilized. However, these up-front costs and a comparison of potentially long-range repair costs and assumed liability is a financial decision that can only be assessed by the owner. Project mitigation costs are typically not considered practical for similar apartment complex developments within the vicinity of the proposed site. An in-depth analysis of the liquefaction potential of the subsurface soils was not included within our scope of work. However, based on our geotechnical review we believe that the liquefaction potential for the proposed site is minimal due to the known subsurface soil conditions.

The primary Geologic references for this report were obtained from the Geologic Environments Map Series prepared by the Nevada Bureau of Mines and Geology and Bulletin No. 75 "Geology and Mineral Deposits of Lyon, Douglas, and Ormsby Counties, Nevada," By James G. Moore, 1969 and the Nevada Bureau of Mines and Geology Genoa Quadrangle-Earthquake Hazards Map by Robert C, Pearse, 1979.

The Federal Emergency Management Agency (FEMA) Flood Zone Boundary Panel No. 320001 0092F, Map revised February 19, 2014, indicates that the site is located within Flood Hazard Zone "X". This denotes areas which have been determined to be within 0.2% annual chance flood or areas of 1% annual chance flood with an average depth of less than 1 foot. The area is shown as being protected from the 1% annual chance or greater flood by a levee system in conjunction with the Carson City Highway bypass and the Silver Oak Development which indicates that the major precipitation run-off contributors north of the Silver Oak Development are intercepted and routed within the alignment of the bypass or within existing storm drainage structures and detention facilities within the Silver Oak Boundaries.

Site Field Investigations included excavating five (5) test pits utilizing a backhoe within the boundaries of the proposed residential subdivision to depths of 6.5- to 9.5- feet below the existing grade. A site exploration plan indicating the test pit locations is presented on Plate 2. An additional test pit was also excavated north of College Parkway as a possible structural fill source for the intended Phase 21 Subdivision Improvements. Test pit logs of the encountered subsoils are presented on Plates 3 and 7. Representative subsurface soil samples were

obtained in each of the test pits. These were then transported to our laboratory where selected soil samples were subjected to testing to determine physical and engineering properties, which included moisture content, grain size distribution and Atterberg Limit Determinations. Laboratory test results are presented on Plates 8 through 13. An explanation of the soil terminology is presented on Plate 14. Subsequently, the soils were classified in accordance with the Uniform Soil Classification System presented on Plate 15.

The Field Investigation indicated that the overlying surface soils within the perimeter subdivision boundaries of the proposed residential subdivision consist of previously placed granular fill materials which are medium dense and dry to moist for depths of approximately 3- to 5- feet in depth feet below the existing surface. Underlying the upper fill soils are the native silty sands and sandy silts which are medium dense and stiff for depths of 2- to 3- feet, which are inturn underlain by medium dense moist granular silty and clayey sands The interior of the proposed subdivision, in the vicinity of Test Pit #5, lies in a depressed area and the surface soils encountered consist of native stiff sandy silts, which are considered low- to moderately-expansive. These soils are underlain by native granular soils which consist of medium dense, moist silty and clayey sands with gravels to the depths explored (6.5- to 9.5- feet). No free groundwater was encountered to the depths explored, however depths of approximately 11-feet have previously been reported within the vicinity. The groundwater level can be expected to fluctuate due to factors such as season, temperature, precipitation, influence of adjacent properties and others. Evaluation of these factors was beyond the scope of this report.

Temporary trenches with near vertical sidewalls should be stable to a depth of approximately 3.5 feet. Excavations deeper than 3.5 feet may require shoring or the sidewalls will need to be laid back to maintain adequate stability. Contractor shall follow all regulations presented within Part 1926, Volume 54, Number 209 of the Federal Register as enforced by the State of Nevada Department of Industrial Relation Division of Occupational Safety and Health.

Field observations indicate that the native upper silty sands and sandy silts are considered to be low- to moderately- expansive and have minimally acceptable structural bearing values. It is our opinion that the native silty sands and sandy silts are not considered suitable for the support of the proposed improvements in their present condition. The in-place previously placed medium dense structural fill materials (3- to 5- feet in depth) placed above these silts will allow the proposed single family residences to receive adequate support from conventional spread footings. The native silty sands and sandy silts in the vicinity of Test Pit #5 can remain in-place as long as they are overlain by acceptably densified granular structural fill materials at least 2- feet in thickness and provide at least 2- feet of separation for the structural building components, exterior Portland cement concrete flatwork and the flexible asphaltic concrete pavement section. We are anticipating that the mass grading for the project will be minimal from the existing ground elevation, except for the depressed area in the center of the proposed development. Therefore we are assuming that no overexcavation of the native silts would be required within the perimeter of the development boundaries. Furthermore, the center portion of the project is to receive structural fill materials overlying the silty soils which should also address the majority of the overexcavation requirement. However, minor in-place silt

overexcavation should be anticipated for the structural fill and native soil interface zones surrounding the central depressed area of the development.

Our recommendations intend to minimize potential movement associated with the on-site silty sands and sandy silts. Minor differential movements may occur and should be anticipated with any structural improvement or exterior flatwork, including the asphaltic concrete pavement section, if any of these marginally supportive silty sands and sandy silts remain in-place.

Based on our subsurface investigation we are providing the following site specific geotechnical recommendations:

1) All organic material and debris, if present, should be removed from within the proposed building lines of the structures and associated site improvements. Organic (root) laden surface soils should also be removed up to six (6) inches in depth. These strippings cannot be used as structural fill but they may be suitable for use in landscaping areas.

2) Subsequently, the upper 6- to 8- inches of the surface soils should be scarified, moisture conditioned and compacted prior to any fill placement to obtain planned foundation and slab-on-grade elevations and the exterior rigid and flexible asphalt subgrade elevations. The exposed soils should be maintained at approximate optimum in-place moisture content and compacted to at least 90 percent (%) relative of the maximum laboratory dry density (as determined by ASTM D-1557). If excessive moisture contents exist within the exposed soils, which prohibit obtaining acceptable in-place relative compaction, these soils may require to be scarified and allowed to dry prior to recompaction.

3) All structural fill materials shall be approved by our office and conform to the following gradation and plasticity specifications:

Sieve Size	**Percent Passing – By Weight**
4-inch	100
¾-inch	70-100
No. 4	45-75
No. 40	15-50
No. 200	5-20
Liquid Limit	12 Maximum
Plasticity Index	6 Maximum

The test pit which was excavated for the possible structural fill source, north of College Parkway, exposed granular subsurface soils approximately 1- foot below the existing surface which meet the intent of the structural fill gradation requirements and can be utilized as such to

attain proposed subgrade elevations. Fill excavation should be performed so as to thoroughly mix and moisture condition the encountered granular soil horizons to comply with the specifications and to assist in moisture conditioning the soils prior to and during compactive effort. All native and import fill materials shall be reviewed by our office to verify compliance with the before-mentioned requirements prior to being brought on-site for placement. The above listed gradation requirements are intended to be a guideline of readily available materials.

These guidelines can be adjusted to allow for the use of other proposed structural fill materials pending review of grading contractors intended fill placement methodology and type of compaction equipment. Any adjustments to the structural fill material requirements, must be approved by our office prior to importing or utilizing the proposed fill material.

4) Following acceptable preparation of the subsoils, the approved structural fill soils shall be evenly placed in 6- to 8- inch loose lifts. During placement, they should be properly moisture conditioned to within 2% of the approximate optimum moisture content and compacted to not less than 90% relative of the maximum laboratory density (ASTM D-1557 test procedure) up to approximate footing grade, slab-on-grade or pavement subgrade.

5) All other structural fill, stemwell or utility trench backfill should be compacted to not less than 90% relative compaction. All proposed backfill soils should be approved prior to placement on-site.

6) Concrete slab-on-grade should also be supported by at least six (6) inches of Type 2, Class B Aggregate Base which has been densified to at least 95% relative compaction.

7) For the asphaltic concrete pavement we are anticipating light passenger vehicle loads, Traffic Index (T.I.) = 4.0, for the parking areas and the access roads.

8) We are also assuming that at least 24- inches of acceptable granular structural fill soils will be placed above the encountered native silts and underly the pavement section at subgrade elevations and that the granular soils will have a minimum R-value of 55. A sealing and maintenance program should also be developed to maintain and increase the service life to the asphaltic concrete pavement and which adequately addresses preventative repair of any surface distress. We are assuming a Modulus of Subgrade Reaction (K-value) of 250 pounds per cubic inch for the design of the Portland Cement slab-on-grade and dock ramp.

The Carson City Region is an arid climate with low relative humidity, and therefore any concrete flatwork is prone to shrinkage and curling. Concrete mix proportions and construction techniques such as the addition of water or improper curing methods can adversely effect the quality of finish concrete and may result in an increase in cracking, spalling or curling of the Portland Cement Concrete slabs. Air content for exterior Portland Cement concrete flatwork should range from 4- to 7- percent (%) to resist spalling during freeze – thaw cycles. Special considerations should be given to concrete placed and cured during hot or cold weather conditions. Proper control joints and reinforcement should be provided to minimize any damage from shrinkage or curling.

Due to the potential for relatively shallow groundwater and existing moisture contents of the subsurface soils, precautions should be taken during and after construction to minimize saturation of the foundation structural fill soils. Positive drainage should be established away from all exterior walls of the proposed buildings. Downspouts from roof drains should not discharge into planter areas immediately adjacent to the building unless there is positive drainage away at a minimum slope of 5 percent from the structures.

Also, our firm should be allowed to review finalized construction plans and provide Field Quality Control Services during anticipated construction to confirm that our recommendations are correct. Our office should be immediately notified of variations in soil conditions, such as buried debris or unexpected items, if encountered, during construction of the proposed single family development, so that we may have the opportunity to determine if our recommendations as presented herein are valid or require re-evaluation.

This geotechnical report is not intended for use as a bid document. Any person or firm involved prior to or during the construction of this project should perform all necessary independent investigations to satisfy themselves as to the subsurface conditions, the earth work requirements, or the required procedures to be utilized in successfully completing the proposed single family residential development including de-watering practices, if required.

We trust this provides the information needed at this time. However, if you require additional information or have any further questions, please contact our office at your earliest convenience.

Sincerely,

Gary L. Hopper, P.E.
Principal Engineer

CONCEPTUAL DRAINAGE REPORT BY BRIAN MATTHEWS P.E.

Brian A. Matthews
245 Como Lane
Dayton, NV 89403
(775) 230-8125

CONCEPTUAL DRAINAGE REPORT

PROJECT:
Silver Oak Phase 21 PUD
Carson City, NV

Prepared By:
Brian A. Matthews, P.E.

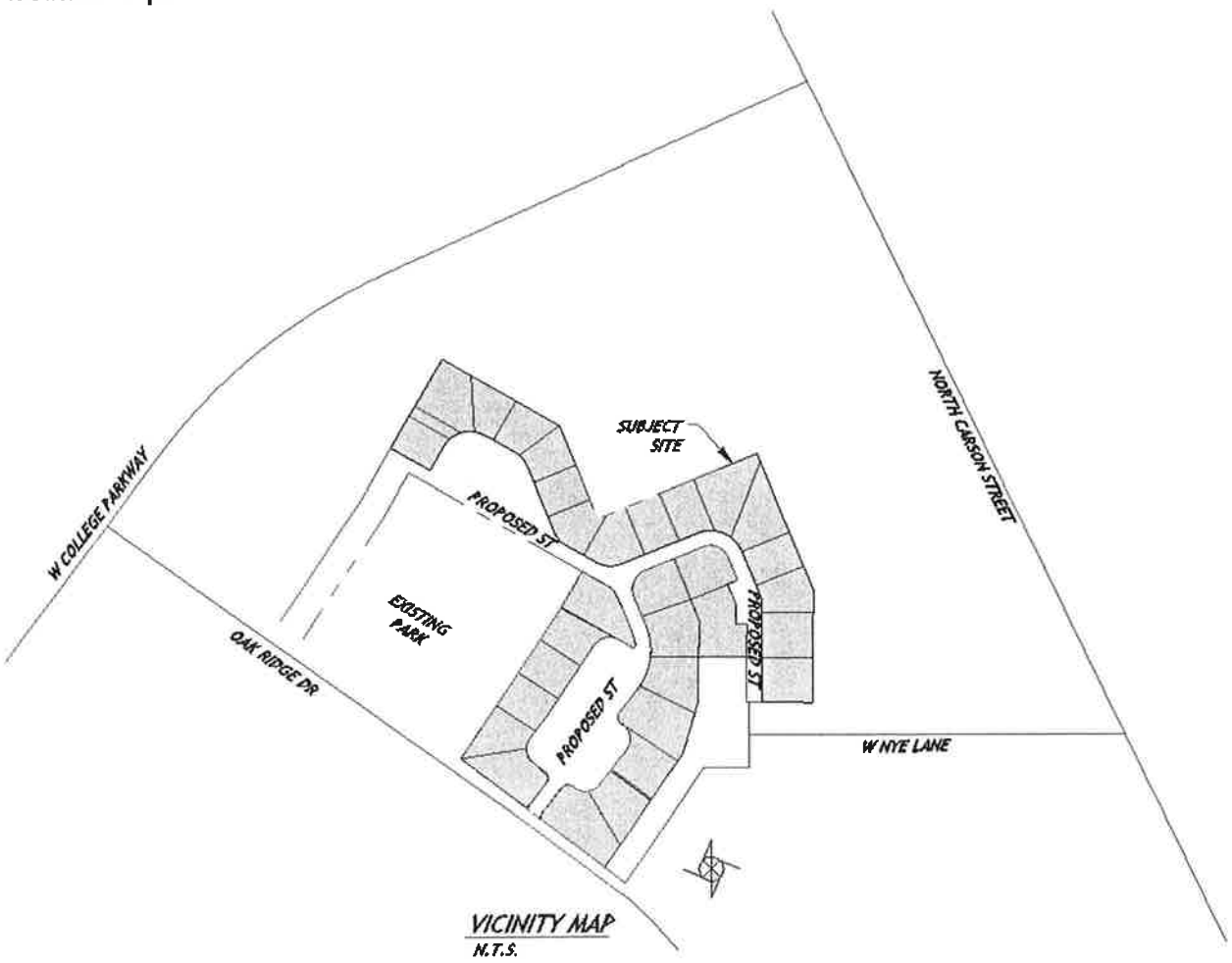
Prepared For:
Silver Oak Development, L.P.
3075 College Drive
Carson City, NV 89703

February 12, 2016

Introduction

Street Address:	Oak Ridge Drive, Carson City
APN:	007-462-12
Total Parcel Area:	348,107 sq ft, 7.99 Acres
Existing Disturbed Area:	348,107+/- sq ft, 7.99+/- Acres
Proposed Disturbed Area:	348,107+/- sq ft, 7.99+/- Acres
Permanently Disturbed Area:	348,107+/- sq ft, 7.99+/- Acres
Township, Range, Section:	Located in the north east ¼ of Township 15 North, Range 20 East, Section 7

Location Map:



Project Description:
Silver Oak Development is a Planned Unit Development in Carson City Nevada that is mainly made up of single family residences surrounding a golf course. There is commercial and Western Nevada College within and adjacent to Silver Oak Development. The project will add an additional 31 single family parcels to the Silver Oak Development.

Site Description:
The site is located on the north-east side of Oak Ridge Drive and is surrounded by developed and undeveloped parcels. The most north-western portion of the site abuts up against an undeveloped

commercial parcel, which parcel has an existing storm drain system which storm drain system is perpetuated through the subject site. There is a developed Carson City Park that is surrounded by the site on three sides, except for the west side of the park which is open to Oak Ridge Drive. To the south-east and on the west side of Oak Ridge Drive are single family parcels. There are two fully developed commercial properties to the north-east, an assisted living facility and a property commonly known as the closed K-mart Commercial Center. To the east is West Nye Lane and more commercial buildings, including the Nye Lane Medical Building complex. There are existing walls and fences along a number of the sides which separate this parcel from the existing developed parcels.

The subject site was intended for a Carson City School, however, was never utilized by the Carson City School District and was returned to the developer. The proposed single family parcels conform to the surrounding properties and will enhance the existing Silver Oak Planned Unit Development.

The site has no existing structures, except for a bike path along the south property line which allows pedestrians to go from Oak Ridge Drive to Nye Lane. The subject site has been disturbed over the years and includes some man made depressed areas that are meant to collect storm water and reduce the impact of storm water in Nye Lane. The USGS topographic map shows that the general topography in the broader area is from the Carson Range on the west and slopes to the east towards North Carson Street.

The site is described by FEMA as zone X (with Levee) in the FIRM Community No. 320001 0084 F, dated February 19, 2014 and FIRM Community No. 320001 0092 F, dated February 19, 2014 (See Appendix E).

Drainage Basin Description

Hydrologic Method:
The AutoDesk Storm and Sanitary Analysis 2015 (S&S Analysis) was utilized to perform the Hydrologic and Hydraulic calculations. The method chosen within this program to estimate the runoff within the project boundaries is the SCS Unit Hydrograph Method (SCS TR-20 Method). The SCS Method utilizes drainage area, precipitation, curve numbers and lag time to estimate the quantity of water that runs off a defined area (basin). The SCS method was originally developed for use in the agricultural industry, so it has a tendency to overestimate flow generated in development, mainly due to the variability of curve numbers and the difficulty in estimating the antecedent water within a development setting. Additionally by breaking the larger parcel into small watershed basins, the runoff is further overestimated. The parameters used in this analysis are explained below:

Precipitation information is built into S&S Analysis which creates a unit hydrograph based upon the County and State of the subject site. In order to utilize the most applicable precipitation information, the 24 hour storm event was updated from the Point Precipitation Frequency Estimates from NOAA Atlas 14 at the location of the project (reference: "HDSC Precipitation Frequency Data Server (PFDS)"; http://hdsc.nws.noaa.gov/hdsc/pfds/sa/nv_pfds.html). The precipitation frequency estimates for this location are found in Table 1 (See Appendix A).

Table 1. Design Storm Precipitation Summary Table

Information taken from NOAA Atlas 14 (See Appendix)	5 year 24 hr (in)	25 year 24 hr (in)	100 year 24 hr (in)
Onsite Precipitation	1.94	2.71	3.43

The SCS curve number loss rate method was used to estimate the amount of water that does not infiltrate, but rather runs off of a basin. The soils information was obtained from the Natural Resources Conservation Service Web Soil Survey website and this site is broken into four separate soil types (See Appendix B):

Bishop loam, saline, Hydrologic Soil Group C/D

Dalzell fine sandy loam, Hydrologic Soil Group C
Jubilee coarse sandy loam, Hydrologic Soil Group A/D
Surprise coarse sandy loam, Hydrologic Soil Group A

Based upon the existing soil groups, the following Curve Numbers were used:
Paved parking & roofs: 98 (All Soil Groups)
Residential Districts ¼ Acre: 61 (Soil A), 75 (Soil B), 83 (Soil C), 87 (Soil D)
Sagebrush range, Fair*: 51 (Soil B), 63 (Soil C), 70 (Soil D) (used for Existing Condition)
Grass cover 50% to 75%, Fair**: 49 (Soil A), 69 (Soil B), 79 (Soil C), 84 (Soil D)

* Sage Brush Range does not list a curve number for soil group A, so the value from soil group B was utilized.
**This value was used within the detention basins as they will receive landscaping.

The lag time is the time it takes from the peak rainfall to the peak discharge within a basin. In order to determine the lag time, the time of concentration is first calculated. The time of concentration is the time it takes for rainfall to travel from the hydraulically most distant point of a basin to the outlet point of that basin. The lag time is related to the time of concentration by multiplying the time of concentration by a factor of 0.60. The time of concentration is estimated using inputs such as the length of flow, slope, surface type, etc. This calculation is performed in the S&S Analysis. A minimum time of concentration of 10 minutes was used.

Major Offsite Basins:
The USGS topographic map shows that the general topography in the broader area is from the Carson Range on the west and slopes to the east towards North Carson Street. The Carson Range has the potential of sending a large quantity of water towards the site. However, there are a number of obstacles between storm water runoff from the Carson Range to this site, including Western Nevada College, the Silver Oak Golf Course, and the improvements associated with Silver Oak PUD. What this means in normal conditions is that the offsite storm water is directed to the Silver Oak Golf Course before it has a chance to reach the site. The water within the golf course aids to mitigate the impacts of the storm water to the downstream properties. In the event that water were to exceed the capacity of the golf course to the west of the subject site, the storm water is directed down an existing pedestrian pathway from Oak Ridge Drive to Nye Lane. The water in Nye Lane heads East to North Carson Street. Carson City has stated that the storm drain system at Nye Lane and North Carson Street is inadequate for the amount of flow that reaches the intersection and that this proposed PUD should keep the runoff to a minimum

There is an existing storm drain system that runs through the site, from north-west to south-east. The storm drain system begins as an overflow outlet for hole number 10 of the Silver Oak Golf Course and ties into two drop inlets within West College Parkway. The storm drain system is made up of a series of manholes connected together by 24" RCP. The storm drain system is very flat and often times lacks positive grade from one manhole to the next. Since it is difficult to determine how much flow a piece of a storm drain system is carrying, an assumption was made that the 2 foot diameter RCP is running full at a slope of 0.06% (the best slope available for the existing pipe). Using the FHWA Hydraulic toolbox, a normal-depth calculation was made, estimating a flow of 4.80 cfs (See Appendix F).

Existing Onsite Basins:
The existing site was analyzed as seven basins, based upon the soil groups and the direction that the site drains. The majority of the existing property slopes from south-west to north-east, where most of the runoff enters the existing large depressions (excavated holes). If the existing depressions were to fill up with storm water runoff, the water would leave the site in a south-east direction towards Nye Lane. A summary table of the existing potential runoff is provided in Table 2 (See Appendix C).

Table 2. Existing Conditions Summary Table of Peak Runoff

Design Area	Direction of Discharge	5 year 24 hr Flow (cfs)	25 year 24 hr Flow (cfs)	100 year 24 hr Flow (cfs)
Far S-E Side	To Nye Lane	0.01	0.11	0.26
S-E Pathway	To Nye Lane	0.00	0.00	0.02
Southern Pathway & Channel	To Nye Lane	0.00	0.00	0.05
Sub-Total Directly to Nye (bypass holes)		**0.01**	**0.11**	**0.33**
Middle West	From S-W to N-E into hole	0.01	0.03	0.06
North East	From N-W to S-E into hole	0.21	0.70	1.28
N-S East Side	From N-W to S-E into hole	0.32	1.06	1.95
West to East Main	From S-W to N-E into hole	0.00	0.03	0.41
Sub-Total to the Existing Holes		**0.54**	**1.82**	**3.70**
Total Potential Outflow to Nye Lane		**0.55**	**1.93**	**4.03**

Due to the existing excavated depressions (the "holes"), the water basically ponds onsite and infiltrates or evaporates before it has a chance to leave the site, except for the small amount that bypasses the depressed areas.

Proposed Drainage System

The post-development condition has been analyzed as multiple basins and these basins can be seen on a drainage plan in Appendix D. The site is broken down so that the runoff from the parcels and streets is directed to one of three detention basins. The detention basins will settle out sediment and debris and will mitigate the runoff from the improvements (See Appendix D). The detention basins will ultimately discharge into the existing storm drain system in the south-east corner of the site. This existing storm drain system runs East in West Nye Lane to the corner of West Nye Lane and North Carson Street.

The existing 24" RCP storm drain system will continue to be perpetuated through the site, but it will be relocated within a new easement in the north-east corner and then within the proposed streets. It will tie back into the existing manhole within Nye Lane in the south-east corner of the site, as it does in the existing condition. This system is utilized as the outlet of each of the detention basins, once the runoff has been mitigated. During the proposed condition analysis the 4.80 cfs described earlier is considered flow which is already in the relocated 24" RCP, from the time it enters the site until it leaves the site, as if the pipe were constantly running this flow, although in reality it does not do this. The existing system handles the existing flow plus the proposed flow without a problem.

Carson City has asked that the runoff from the proposed improvements from this Planned Unit Development (PUD) be limited due to the existing depressions which currently hold the water and due the inadequacy of the storm drain system at the intersection of North Carson Street and Nye Lane. The proposed storm drain system attempts to collect all of the runoff from the site and to mitigate it through the three detention basins. Recognizing that detention is preferred over retention, each of the detention basins will have a low flow outlet and an overflow spillway. This means that the flow out of the site was not eliminated, but it was reduced up to the 25 year 24 hour storm event.

All of the parcels will slope to the street at a 2% slope for at least the first 20' of the lot and then many of the lots will have the remainder of the site slope to valley gutters that run along the back of the lots. If the water enters the street it will be carried in proposed curb and gutter until it reaches a drop inlet or a curb cut, where it will be taken to one of the detention basins. The valley gutters along the back of the lots also collect runoff until they have come to a logical point of discharge where the storm water is carried in a pipe to one of the detention basins. The valley gutters will have a system of

controls at the pipes which will help to direct the water into the pipes, but will also allow the excess water to weir over and down the system to the next outlet pipe.

The site is broken down into three main areas of collection, the west, north-east and south-east. The west side drains towards the middle of the PUD, towards the parking areas which are located on both sides of Park Place Court. The water is collected in either drop inlets or curb cuts that then direct the runoff into a large detention basin that is in reality two detention basins directly connected to one another. The detention basin outlets into a 15" storm drain system that carries the water to the north-east to the intersection of Park Place Court and Boardwalk Drive where it ties into the offsite 24" RCP. The analysis shows that the basin does not fill to the point where it spills back into Park Place Court, however, the detention basin can spill back into Park Place Court from a curb cut that is utilized to accept the street drainage during lesser events.

The north-east area is split between draining to the south-west towards the parking area and to the back of the lots and into a concrete valley gutter. The water from the valley gutter in the back of the lots is carried to the front of the lots in a pipe between lots 12 and 13 and is connected to a proposed drop inlet within the street. Whichever way the water drains, it is eventually collected and sent to the detention basin in the north-east area. The detention basin outlets into a 15" storm drain system that is tied directly into the offsite 24" RCP. The analysis shows that the basin does not fill to the point where it spills back into Park Place Court, however, the detention basin can spill back into Park Place Court from a curb cut that is utilized to accept the street drainage during lesser events.

The south-east area mainly drains to the back of the lots to the proposed valley gutters and eventually into a detention basin in the south-east area of the site. The water from the valley gutters in the back of the lots is carried to the front of the lots in pipes, and this occurs at several locations, including lot 6, lots 14 and 15, lots 18 and 19, and the south of lot 22. Each of these pipes connect to a proposed drop inlet. Additionally, the valley gutters running along the back of lots 23 to 26 drain directly into the detention basin. The detention basin has two outlets which tie into an 18" storm drain system that is tied directly into the offsite 24" RCP near Nye Lane. The overflow spillway will be located in the south-east corner of the detention basin and will carry the excess flow to the east into Nye Lane. The water which enters Nye Lane will end up at the intersection of Nye Lane and North Carson Street. This detention basin has a low flow outlet and a medium range outlet. The two outlets are necessary to reduce the flow during the lesser storm events and maintain integrity during the larger events. The spillway is located in the south-east corner of the detention basin and will be used in the 100 year 24 hour event.

The existing pathway has been setup to take offsite flow from the west, from the Silver Oak Golf Course hole number 11. The overflow water is directed within the pathway by some existing berming on each side of the pathway the majority of the way to Nye Lane. The existing pathway will be left at its original elevation, however, the existing berming will be removed in the area near the detention basin. This will mean that some of the offsite drainage can enter into the detention basin in the south-east corner of the site, before it enters Nye Lane. However, in looking at the existing grades, the rim of the detention basin is higher than the existing elevations in Nye Lane, so it is more likely that the majority of the water will head directly into Nye Lane. As a precaution, special grading should be provided near the property lines and/or setting the houses in this area at a slightly higher elevation to provide additional protection from the potential offsite flow. Keep in mind that the pathway being used to carry off-site storm water will only be used during large storm events which have caused hole number 11 to overflow, which means events in the range of a 100 year event or larger.

The street section is 26' from back of curb to back of curb (just under 12' from flowline to centerline). The street will have Type 2 curb and gutter on both sides (and in some cases a 6' wide valley gutter) and this will allow the water to collect and be directed within the PUD. The streets and storm drain collection system were designed to carry the storm water runoff and keep a 12' wide emergency access lane centered within the street section. A normal depth analysis was run using FHWA Hydraulic Toolbox with a street at a 0.50% longitudinal slope and a 2% cross-slope estimated that each side of the street

has a capacity of 0.63 cfs with a spread of 5.83'. (See Appendix F) In an effort to protect the proposed lots, the entire street layout has been designed to slope from Oak Ridge Drive to West Nye Lane. What this means, is that if the detention basins are overwhelmed, the storm water will overflow into the street and be directed to Nye Lane.

A summary of the defined sub-basins are shown in Tables 3 to 5 with a summary of the outflow of all three basins in Table 6.

Table 3: Summary of the Outflow from the Detention Basin in the North-East Area

Design Area	Direction of Discharge	5 year 24 hr Flow (cfs)	25 year 24 hr Flow (cfs)	100 year 24 hr Flow (cfs)
South-West Area, North Side of Park Place Court				
Sub-01	Lot 1: To the East to the Road	0.12	0.29	0.46
Sub-02	Lot 2, 3: To Valley Gutter near Park	0.00	0.03	0.08
Sub-03	Lot 4, 5: To Valley Gutter near Park	0.17	0.35	0.55
Sub-08	Roadway near Lot 1 including Park Pl	0.35	0.49	0.63
Sub-09	Roadway near Lot 3 including parking	0.19	0.30	0.35
Sub-10	Detention Basin, West basin	0.00	0.08	0.01
Sub-12	Roadway near Lot 4, 5 including parking	0.21	0.30	0.38
Sub-13	Roadway near Lot 5, 6	0.06	0.08	0.10
Sub-14	Detention Basin, East basin	0.00	0.00	0.01
Sub-21	Park Place Court North side to Detention	0.18	0.26	0.33
Sub-75	Lot 2, 3: To Roadway	0.00	0.00	0.00
Sub-76	Lot 4, 5: To Roadway	0.00	0.00	0.05
Sub Total South-West Area, North Side		**1.28**	**2.18**	**2.95**
South-West Area, South Side of Park Place Court				
Sub-15	Lot 31: To Roadway	0.00	0.02	0.05
Sub-16	Lot 29, 30: To the North to the Road	0.00	0.08	0.23
Sub-17	Median Island between Park Pl & Parking	0.00	0.00	0.00
Sub-18	Roadway near Lot 29, 30 including parking	0.21	0.30	0.38
Sub-19	Roadway near Lot 29 including parking	0.04	0.06	0.08
Sub-20	Lot 28: To Park Place Court Roadway	0.00	0.05	0.13
Sub-77	Park Place Court near Entrance	0.11	0.16	0.20
Sub-78	Park Place Court by Parking Area	0.14	0.20	0.25
Sub-84	Park Place Court by Lot 28	0.08	0.12	0.15
Sub Total South-West Area, South Side		**0.58**	**0.99**	**1.47**
Total Into West Detention Basins		**1.86**	**3.17**	**4.42**
Detention Basin Low Flow Outlet (Elev. 4738.00)		0.04	0.04	0.04
Detention Basin Spillway (Elev. 4740.85)		0.00	0.00	0.00
Total Out from Detention to 24" RCP		0.04	0.04	0.04

Table 4: Summary of the Outflow from the Detention Basin in the South-East Area

Design Area	Direction of Discharge	5 year 24 hr Flow (cfs)	25 year 24 hr Flow (cfs)	100 year 24 hr Flow (cfs)
South-East Area, Off of Boardwalk Drive				
Sub-04	Near Lot 6: To Park Place Court	0.00	0.02	0.05
Sub-05	Lot 6: To Valley Gutter near Park	0.11	0.19	0.27
Sub-22	Lot 27 to 28: To S-E Basin	0.00	0.03	0.08
Sub-23	East side of Roadway by Lot 25 to 27	0.03	0.04	0.05
Sub-24	North-West side of Roadway by Lot 6	0.17	0.24	0.30
Sub-25	Lot 25: To the Valley Gutter at back	0.00	0.03	0.08
Sub-26	South-East side of Roadway by Lot 25	0.10	0.14	0.18
Sub-27	South-West side of Roadway by Lot 6	0.10	0.14	0.18
Sub-38	North-East side of Roadway by Lot 13, 14	0.17	0.24	0.30
Sub-39	Lot 14: To the Valley Gutter at back	0.20	0.34	0.49
Sub-40	Lot 16: To the Valley Gutter at back	0.01	0.02	0.03
Sub-44	Lot 24: To Boardwalk Drive to East	0.00	0.02	0.06
Sub-45	Lot 24: To Boardwalk Drive to North	0.00	0.01	0.02
Sub-46	Lot 23, 24: To the Valley Gutter at back	0.00	0.02	0.07
Sub-47	Lot 23: To Boardwalk Drive to East	0.00	0.03	0.07
Sub-48	S-E Detention Basin and Channel	0.01	0.06	0.16
Sub-49	Lot 18: To the Valley Gutter at back	0.03	0.10	0.20
Sub-50	N-W side of Roadway by Lot 15 to 18	0.12	0.18	0.23
Sub-51	South-East side of Roadway by Lot 24, 25	0.11	0.16	0.20
Sub-52	Lot 19, 20: To the Valley Gutter at back	0.00	0.04	0.10
Sub-54	West side of Roadway by Lot 23, 24	0.11	0.16	0.20
Sub-55	Parking area to Boardwalk Drive	0.08	0.12	0.15
Sub-56	East side of Roadway by Lot 19 to 22	0.12	0.18	0.23
Sub-57	Lot 20: To the Valley Gutter at back	0.00	0.02	0.06
Sub-58	Lot 21: To the Valley Gutter at back	0.00	0.03	0.10
Sub-61	Lot 22: To the Valley Gutter at back	0.00	0.03	0.10
Sub-67	Lot 15: To the Valley Gutter at back	0.12	0.21	0.29
Sub-68	Lot 17: To the Valley Gutter at back	0.17	0.29	0.41
Sub-69	Lot 16 to 18: To Boardwalk Drive to South	0.21	0.37	0.52
Sub-70	Lot 15: To Boardwalk Drive to South	0.01	0.01	0.02
Sub-73	Lot 26: To the Valley Gutter at back	0.00	0.05	0.13
Sub-74	Lot 25 to 27: West side into Park Place Court	0.00	0.00	0.01
Sub-79	Lot 28: To back into ditch	0.00	0.01	0.04
Sub-85	Lot 23: To Parking into Boardwalk Drive	0.00	0.00	0.02
Sub-86	Lot 19 to 22: To Boardwalk Drive	0.00	0.03	0.07
Sub-90	Lot 13, 14: To the Roadway	0.00	0.02	0.06
Sub-91	South-West side of Roadway by Lot 6	0.00	0.00	0.00
Sub-92	Existing Pathway to the S-E Detention	0.00	0.00	0.05
Sub-93	Existing Pathway to Nye Lane	0.02	0.03	0.05
Total Into South-East Detention Basin		**2.0**	**3.61**	**5.63**
Detention Basin Low Flow Outlet (Elev. 4733.50)		0.28	0.36	0.36
Detention Basin Mid-Level Outlet (Elev. 4735.80)		0.00	0.63	3.72
Detention Basin Spillway (Elev. 4736.00)		0.00	0.00	0.48
Total Out from Detention to 24" RCP		0.28	0.99	4.56

Table 5: Summary of the Outflow from the Detention Basin in the North-East Area

Design Area	Direction of Discharge	5 year 24 hr Flow (cfs)	25 year 24 hr Flow (cfs)	100 year 24 hr Flow (cfs)
North-East Area, At End of Park Place Court				
Sub-29	Lot 8: To the Valley Gutter N-E Corner	0.20	0.35	0.50
Sub-30	Lot 9: To the Valley Gutter at back	0.21	0.37	0.52
Sub-31	Roadway near Lot 9, 10 including parking	0.21	0.30	0.38
Sub-32	Median Island by Parking	0.01	0.02	0.03
Sub-33	Lot 10: To the Valley Gutter at back	0.09	0.16	0.22
Sub-34	Lot 11: To the Valley Gutter at back	0.13	0.22	0.32
Sub-35	Roadway near Lot 12	0.04	0.06	0.08
Sub-36	Lot 13: To the Valley Gutter at back	0.13	0.22	0.32
Sub-37	Detention Basin, including unimproved	0.29	0.53	0.78
Sub-65	Lot 7: To the Valley Gutter at back	0.17	0.29	0.41
Sub-66	Lot 12: To the Valley Gutter at back	0.14	0.25	0.35
Sub-80	Roadway near Lots 7, 8, & Easement	0.15	0.22	0.28
Sub-81	Roadway between Parking & Detention	0.14	0.20	0.25
Sub-82	Roadway between Lot 11, 12 & Detention	0.15	0.22	0.28
Sub-87	Lot 7, 8, & Easement: To Roadway	0.05	0.08	0.11
Sub-88	Lot 9, 10: To Roadway	0.06	0.11	0.15
Sub-89	Lot 11, 12: To Roadway	0.06	0.11	0.15
Total Into North-East Detention Basin		**2.23**	**3.71**	**5.13**
Detention Basin Low Flow Outlet (Elev. 4736.50)		0.03	0.04	0.04
Detention Basin Spillway (Elev. 4740.02)		0.00	0.00	0.00
Total Out from Detention to 24" RCP		0.03	0.04	0.04

Table 6: Summary of the Outflow from all the Detention Basins

Name of Detention Basins	5 year 24 hr Flow (cfs)	25 year 24 hr Flow (cfs)	100 year 24 hr Flow (cfs)
West Detention Basins	0.04	0.04	0.04
North-East Detention Basins	0.03	0.04	0.04
South-East Detention Basins	0.28	0.99	4.56
Total Out from Detention to 24" RCP	0.35	1.07	4.64

The proposed system does reduce the flow from the proposed condition versus the existing condition up to the flows generated during the 25 year 24 hour storm event. Unfortunately, the proposed system does not completely eliminate the flow from the site, as it does in the existing condition. However, it does reduce it below the flows that would have runoff the site if the man made depressions did not exist. During the 100 year 24 hour storm event, the flow is increased by 0.61 cfs for the proposed condition versus the existing condition. According to the Carson City Division 14 Ordinance 14.1.8, "Local detention storage for land development...Onsite detention storage shall be sized to detain sufficient runoff to limit flows from a five (5) year storm (Q5) to their predevelopment condition." Most storm drain systems are not designed to mitigate the 100 year 24 hour storm event, rather they are designed to manage the flow at these larger storm events so that it is directed safely away from structures and into a logical point of discharge. In this case, the logical point of discharge is Nye Lane

and this is where the spillway will direct the excess water.

Conclusions

This drainage report has been prepared to address the drainage related to the proposed improvements for the Silver Oak Phase 21 Planned Unit Development. This report estimates the quantity of runoff generated during three storm events for both the pre- and post-development. The report describes a method for reducing the post-development runoff up to the 25 year 24 hour storm event to below the pre-development flow rate. Three detention basins are proposed within three major collection areas of the site. Storm water in excess of the detention basins will overflow their spillways and direct storm water into the streets, where it heads to West Nye Lane. The analysis shows that two of the three detention basins do not overflow their spillways in the 100 year 24 hour storm event and the third basin spills less than 0.50 cfs over its spillway in the 100 year event. The development will mitigate its flow and should not have a detrimental effect on downstream properties. The proposed drainage improvements and drainage study are in compliance with the Carson City Municipal Code and the Carson City development standards and the Federal Emergency Management Agency standards.

END OF DOCUMENT

Tentative Map for Silver Oak Phase 21 PUD

2951 Oak Ridge Drive, APN: 007-462-12
Carson City Nevada

PROJECT DATA :

ASSESSOR PARCEL NUMBER:	007-462-12
TOTAL SITE AREA:	348,107 SF (7.99 AC)
TOTAL LOT AREA:	208,326 SF (4.78 AC)
AVERAGE LOT SIZE:	6,720 SF (0.15 AC)
CURRENT ZONING:	SF12-P
PROPOSED ZONING:	SF12-P

SILVER OAK OVERALL DATA :

TOTAL PROJECT:	612 AC
TOTAL APPROVED UNITS:	1057
TOTAL BUILT UNITS IN COMPLETED PHASES:	606
TOTAL ALLOWED UNITS IN COMPLETED PHASES:	692
DENSITY UNITS ALLOWED BUT UNUSED IN COMPLETED PHASES (REMAINING):	86
UNITS USED IN THIS PHASE (FROM REMAINING):	31

PROJECT LOCATION :

THE PROPERTY LIES IN THE NORTH EAST $\frac{1}{4}$ OF SECTION 7 OF TOWNSHIP 15 NORTH, RANGE 20 EAST,

OPEN SPACE :

ALL OPEN SPACE AND LANDSCAPED AREAS WILL BE UNDER THE CARE OF THE SILVER OAK COMMUNITY ASSOCIATION.

TOPOGRAPHIC SURVEY :

TRI STATE SURVEYING, LTD
STAMPED BY CHARLES KEN IWAMURA, PLS.
DATES OF TOPOGRAPHIC MAPPING, JUNE 20, 24, 25, 2013 AND APRIL 4, 2014.

BASIS OF BEARING

THE BASIS-OF-BEARING FOR THIS PROJECT IS IDENTICAL TO THAT RECORD OF SURVEY OF THE 2010 CARSON CITY CONTROL NETWORK, MAP No. 2749, OFFICIAL RECORD OF CARSON CITY, NEVADA. A COMBINED SCALE FACTOR OF 1.0002 WAS USED FOR GRID TO GROUND CONVERSION OF STATE PLANE COORDINATES.

BASIS OF ELEVATION

ELEVATIONS FOR THIS PROJECT ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

THE BENCHMARK INFO: FOUND BRASS DISK SET ON CURB "CC029" OF 2010 CARSON CITY CONTROL NETWORK, ELEVATION=4732.41'.

CALL BEFORE YOU DIG
UNDERGROUND SERVICE ALERT

OWNER/DEVELOPER :

Silver Oak Development, L.P.
3075 College Drive
Carson City, Nevada 89703
(775) 882-6302 (PH)

CIVIL ENGINEER :

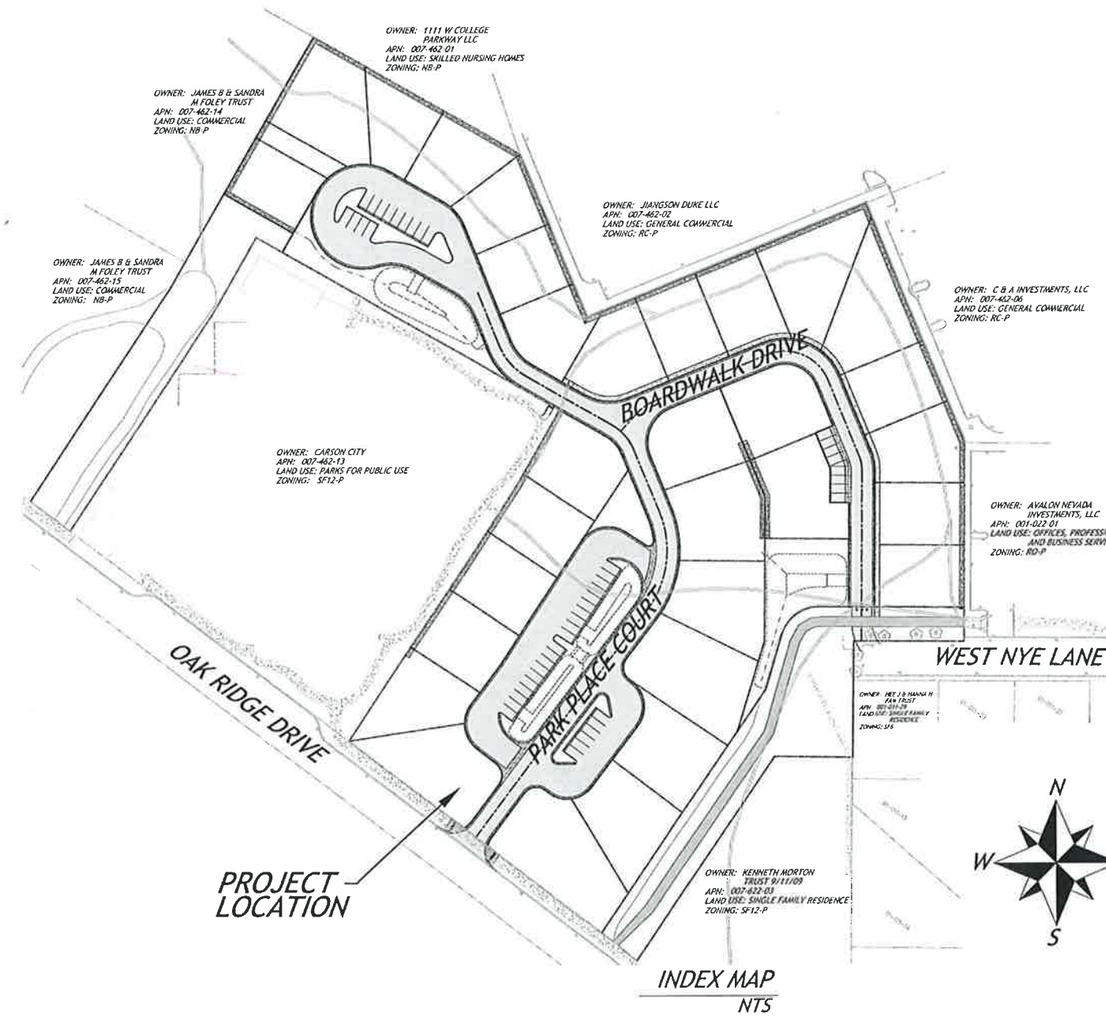
Brian A. Matthews, P.E.
245 Como Lane
Dayton, Nevada 89401
(775) 230-8125 (PH)

ZONING :

ZONE: SF12-P (SINGLE FAMILY 12,000 sqft)
SETBACKS
FRONT: 20' SIDES: 5'
REAR: 10' STREET SIDE: 5'
DENSITY: 4 UNITS TO THE ACRE

FLOOD ZONE :

FEMA FIRM 3200010084F
ZONE X (WITH LEVEE)
DATED: FEBRUARY 19, 2014
FEMA FIRM 3200010092F
ZONE X (WITH LEVEE)
DATED: FEBRUARY 19, 2014



INDEX MAP
NTS

VICINITY MAP
NTS

SHEET INDEX :

IMPROVEMENT PLANS:

C1	TITLE SHEET
C2	SITE PLAN
C3	GRADING AND UTILITY PLAN
C4	EROSION CONTROL PLAN
C5	CIRCULATION PATTERN

ABBREVIATIONS

AC.....ASPHALTIC CONCRETE	LF.....LINEAL FEET
AGG.....AGGREGATE	LT.....LEFT
APPROX.....APPROXIMATELY/ APPROXIMATE	MH.....MANHOLE
B/W.....BACK OF WALK	NTS.....NOT TO SCALE
BFC.....BACK FACE CURB	OH.....OVERHEAD
BFW.....BACK FACE WALL	P.E.....POLY-ETHYLENE
BTWN.....BETWEEN	PROP.....PROPOSED
BOWFG.....FINISH GRADE AT BOTTOM OF WALL	P/L.....PROPERTY LINE
CC.....CARSON CITY	PVC.....POLYVINYL CHLORIDE PIPE
CG.....CURB AND GUTTER	P/VMT.....PAVEMENT
C/L.....CENTERLINE	R/W.....RIGHT OF WAY
CATV.....CABLE TELEVISION	S.....SLOPE
CONC.....CONCRETE	SD.....STORM DRAIN
CONST.....CONSTRUCT	SDMH.....STORM DRAIN MANHOLE
DW.....DRIVEWAY	SHT.....SHEET
ELEC.....ELECTRIC	SS.....SANITARY SEWER
ELEV.....ELEVATION	SSCO.....SANITARY SEWER CLEAN OUT
EP.....EDGE OF PAVEMENT	SSMH.....SANITARY SEWER MANHOLE
ESMT.....EASEMENT	ST.....STREET
EX.....EXISTING	S/W.....SIDEWALK
FFC.....FRONT FACE OF CURB	TBD.....TO BE DETERMINED
FG.....FINISH GRADE	TC.....TOP OF CURB
FH.....FIRE HYDRANT	TELE.....TELEPHONE
FL.....FLOW LINE	TOW.....TOP OF WALL
G.....GAS	TYP.....TYPICAL
GB.....GRADE BREAK	UG.....UNDERGROUND
GND.....GROUND	W.....WATER
GRD.....GRADE	W/.....WITH
GV.....GAS VALVE	WM.....WATER METER
LAT.....LATERAL	W/M.....WATER MAIN

NOTE: ALL ABBREVIATIONS MAY NOT BE USED IN THIS SET OF PLANS

LEGEND

- RIGHT-OF-WAY
- EX FENCE
- PROP FENCE
- EX PROPERTY LINE
- PROP PROPERTY LINES
- STORM DRAIN MAIN
- SANITARY SEWER MAIN
- WATER MAIN
- ROADWAY CENTERLINE
- EX 1' CONTOUR LINE
- EX 5' CONTOUR LINE
- EX RETAINING WALL
- CONCRETE
- ASPHALT

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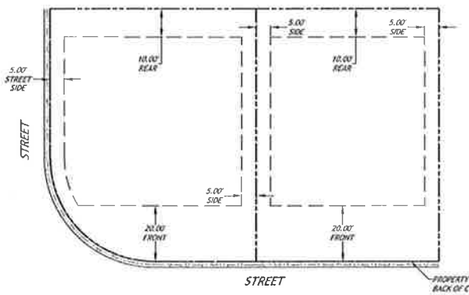
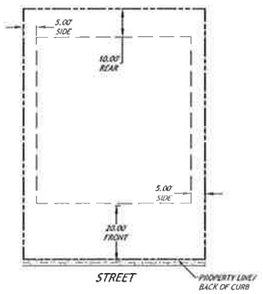
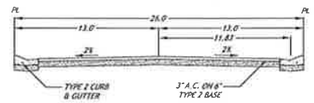


TYPICAL STREET SIDE SETBACKS
SCALE: N.T.S.

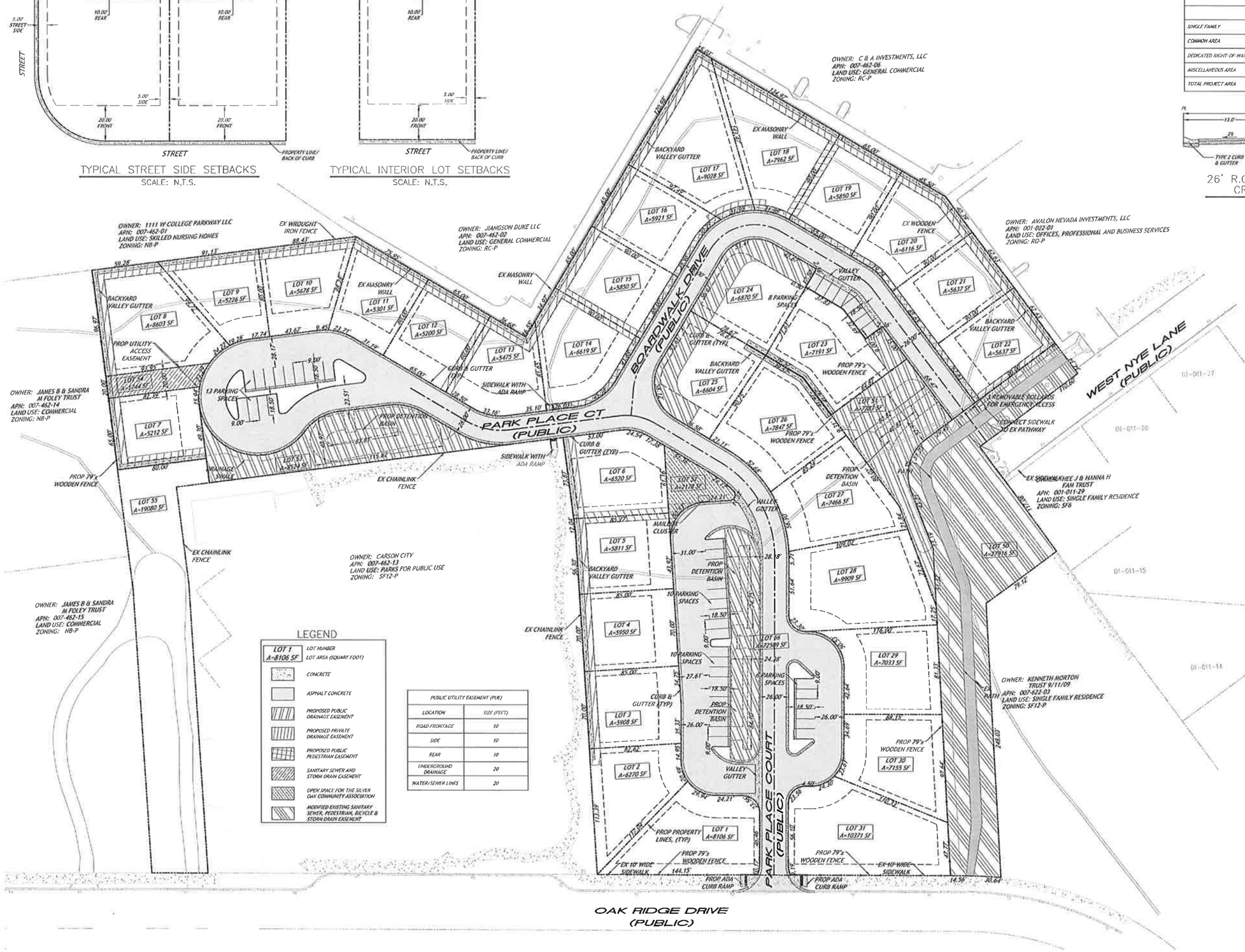


TYPICAL INTERIOR LOT SETBACKS
SCALE: N.T.S.

SUMMARY TABLE		
	NUMBER OF PARCELS	TOTAL SQUARE FOOTAGE
SINGLE FAMILY	31	208,326
COMMON AREA	1	2,178
DEDICATED RIGHT-OF-WAY	4	90,560
MISCELLANEOUS AREA	2	47,043
TOTAL PROJECT AREA	38	348,107



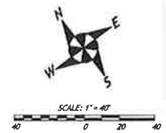
26' R.O.W. LOCAL STREET CROSS-SECTION
SCALE: N.T.S.



LEGEND

LOT 1 A=8106 SF	LOT NUMBER / LOT AREA (SQUARE FOOT)
	CONCRETE
	ASPHALT CONCRETE
	PROPOSED PUBLIC DRAINAGE EASEMENT
	PROPOSED PRIVATE DRAINAGE EASEMENT
	PROPOSED PUBLIC PEDESTRIAN EASEMENT
	SANITARY SEWER AND STORM DRAIN EASEMENT
	OPEN SPACE FOR THE SILVER OAK COMMUNITY ASSOCIATION
	MODIFIED EXISTING SANITARY SEWER, PEDESTRIAN, BICYCLE & STORM DRAIN EASEMENT

PUBLIC UTILITY EASEMENT (PUE)	
LOCATION	SIZE (FEET)
ROAD FRONTAGE	10
SIDE	10
REAR	10
UNDERGROUND DRAINAGE	20
WATER/SEWER LINES	20



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Silver Oak Development, L.P.
3075 College Drive
Carson City, NV 89703
PH (775) 882-6302

TENTATIVE SITE PLAN
APN: 007-462-12
SILVER OAK PHASE 21 - OAK RIDGE DRIVE
CARSON CITY NV

drawing information

DESIGNED BY: BAM
DRAWN BY:
CHECKED BY:
DATE: FEBRUARY 2016
DWG NAME: SITE PLAN.DWG
JOB #: 116-002-001
SCALE H: 1"=40'
SCALE V: N.A.
CITY APPROVAL:
DATE:

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of 5

OWNER: 1111 W COLLEGE PARKWAY LLC
APN: 007-462-01
LAND USE: SKILLED NURSING HOMES
ZONING: NB-P

OWNER: JIANGSON DUKE LLC
APN: 007-462-02
LAND USE: GENERAL COMMERCIAL
ZONING: RC-P

OWNER: C B A INVESTMENTS, LLC
APN: 007-462-06
LAND USE: GENERAL COMMERCIAL
ZONING: RC-P

OWNER: AVALON NEVADA INVESTMENTS, LLC
APN: 001-022-01
LAND USE: OFFICES, PROFESSIONAL AND BUSINESS SERVICES
ZONING: RO-P

OWNER: JAMES B & SANDRA M FOLEY TRUST
APN: 007-462-14
LAND USE: COMMERCIAL
ZONING: NB-P

OWNER: CARSON CITY
APN: 007-462-13
LAND USE: PARKS FOR PUBLIC USE
ZONING: SF12-P

OWNER: JAMES B & SANDRA M FOLEY TRUST
APN: 007-462-15
LAND USE: COMMERCIAL
ZONING: NB-P

OWNER: HEE J & HANNA H FAM TRUST
APN: 001-011-29
LAND USE: SINGLE FAMILY RESIDENCE
ZONING: SF6

OWNER: KENNETH MORTON TRUST 9/11/09
APN: 007-622-03
LAND USE: SINGLE FAMILY RESIDENCE
ZONING: SF12-P

LOT 1 FG=4744.50
LOT 2 FG=4744.50
LOT 3 FG=4744.00
LOT 4 FG=4743.50
LOT 5 FG=4742.50
LOT 6 FG=4742.00
LOT 7 FG=4742.50
LOT 8 FG=4743.50
LOT 9 FG=4744.00
LOT 10 FG=4743.50
LOT 11 FG=4743.00
LOT 12 FG=4743.00
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LOT 14 FG=4741.00
LOT 15 FG=4740.00
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LOT 25 FG=4740.50
LOT 26 FG=4741.50
LOT 27 FG=4742.00
LOT 28 FG=4742.50
LOT 29 FG=4744.50
LOT 30 FG=4745.00
LOT 31 FG=4745.50

BOARDWALK DRIVE
PARK PLACE COURT
PARK PLACE COURT
WEST NYE LANE
OAK RIDGE DRIVE

SCALE: 1" = 40'
40 0 20 40

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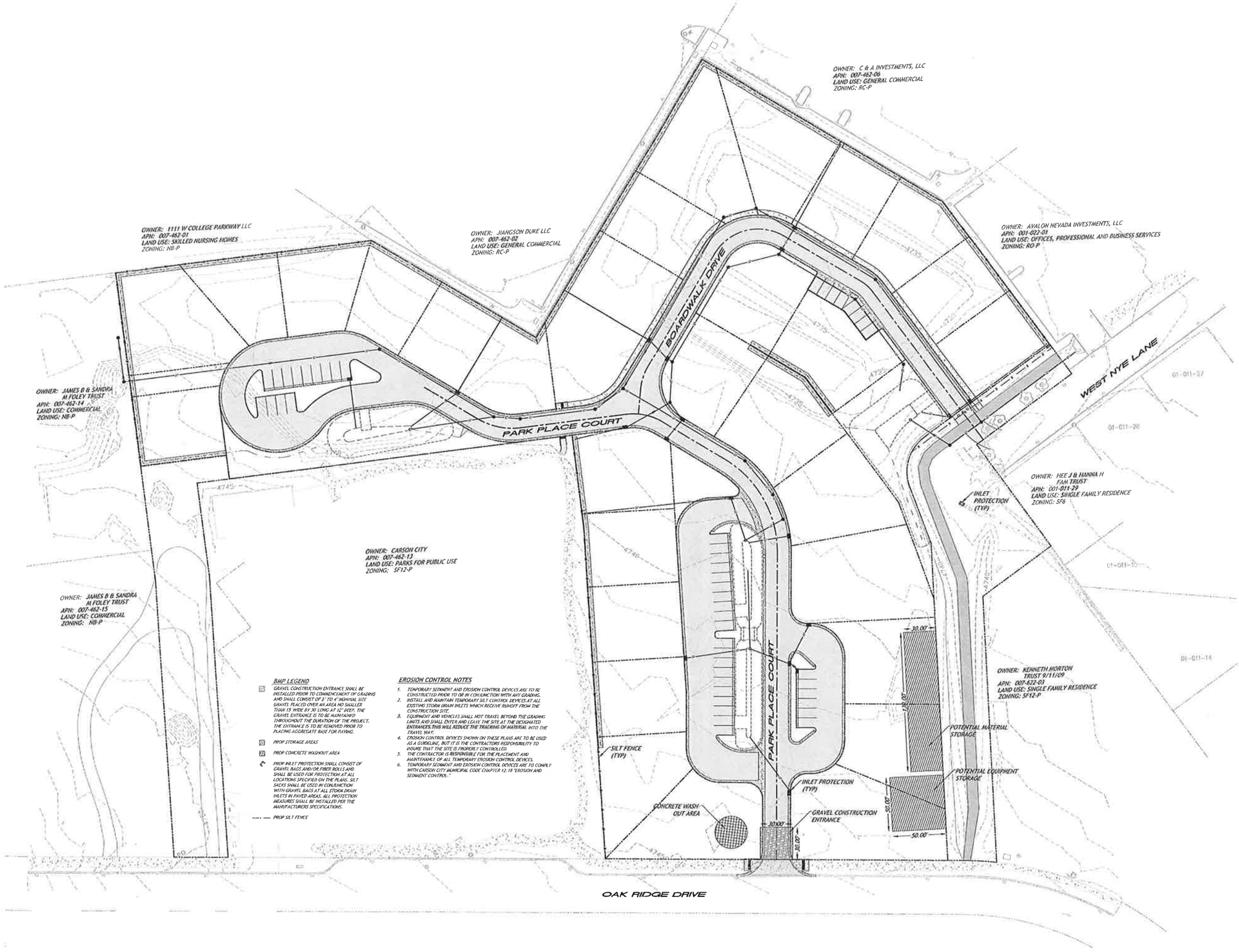
Silver Oak Development, L.P.
3075 College Drive
Carson City, NV 89703
PH (775) 882-6302

TENTATIVE GRADING AND UTILITY PLAN
APN: 007-462-12
SILVER OAK PHASE 21 - OAK RIDGE DRIVE
CARSON CITY NV

drawing information

DESIGNED BY: BAM
DRAWN BY:
CHECKED BY:
DATE: FEBRUARY 2016
DWG NAME: SITE PLAN.DWG
JOB #: 116-002-001
SCALE H: 1"=40'
SCALE V: N.A.
CITY APPROVAL:
DATE:

C3
of 5



BMP LEGEND

GRAVEL CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF GRADING AND SHALL CONSIST OF 3" TO 4" IN MINIMAL SIZE GRAVEL PLACED OVER AN AREA NO SMALLER THAN 15' WIDE BY 30' LONG AT 12" DEEP. THE GRAVEL ENTRANCE IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. THE ENTRANCE IS TO BE REMOVED PRIOR TO PLACING AGGREGATE BASE FOR PAVING.

PROP STORAGE AREAS

PROP CONCRETE WASHOUT AREA

PROP INLET PROTECTION SHALL CONSIST OF GRAVEL BAGS AND/OR FIBER ROLLS AND SHALL BE USED FOR PROTECTION AT ALL LOCATIONS SPECIFIED ON THE PLANS. SILT SACKS SHALL BE USED IN CONJUNCTION WITH GRAVEL BAGS AT ALL STORM DRAIN INLETS IN PAVED AREAS. ALL PROTECTION MEASURES SHALL BE INSTALLED PER THE MANUFACTURERS SPECIFICATIONS.

PROP SILT FENCE

EROSION CONTROL NOTES

1. TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ARE TO BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ANY GRADING.
2. INSTALL AND MAINTAIN TEMPORARY SILT CONTROL DEVICES AT ALL EXISTING STORM DRAIN INLETS WHICH RECEIVE RUNOFF FROM THE CONSTRUCTION SITE.
3. EQUIPMENT AND VEHICLES SHALL NOT TRAVEL BEYOND THE GRADING LIMITS AND SHALL ENTER AND LEAVE THE SITE AT THE DESIGNATED ENTRANCES. THIS WILL REDUCE THE TRACKING OF MATERIAL INTO THE TRAVEL WAY.
4. EROSION CONTROL DEVICES SHOWN ON THESE PLANS ARE TO BE USED AS A GUIDELINE, BUT IT IS THE CONTRACTORS RESPONSIBILITY TO INSURE THAT THE SITE IS PROPERLY CONTROLLED.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE PLACEMENT AND MAINTENANCE OF ALL TEMPORARY EROSION CONTROL DEVICES.
6. TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES ARE TO COMPLY WITH CARSON CITY MUNICIPAL CODE CHAPTER 12.18 "EROSION AND SEDIMENT CONTROL."

SCALE: 1" = 40'
40 0 20 40

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Silver Oak Development, L.P.
3075 College Drive
Carson City, NV 89703
PH (775) 882-6302

TENTATIVE EROSION CONTROL PLAN
APN: 007-462-12
SILVER OAK PHASE 21 - OAK RIDGE DRIVE
CARSON CITY NV

drawing information

DESIGNED BY: BAH
DRAWN BY:
CHECKED BY:
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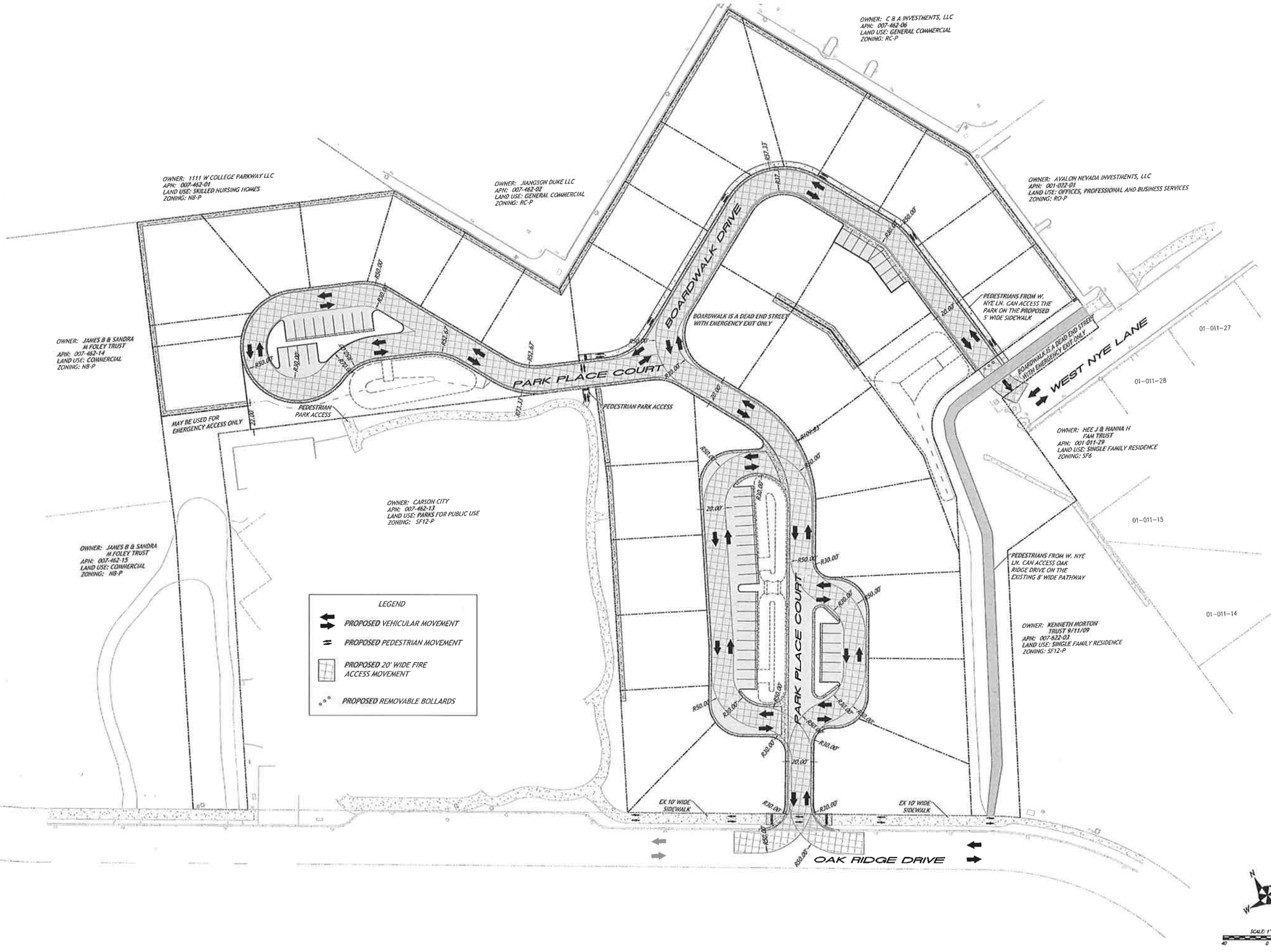

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Silver Oak Development, L.P.
3075 College Drive
Carson City, NV 89703
PH (775) 882-6302

TENTATIVE CIRCULATION PATTERN
APN: 007-462-12
SILVER OAK PHASE 21 - OAK RIDGE DRIVE
CARSON CITY NV

drawing information

DESIGNED BY: BAM
DRAWN BY:
CHECKED BY:
DATE: FEBRUARY 2016
DWG NAME: SITE PLAN.DWG
JOB #: 116-003-001
SCALE H: 1"=40'
SCALE V: N.A.
CITY APPROVAL:
DATE:

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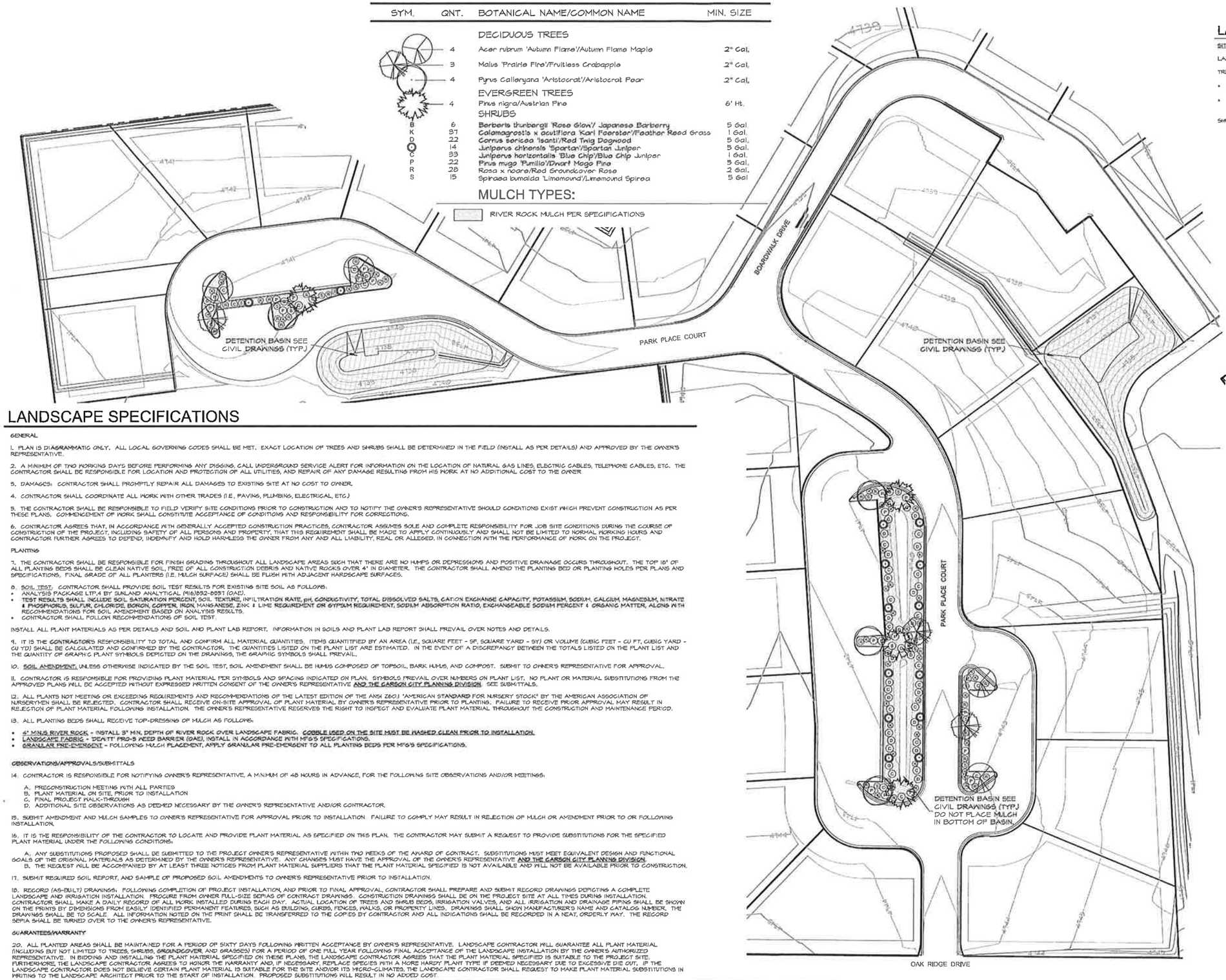
PLANT LEGEND

SYM.	QNT.	BOTANICAL NAME/COMMON NAME	MIN. SIZE
		DECIDUOUS TREES	
	4	Acer rubrum 'Autumn Flame'/Autumn Flame Maple	2" Cal.
	3	Malus 'Prairie Fire'/Fruitless Crabapple	2" Cal.
	4	Pyrus Calleryana 'Aristocrat'/Aristocrat Pear	2" Cal.
		EVERGREEN TREES	
	4	Pinus nigra/Austrian Pine	6' Ht.
		SHRUBS	
B	6	Berberis thunbergii 'Rose Glow'/ Japanese Barberry	5 Gal.
K	37	Calamagrostis x acutiflora 'Karl Foerster'/Feather Reed Grass	1 Gal.
D	22	Cornus sericea 'Isanti'/Red Twig Dogwood	5 Gal.
C	14	Juniperus chinensis 'Spartan'/Spartan Juniper	5 Gal.
C	33	Juniperus horizontalis 'Blue Chip'/Blue Chip Juniper	1 Gal.
P	22	Pinus mugo 'Pumilio'/Dwarf Mugo Pine	5 Gal.
R	28	Rosa x noare/Red Groundcover Rose	1 Gal.
S	15	Spiraea bumalda 'Limemound'/Limemound Spirea	5 Gal

MULCH TYPES:

RIVER ROCK MULCH PER SPECIFICATIONS



LANDSCAPE DATA

SITE AREA: 325,765 SF (7.48 ACRES)

LANDSCAPE AREA PROVIDED: 8,245 SF

TREES PROVIDED: 15

- 4 - PARKING AREA TREES (1 PER 10 PARKING SPACES: 34)
- 11 - STREET TREES (1 PER 30 LINEAL FEET OF STREET FRONTAGE: 330 LF)

SHRUBS PROVIDED: 146

LANDSCAPE SPECIFICATIONS

GENERAL

1. PLAN IS DIAGRAMMATIC ONLY. ALL LOCAL GOVERNING CODES SHALL BE MET. EXACT LOCATION OF TREES AND SHRUBS SHALL BE DETERMINED IN THE FIELD (INSTALL AS PER DETAILS) AND APPROVED BY THE OWNER'S REPRESENTATIVE.

2. A MINIMUM OF TWO WORKING DAYS BEFORE PERFORMING ANY DIGGING, CALL UNDERGROUND SERVICE ALERT FOR INFORMATION ON THE LOCATION OF NATURAL GAS LINES, ELECTRIC CABLES, TELEPHONE CABLES, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND PROTECTION OF ALL UTILITIES, AND REPAIR OF ANY DAMAGE RESULTING FROM HIS WORK AT NO ADDITIONAL COST TO THE OWNER

3. DAMAGES: CONTRACTOR SHALL PROMPTLY REPAIR ALL DAMAGES TO EXISTING SITE AT NO COST TO OWNER.

4. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES (I.E., PAVING, PLUMBING, ELECTRICAL, ETC.)

5. THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY SITE CONDITIONS PRIOR TO CONSTRUCTION AND TO NOTIFY THE OWNER'S REPRESENTATIVE SHOULD CONDITIONS EXIST WHICH PREVENT CONSTRUCTION AS PER THESE PLANS. COMMENCEMENT OF WORK SHALL CONSTITUTE ACCEPTANCE OF CONDITIONS AND RESPONSIBILITY FOR CORRECTIONS.

6. CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR ASSUMES SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS AND CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD HARMLESS THE OWNER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THE PROJECT.

PLANTING

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINISH GRADING THROUGHOUT ALL LANDSCAPE AREAS SUCH THAT THERE ARE NO HUMPS OR DEPRESSIONS AND POSITIVE DRAINAGE OCCURS THROUGHOUT. THE TOP 18" OF ALL PLANTING BEDS SHALL BE CLEAN NATIVE SOIL, FREE OF ALL CONSTRUCTION DEBRIS AND NATIVE ROCKS OVER 4" IN DIAMETER. THE CONTRACTOR SHALL AMEND THE PLANTING BED OR PLANTING HOLES PER PLANS AND SPECIFICATIONS. FINAL GRADE OF ALL PLANTERS (I.E. MULCH SURFACE) SHALL BE FLUSH WITH ADJACENT HARDSCAPE SURFACES.

8. SOIL TEST: CONTRACTOR SHALL PROVIDE SOIL TEST RESULTS FOR EXISTING SITE SOIL AS FOLLOWS:
- ANALYSIS PACKAGE LTP.4 BY SUNLAND ANALYTICAL (916)352-8951 (OAE).
- TEST RESULTS SHALL INCLUDE SOIL SATURATION PERCENT, SOIL TEXTURE, INFILTRATION RATE, pH, CONDUCTIVITY, TOTAL DISSOLVED SALTS, CATION EXCHANGE CAPACITY, POTASSIUM, SODIUM, CALCIUM, MAGNESIUM, NITRATE & PHOSPHORUS, SULFUR, CHLORIDE, BORON, COPPER, IRON, MANGANESE, ZINC & LIME REQUIREMENT OR GYPSUM REQUIREMENT, SODIUM ABSORPTION RATIO, EXCHANGEABLE SODIUM PERCENT & ORGANIC MATTER, ALONG WITH RECOMMENDATIONS FOR SOIL AMENDMENT BASED ON ANALYSIS RESULTS.
- CONTRACTOR SHALL FOLLOW RECOMMENDATIONS OF SOIL TEST.

INSTALL ALL PLANT MATERIALS AS PER DETAILS AND SOIL AND PLANT LAB REPORT. INFORMATION IN SOILS AND PLANT LAB REPORT SHALL PREVAIL OVER NOTES AND DETAILS.

9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TOTAL AND CONFIRM ALL MATERIAL QUANTITIES. ITEMS QUANTITIFIED BY AN AREA (I.E., SQUARE FEET - SF, SQUARE YARD - SY) OR VOLUME (CUBIC FEET - CU FT, CUBIC YARD - CU YD) SHALL BE CALCULATED AND CONFIRMED BY THE CONTRACTOR. THE QUANTITIES LISTED ON THE PLANT LIST ARE ESTIMATED. IN THE EVENT OF A DISCREPANCY BETWEEN THE TOTALS LISTED ON THE PLANT LIST AND THE QUANTITY OF GRAPHIC PLANT SYMBOLS DEPICTED ON THE DRAWINGS, THE GRAPHIC SYMBOLS SHALL PREVAIL.

10. SOIL AMENDMENT: UNLESS OTHERWISE INDICATED BY THE SOIL TEST, SOIL AMENDMENT SHALL BE HUMUS COMPOSED OF TOPSOIL, BARK HUMUS, AND COMPOST. SUBMIT TO OWNER'S REPRESENTATIVE FOR APPROVAL.

11. CONTRACTOR IS RESPONSIBLE FOR PROVIDING PLANT MATERIAL PER SYMBOLS AND SPACING INDICATED ON PLAN. SYMBOLS PREVAIL OVER NUMBERS ON PLANT LIST. NO PLANT OR MATERIAL SUBSTITUTIONS FROM THE APPROVED PLANS WILL BE ACCEPTED WITHOUT EXPRESSED WRITTEN CONSENT OF THE OWNER'S REPRESENTATIVE AND THE CARSON CITY PLANNING DIVISION. SEE SUBMITTALS.

12. ALL PLANTS NOT MEETING OR EXCEEDING REQUIREMENTS AND RECOMMENDATIONS OF THE LATEST EDITION OF THE ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN SHALL BE REJECTED. CONTRACTOR SHALL RECEIVE ON-SITE APPROVAL OF PLANT MATERIAL BY OWNER'S REPRESENTATIVE PRIOR TO PLANTING. FAILURE TO RECEIVE PRIOR APPROVAL MAY RESULT IN REJECTION OF PLANT MATERIAL FOLLOWING INSTALLATION. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO INSPECT AND EVALUATE PLANT MATERIAL THROUGHOUT THE CONSTRUCTION AND MAINTENANCE PERIOD.

13. ALL PLANTING BEDS SHALL RECEIVE TOP-DRESSING OF MULCH AS FOLLOWS:
- 4" MINUS RIVER ROCK - INSTALL 3" MIN. DEPTH OF RIVER ROCK OVER LANDSCAPE FABRIC. COBBLE USED ON THE SITE MUST BE WASHED CLEAN PRIOR TO INSTALLATION.
- LANDSCAPE FABRIC - 'DEWITT' PRO-5 WEED BARRIER (OAE), INSTALL IN ACCORDANCE WITH MFG'S SPECIFICATIONS.
- GRANULAR PRE-EMERGENT - FOLLOWING MULCH PLACEMENT, APPLY GRANULAR PRE-EMERGENT TO ALL PLANTING BEDS PER MFG'S SPECIFICATIONS.

OBSERVATIONS/APPROVALS/SUBMITTALS

14. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING OWNER'S REPRESENTATIVE, A MINIMUM OF 48 HOURS IN ADVANCE, FOR THE FOLLOWING SITE OBSERVATIONS AND/OR MEETINGS:

A. PRECONSTRUCTION MEETING WITH ALL PARTIES
B. PLANT MATERIAL ON SITE, PRIOR TO INSTALLATION
C. FINAL PROJECT WALK-THROUGH
D. ADDITIONAL SITE OBSERVATIONS AS DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE AND/OR CONTRACTOR.

15. SUBMIT AMENDMENT AND MULCH SAMPLES TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION. FAILURE TO COMPLY MAY RESULT IN REJECTION OF MULCH OR AMENDMENT PRIOR TO OR FOLLOWING INSTALLATION.

16. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROVIDE PLANT MATERIAL AS SPECIFIED ON THIS PLAN. THE CONTRACTOR MAY SUBMIT A REQUEST TO PROVIDE SUBSTITUTIONS FOR THE SPECIFIED PLANT MATERIAL UNDER THE FOLLOWING CONDITIONS:

A. ANY SUBSTITUTIONS PROPOSED SHALL BE SUBMITTED TO THE PROJECT OWNER'S REPRESENTATIVE WITHIN TWO WEEKS OF THE AWARD OF CONTRACT. SUBSTITUTIONS MUST MEET EQUIVALENT DESIGN AND FUNCTIONAL GOALS OF THE ORIGINAL MATERIALS AS DETERMINED BY THE OWNER'S REPRESENTATIVE. ANY CHANGES MUST HAVE THE APPROVAL OF THE OWNER'S REPRESENTATIVE AND THE CARSON CITY PLANNING DIVISION.
B. THE REQUEST WILL BE ACCOMPANIED BY AT LEAST THREE NOTICES FROM PLANT MATERIAL SUPPLIERS THAT THE PLANT MATERIAL SPECIFIED IS NOT AVAILABLE AND WILL NOT BE AVAILABLE PRIOR TO CONSTRUCTION.

17. SUBMIT REQUIRED SOIL REPORT, AND SAMPLE OF PROPOSED SOIL AMENDMENTS TO OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

18. RECORD (AS-BUILT) DRAWINGS: FOLLOWING COMPLETION OF PROJECT INSTALLATION, AND PRIOR TO FINAL APPROVAL, CONTRACTOR SHALL PREPARE AND SUBMIT RECORD DRAWINGS DEPICTING A COMPLETE LANDSCAPE AND IRRIGATION INSTALLATION. PROCURE FROM OWNER FULL-SIZE SEPIAS OF CONTRACT DRAWINGS. CONSTRUCTION DRAWINGS SHALL BE ON THE PROJECT SITE AT ALL TIMES DURING INSTALLATION. CONTRACTOR SHALL MAKE A DAILY RECORD OF ALL WORK INSTALLED DURING EACH DAY. ACTUAL LOCATION OF TREES AND SHRUB BEDS, IRRIGATION VALVES, AND ALL IRRIGATION AND DRAINAGE PIPING SHALL BE SHOWN ON THE PRINTS BY DIMENSIONS FROM EASILY IDENTIFIED PERMANENT FEATURES, SUCH AS BUILDING CORNERS, FENCES, WALKS, OR PROPERTY LINES. DRAWINGS SHALL SHOW MANUFACTURER'S NAME AND CATALOG NUMBER. THE DRAWINGS SHALL BE TO SCALE. ALL INFORMATION NOTED ON THE PRINT SHALL BE TRANSFERRED TO THE COPIES BY CONTRACTOR AND ALL INDICATIONS SHALL BE RECORDED IN A NEAT, ORDERLY WAY. THE RECORD SEPIA SHALL BE TURNED OVER TO THE OWNER'S REPRESENTATIVE.

GUARANTEES/WARRANTY

20. ALL PLANTED AREAS SHALL BE MAINTAINED FOR A PERIOD OF SIXTY DAYS FOLLOWING WRITTEN ACCEPTANCE BY OWNER'S REPRESENTATIVE. LANDSCAPE CONTRACTOR WILL GUARANTEE ALL PLANT MATERIAL (INCLUDING BUT NOT LIMITED TO TREES, SHRUBS, GROUNDCOVER, AND GRASSES) FOR A PERIOD OF ONE FULL YEAR FOLLOWING FINAL ACCEPTANCE OF THE LANDSCAPE INSTALLATION BY THE OWNER'S AUTHORIZED REPRESENTATIVE. IN BIDDING AND INSTALLING THE PLANT MATERIAL SPECIFIED ON THESE PLANS, THE LANDSCAPE CONTRACTOR AGREES THAT THE PLANT MATERIAL SPECIFIED IS SUITABLE TO THE PROJECT SITE. FURTHERMORE, THE LANDSCAPE CONTRACTOR AGREES TO HONOR THE WARRANTY AND, IF NECESSARY, REPLACE SPECIES WITH A MORE HARDY PLANT TYPE IF DEEMED NECESSARY DUE TO EXCESSIVE DIE OUT. IF THE LANDSCAPE CONTRACTOR DOES NOT BELIEVE CERTAIN PLANT MATERIAL IS SUITABLE FOR THE SITE AND/OR ITS MICRO-CLIMATES, THE LANDSCAPE CONTRACTOR SHALL REQUEST TO MAKE PLANT MATERIAL SUBSTITUTIONS IN WRITING TO THE LANDSCAPE ARCHITECT PRIOR TO THE START OF INSTALLATION. PROPOSED SUBSTITUTIONS WILL RESULT IN NO ADDED COST.

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Landscape Plan
OAK RIDGE DRIVE
Silver Oak Development
Carson City Nevada

No.	Revision Date

LA No. 601-501-01-16
Designed: BBB
Drawn: BBB
Checked: RJH
CAD File: LI-601-501
Date: 2/4/16

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DRIP IRRIGATION LEGEND

- **C** — HUNTER SINGLE STATION CONTROLLER: NODE-100, 9V BATTERY OPERATED CONTROLLER. INSTALL PER MANUFACTURES RECOMMENDATIONS.
- **M** — 5/8" INCH WATER METER - VERIFY SIZE AND LOCATION PER CIVIL DWGS.
- 3/4" REDUCED PRESSURE TYPE BACKFLOW PREVENTER: WILKENS 975XL (OAE). INSTALL PER DETAIL(S).
- MANUAL DRAIN VALVE: 3/4" BRASS GATE VALVE. (GRINNELL OR OAE) INSTALL AT ALL LOW POINTS ALONG MAINLINE
- BRASS GATE VALVE: GRINNELL (OAE) FOR MAINLINE ISOLATION. SAME SIZE AS MAINLINE.
- DRIP VALVE ASSEMBLY: FLOWS UP TO 3 GPM INSTALL RAIN BIRD XCZ-1F-100-PRF LOW FLOW DRIP KIT. FLOWS FROM 3-20 GPM INSTALL RAIN BIRD XCZ-PRB-100-COM DRIP KIT.
- QUICK COUPLER: RAIN BIRD 44-LRC, PROVIDE OWNER WITH TWO VALVE KEYS (RAIN BIRD 44-K). NOT SHOWN ON PLAN. INSTALL UPSTREAM OF DRIP VALVE ASSEMBLY (TYP.)
- # 23-1 / SIZE 1.50 GPM — VALVE I.D. - STATION #, VALVE SIZE, AND APPROX. G.P.M.

- MAINLINE: 1" INCH SCH. 40 PVC. INSTALL AT 24 INCH MINIMUM DEPTH.
- DRIP DISTRIBUTION TUBING: 3/4" RAIN BIRD XBS-BLACK STRIPE TUBING IRRIGATION TUBING WITH RAIN BIRD MDCFCAP REMOVABLE FLUSH CAP.
- SLEEVES: ALL IRRIGATION SLEEVES UNDER STREETS AND DRIVEWAYS SHALL BE 4 INCH MINIMUM SCH. 40 PVC. SLEEVES FOR DRIP TUBING UNDER SIDEWALKS MAY BE 2 INCH MINIMUM SCH. 40. PROVIDE ONE SLEEVE PER PIPE AND ONE SLEEVE FOR WIRING.
- VALVE BOXES (NOT SHOWN): ALL VALVES SHALL BE LOCATED IN RAIN BIRD PVB PROFESSIONAL SERIES VALVE BOXES PER DETAILS. NOTE: ANY BOXES LOCATED IN PAVED AREAS (IF NEEDED) SHALL BE TRAFFIC RATED CONCRETE.

EMITTER SCHEDULE

DECIDUOUS TREES
(4) RAIN BIRD XERI-BUG 2 GPH EMITTERS

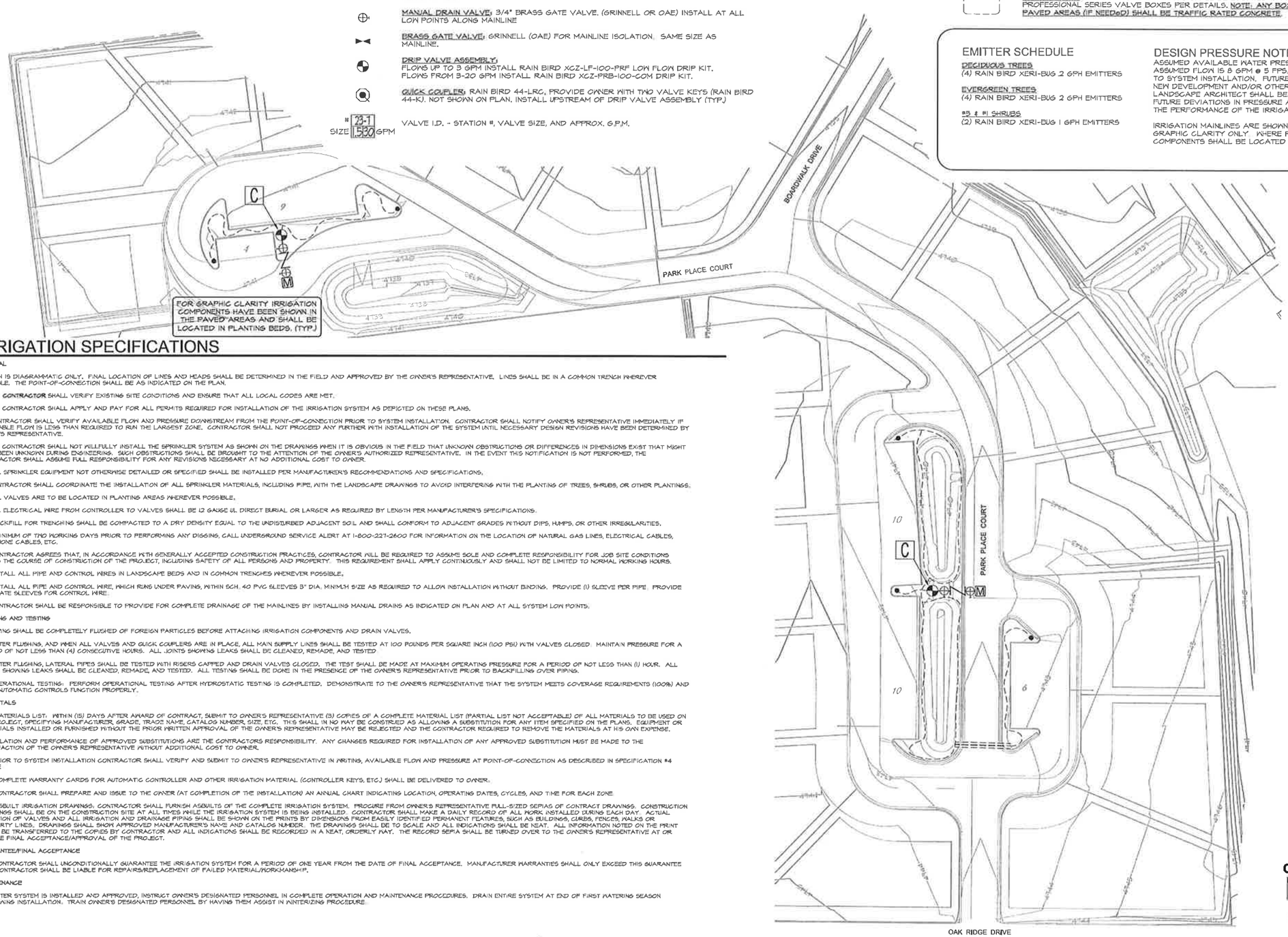
EVERGREEN TREES
(4) RAIN BIRD XERI-BUG 2 GPH EMITTERS

#5 & #1 SHRUBS
(2) RAIN BIRD XERI-BUG 1 GPH EMITTERS

DESIGN PRESSURE NOTE:

ASSUMED AVAILABLE WATER PRESSURE AT P.O.C. IS 65 PSI. ASSUMED FLOW IS 8 GPM @ 5 FPS. CONTRACTOR TO VERIFY PRIOR TO SYSTEM INSTALLATION. FUTURE PRESSURES MAY VARY DUE TO NEW DEVELOPMENT AND/OR OTHER UNFORESEEN CIRCUMSTANCES. LANDSCAPE ARCHITECT SHALL BEAR NO RESPONSIBILITY FOR FUTURE DEVIATIONS IN PRESSURE AND ANY RESULTING EFFECTS ON THE PERFORMANCE OF THE IRRIGATION SYSTEM.

IRRIGATION MAINLINES ARE SHOWN IN STREET/PAVED AREAS FOR GRAPHIC CLARITY ONLY. WHERE POSSIBLE, ALL IRRIGATION COMPONENTS SHALL BE LOCATED IN PLANTING BEDS.



IRRIGATION SPECIFICATIONS

GENERAL

1. PLAN IS DIAGRAMMATIC ONLY. FINAL LOCATION OF LINES AND HEADS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE OWNER'S REPRESENTATIVE. LINES SHALL BE IN A COMMON TRENCH WHEREVER POSSIBLE. THE POINT-OF-CONNECTION SHALL BE AS INDICATED ON THE PLAN.

2. THE **CONTRACTOR** SHALL VERIFY EXISTING SITE CONDITIONS AND ENSURE THAT ALL LOCAL CODES ARE MET.

3. THE CONTRACTOR SHALL APPLY AND PAY FOR ALL PERMITS REQUIRED FOR INSTALLATION OF THE IRRIGATION SYSTEM AS DEPICTED ON THESE PLANS.

4. CONTRACTOR SHALL VERIFY AVAILABLE FLOW AND PRESSURE DOWNSTREAM FROM THE POINT-OF-CONNECTION PRIOR TO SYSTEM INSTALLATION. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE IMMEDIATELY IF AVAILABLE FLOW IS LESS THAN REQUIRED TO RUN THE LARGEST ZONE. CONTRACTOR SHALL NOT PROCEED ANY FURTHER WITH INSTALLATION OF THE SYSTEM UNTIL NECESSARY DESIGN REVISIONS HAVE BEEN DETERMINED BY OWNER'S REPRESENTATIVE.

5. THE CONTRACTOR SHALL NOT WILLFULLY INSTALL THE SPRINKLER SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS OR DIFFERENCES IN DIMENSIONS EXIST THAT MIGHT HAVE BEEN UNKNOWN DURING ENGINEERING. SUCH OBSTRUCTIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY AT NO ADDITIONAL COST TO OWNER.

6. ALL SPRINKLER EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

7. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL SPRINKLER MATERIALS, INCLUDING PIPE, WITH THE LANDSCAPE DRAWINGS TO AVOID INTERFERING WITH THE PLANTING OF TREES, SHRUBS, OR OTHER PLANTINGS.

8. ALL VALVES ARE TO BE LOCATED IN PLANTING AREAS WHEREVER POSSIBLE.

9. ALL ELECTRICAL WIRE FROM CONTROLLER TO VALVES SHALL BE 12 GAUGE UL DIRECT BURIAL OR LARGER AS REQUIRED BY LENGTH PER MANUFACTURER'S SPECIFICATIONS.

10. BACKFILL FOR TRENCHING SHALL BE COMPACTED TO A DRY DENSITY EQUAL TO THE UNDISTURBED ADJACENT SOIL AND SHALL CONFORM TO ADJACENT GRADES WITHOUT DIPS, HUMPS, OR OTHER IRREGULARITIES.

11. A MINIMUM OF TWO WORKING DAYS PRIOR TO PERFORMING ANY DIGGING, CALL UNDERGROUND SERVICE ALERT AT 1-800-227-2600 FOR INFORMATION ON THE LOCATION OF NATURAL GAS LINES, ELECTRICAL CABLES, TELEPHONE CABLES, ETC.

12. CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO NORMAL WORKING HOURS.

13. INSTALL ALL PIPE AND CONTROL WIRES IN LANDSCAPE BEDS AND IN COMMON TRENCHES WHEREVER POSSIBLE.

14. INSTALL ALL PIPE AND CONTROL WIRE, WHICH RUNS UNDER PAVING, WITHIN SCH. 40 PVC SLEEVES 3" DIA. MINIMUM SIZE AS REQUIRED TO ALLOW INSTALLATION WITHOUT BINDING. PROVIDE (1) SLEEVE PER PIPE. PROVIDE SEPARATE SLEEVES FOR CONTROL WIRE.

15. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE FOR COMPLETE DRAINAGE OF THE MAINLINES BY INSTALLING MANUAL DRAINS AS INDICATED ON PLAN AND AT ALL SYSTEM LOW POINTS.

FLUSHING AND TESTING

16. PIPING SHALL BE COMPLETELY FLUSHED OF FOREIGN PARTICLES BEFORE ATTACHING IRRIGATION COMPONENTS AND DRAIN VALVES.

17. AFTER FLUSHING, AND WHEN ALL VALVES AND QUICK COUPLERS ARE IN PLACE, ALL MAIN SUPPLY LINES SHALL BE TESTED AT 100 POUNDS PER SQUARE INCH (100 PSI) WITH VALVES CLOSED. MAINTAIN PRESSURE FOR A PERIOD OF NOT LESS THAN (4) CONSECUTIVE HOURS. ALL JOINTS SHOWING LEAKS SHALL BE CLEANED, REMADE, AND TESTED.

18. AFTER FLUSHING, LATERAL PIPES SHALL BE TESTED WITH RISERS CAPPED AND DRAIN VALVES CLOSED. THE TEST SHALL BE MADE AT MAXIMUM OPERATING PRESSURE FOR A PERIOD OF NOT LESS THAN (1) HOUR. ALL JOINTS SHOWING LEAKS SHALL BE CLEANED, REMADE, AND TESTED. ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE PRIOR TO BACKFILLING OVER PIPING.

19. OPERATIONAL TESTING: PERFORM OPERATIONAL TESTING AFTER HYDROSTATIC TESTING IS COMPLETED. DEMONSTRATE TO THE OWNER'S REPRESENTATIVE THAT THE SYSTEM MEETS COVERAGE REQUIREMENTS (100%) AND THAT AUTOMATIC CONTROLS FUNCTION PROPERLY.

SUBMITTALS

20. MATERIALS LIST: WITHIN (15) DAYS AFTER AWARD OF CONTRACT, SUBMIT TO OWNER'S REPRESENTATIVE (3) COPIES OF A COMPLETE MATERIAL LIST (PARTIAL LIST NOT ACCEPTABLE) OF ALL MATERIALS TO BE USED ON THE PROJECT, SPECIFYING MANUFACTURER, GRADE, TRADE NAME, CATALOG NUMBER, SIZE, ETC. THIS SHALL IN NO WAY BE CONSTRUED AS ALLOWING A SUBSTITUTION FOR ANY ITEM SPECIFIED ON THE PLANS. EQUIPMENT OR MATERIALS INSTALLED OR FURNISHED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE MAY BE REJECTED AND THE CONTRACTOR REQUIRED TO REMOVE THE MATERIALS AT HIS OWN EXPENSE.

INSTALLATION AND PERFORMANCE OF APPROVED SUBSTITUTIONS ARE THE CONTRACTORS RESPONSIBILITY. ANY CHANGES REQUIRED FOR INSTALLATION OF ANY APPROVED SUBSTITUTION MUST BE MADE TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE WITHOUT ADDITIONAL COST TO OWNER.

21. PRIOR TO SYSTEM INSTALLATION CONTRACTOR SHALL VERIFY AND SUBMIT TO OWNER'S REPRESENTATIVE IN WRITING, AVAILABLE FLOW AND PRESSURE AT POINT-OF-CONNECTION AS DESCRIBED IN SPECIFICATION #4 ABOVE

22. COMPLETE WARRANTY CARDS FOR AUTOMATIC CONTROLLER AND OTHER IRRIGATION MATERIAL (CONTROLLER KEYS, ETC.) SHALL BE DELIVERED TO OWNER.

23. CONTRACTOR SHALL PREPARE AND ISSUE TO THE OWNER (AT COMPLETION OF THE INSTALLATION) AN ANNUAL CHART INDICATING LOCATION, OPERATING DATES, CYCLES, AND TIME FOR EACH ZONE.

24. ASBUILT IRRIGATION DRAWINGS: CONTRACTOR SHALL FURNISH ASBUILTS OF THE COMPLETE IRRIGATION SYSTEM. PROCURE FROM OWNER'S REPRESENTATIVE FULL-SIZED SEPIAS OF CONTRACT DRAWINGS. CONSTRUCTION DRAWINGS SHALL BE ON THE CONSTRUCTION SITE AT ALL TIMES WHILE THE IRRIGATION SYSTEM IS BEING INSTALLED. CONTRACTOR SHALL MAKE A DAILY RECORD OF ALL WORK INSTALLED DURING EACH DAY. ACTUAL LOCATION OF VALVES AND ALL IRRIGATION AND DRAINAGE PIPING SHALL BE SHOWN ON THE PRINTS BY DIMENSIONS FROM EASILY IDENTIFIED PERMANENT FEATURES, SUCH AS BUILDINGS, CURBS, FENCES, WALKS OR PROPERTY LINES. DRAWINGS SHALL SHOW APPROVED MANUFACTURER'S NAME AND CATALOG NUMBER. THE DRAWINGS SHALL BE TO SCALE AND ALL INDICATIONS SHALL BE NEAT. ALL INFORMATION NOTED ON THE PRINT SHALL BE TRANSFERRED TO THE COPIES BY CONTRACTOR AND ALL INDICATIONS SHALL BE RECORDED IN A NEAT, ORDERLY WAY. THE RECORD SEPIA SHALL BE TURNED OVER TO THE OWNER'S REPRESENTATIVE AT OR BEFORE FINAL ACCEPTANCE/APPROVAL OF THE PROJECT.

GUARANTEE/FINAL ACCEPTANCE

25. CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE THE IRRIGATION SYSTEM FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE. MANUFACTURER WARRANTIES SHALL ONLY EXCEED THIS GUARANTEE AND CONTRACTOR SHALL BE LIABLE FOR REPAIRS/REPLACEMENT OF FAILED MATERIAL/WORKMANSHIP.

MAINTENANCE

26. AFTER SYSTEM IS INSTALLED AND APPROVED, INSTRUCT OWNER'S DESIGNATED PERSONNEL IN COMPLETE OPERATION AND MAINTENANCE PROCEDURES. DRAIN ENTIRE SYSTEM AT END OF FIRST WATERING SEASON FOLLOWING INSTALLATION. TRAIN OWNER'S DESIGNATED PERSONNEL BY HAVING THEM ASSIST IN WINTERIZING PROCEDURE.

0 30' 60' 90'

Scale In Feet

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Irrigation Plan
OAK RIDGE DRIVE
Silver Oak Development
Carson City
Nevada

No.	Revision Date

LA No. 601-501-01-6
Designed: GSS
Drawn: GSS
Checked: RPM
CAD File: L2-601-501
Date: 2/4/16

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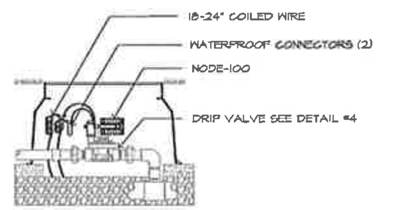
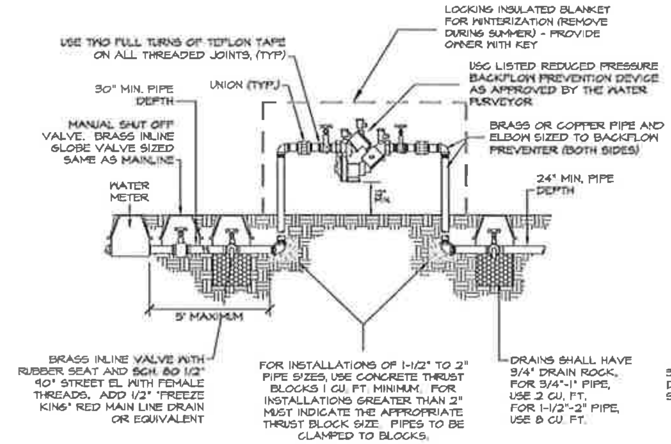
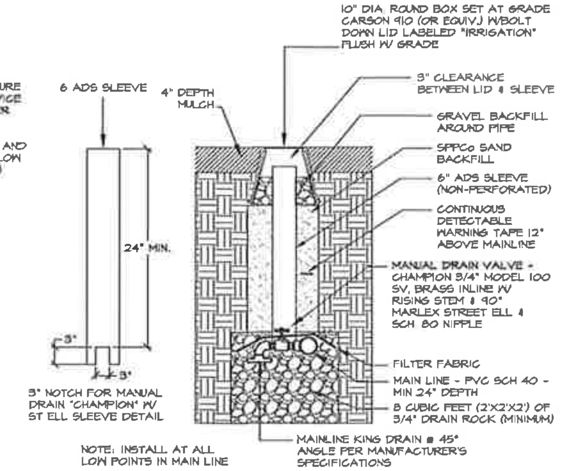


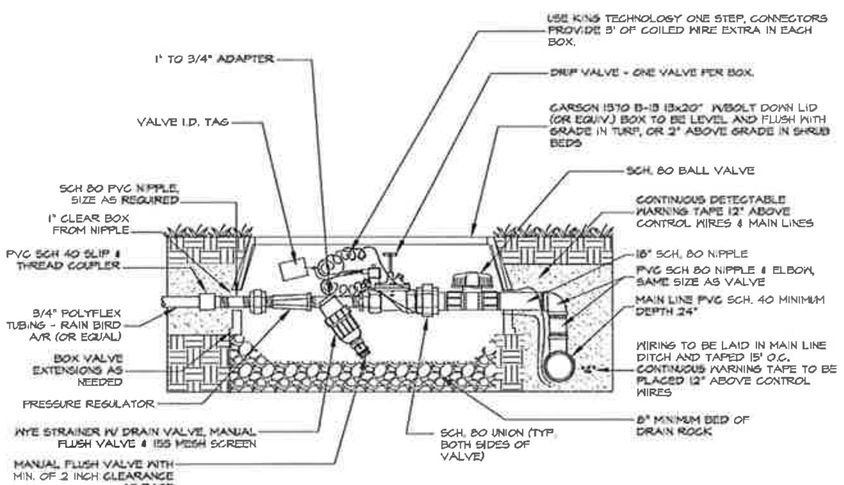
1 HUNTER NODE-100 CONTROLLER



2 REDUCED PRESSURE TYPE BFP

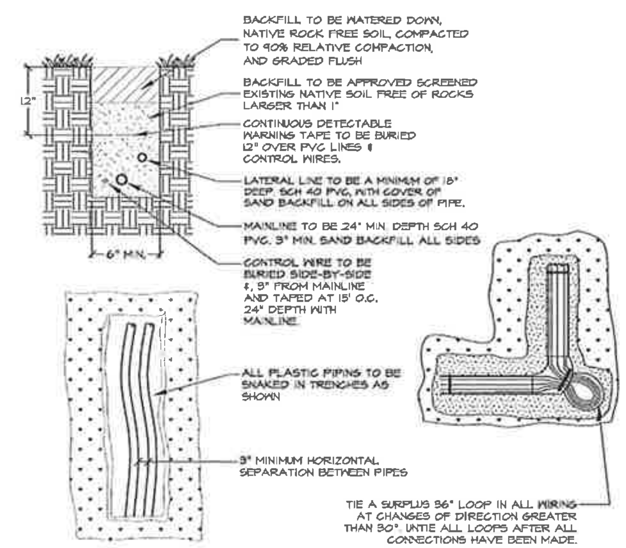


3 MANUAL DRAIN VALVE

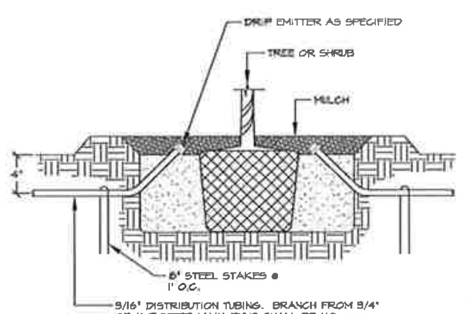


4 DRIP VALVE ASSEMBLY

NOTE: DETAILS ARE NOT TO SCALE



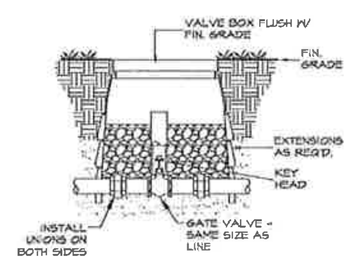
5 TRENCH DETAIL/CONTROLLER WIRING



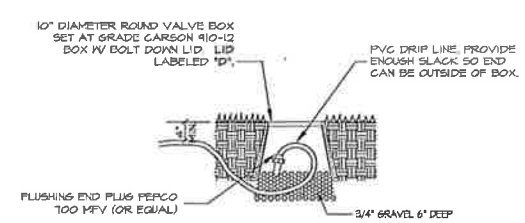
NOTES:

1. LOCATE EMITTERS AT SOIL SURFACE MIDWAY BETWEEN ROOTBALL AND EDGE OF WATERING BASIN.
2. GALLONAGE PER IRRIGATION LEGEND.

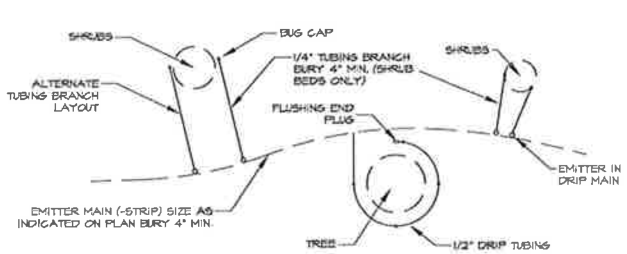
6 DRIP EMITTER INSTALLATION



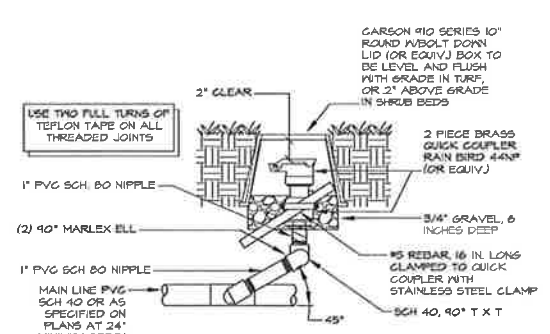
7 GATE VALVE



8 FLUSHING END PLUG

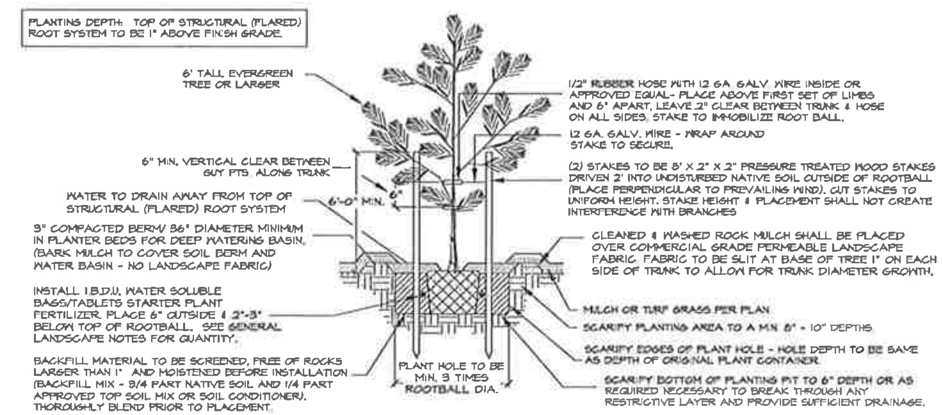


9 DRIP EMITTER LAYOUT



10 QUICK COUPLING VALVE

11 NOT USED

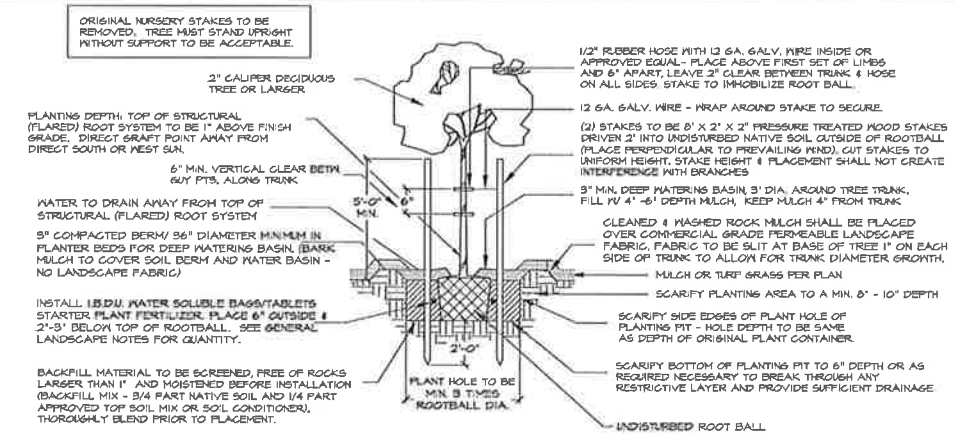


NOTES:

1. REMOVE ALL NURSERY STAKES, TWINE, FLAGGING & TAGS FROM CROWN, TRUNK & BRANCHES, LEAVE ONLY SPECIES ID TAG.** - TREES MUST STAND UPRIGHT TO BE ACCEPTABLE. SEE NURSERY STOCK QUALITY STANDARDS. ALL TREES SHALL BE STAKED SO AS TO REMAIN UPRIGHT AND PLUMB FOLLOWING INSTALLATION.
2. SOIL MIXTURE TO BE 3 PARTS EXISTING SOIL & 1 PART IMPORTED TOP SOIL MIX OR SOIL CONDITIONER.
3. REMOVE DAMAGED BRANCHES - DO NOT REMOVE CENTRAL LEADERS.
4. TOP OF ROOT BALL* TO BE 1" ABOVE EXISTING GRADE - NO NATIVE SOIL TO BE PLACED ON TOP OF ROOT BALL.
5. GRADE WATERING BASIN SUCH THAT WATER COLLECTS AT EDGE OF ROOT BALL, NOT AT TRUNK.
6. THOROUGHLY WATER IMMEDIATELY AFTER PLANTING.
7. REMOVE ALL BURLAP, TWINE, WIRE BASKETS OR CONTAINERS FORM ROOTBALL AND DO NOT DISTURB ROOT BALL FOR ALL TREES & SHRUBS.
8. IF UNSTABLE ROOT BALLS ARE ENCOUNTERED CALL CARSON CITY URBAN FORESTER FOR PLANTING DIRECTION.

* TOP OF ROOT BALL IS DEFINED AS THE LOCATION OF THE UPPERMOST LATERAL ROOT NOT THE SOIL LEVEL IN THE PLANT CONTAINER.
** REFER TO LANDSCAPE GENERAL NOTES FOR PLANTS STOCK QUALITY REQUIREMENTS AND ADDITIONAL PLANTING REQUIREMENTS.

12 EVERGREEN TREE PLANTING — NOT TO SCALE

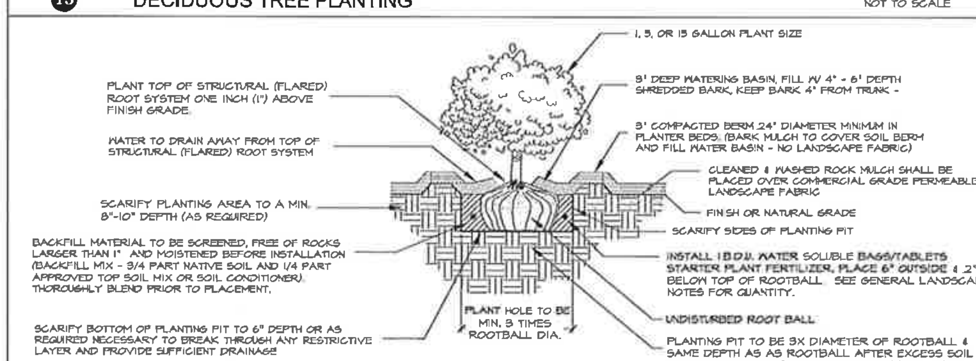


NOTES:

1. REMOVE ALL NURSERY STAKES, TWINE, FLAGGING & TAGS FROM CROWN, TRUNK & BRANCHES, LEAVE ONLY SPECIES ID TAG.** - TREES MUST STAND UPRIGHT TO BE ACCEPTABLE. SEE NURSERY STOCK QUALITY STANDARDS. ALL TREES SHALL BE STAKED SO AS TO REMAIN UPRIGHT AND PLUMB FOLLOWING INSTALLATION.
2. TREES W/ APPROPRIATE TRUNK TAPER WILL BE ACCEPTED *IE LARGER CAL. AT *BASE AND SMALLER CAL. AT THE FIRST BRANCH.
3. SOIL MIXTURE TO BE 3 PARTS EXISTING SOIL & 1 PART IMPORTED TOP SOIL MIX OR SOIL CONDITIONER.
4. REMOVE DAMAGED BRANCHES - DO NOT REMOVE CENTRAL LEADER OR ANY LOWER BRANCHES.
5. TOP OF ROOT BALL* TO BE 1" ABOVE EXISTING GRADE - NO NATIVE SOIL TO BE PLACED ON TOP OF ROOT BALL.
6. GRADE WATERING BASIN SUCH THAT WATER COLLECTS AT EDGE OF ROOT BALL, NOT AT TRUNK.
7. THOROUGHLY WATER IMMEDIATELY AFTER PLANTING.
8. ORIENT GRAFT UNION TO FACE NORTH.
9. REMOVE ALL BURLAP, TWINE, WIRE BASKETS OR CONTAINERS FORM ROOTBALL AND DO NOT DISTURB ROOT BALL FOR ALL TREES & SHRUBS.
10. IF UNSTABLE ROOT BALLS ARE ENCOUNTERED CALL CARSON CITY URBAN FORESTER FOR PLANTING DIRECTION.

* TOP OF ROOT BALL IS DEFINED AS THE LOCATION OF THE UPPERMOST LATERAL ROOT NOT THE SOIL LEVEL IN THE PLANT CONTAINER.
** REFER TO LANDSCAPE GENERAL NOTES FOR PLANTS STOCK QUALITY REQUIREMENTS AND ADDITIONAL PLANTING REQUIREMENTS.

13 DECIDUOUS TREE PLANTING — NOT TO SCALE



NOTES:

1. REMOVE ALL BURLAP, TWINE, WIRE BASKETS OR CONTAINERS FROM ROOTBALL AND DO NOT DISTURB ROOT BALL.
2. SOIL MIXTURE TO BE THREE PARTS EXISTING SOIL & ONE PART APPROVED IMPORT TOPSOIL MIX OR SOIL CONDITIONER.
3. NATIVE BACKFILL MATERIAL TO BE SCREENED FREE OF ROCKS LARGER THAN 1" & MOISTENED BEFORE INSTALLATION.
4. PLANTING PIT TO BE 3X THE DIAMETER OF THE ROOTBALL AND THE SAME DEPTH AS THE ROOTBALL AFTER EXCESS SOIL IS REMOVED AND THE TOP OF THE ROOT CROWN IDENTIFIED.

** REFER TO LANDSCAPE GENERAL NOTES FOR PLANTS STOCK QUALITY REQUIREMENTS AND ADDITIONAL PLANTING REQUIREMENTS.

14 SHRUB PLANTING — NOT TO SCALE

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REGISTERED LANDSCAPE ARCHITECT — 440 — STATE OF NEVADA — Expires 8/2016

Landscape & Irrigation Details
OAK RIDGE DRIVE
Silver Oak Development
Carson City, Nevada

No.	Revision Date

LA No. 601-501-01-16
Designed: 555
Drawn: 555
Checked: RAH
CAD File: L3-601-501-Dtls
Date: 2/4/16

Sheet L3 of 4

Owner Maintenance Agreement

All landscaping, irrigation and screening shall be maintained at all times to conform to the regulations of Development Standards Division 3 Landscaping. Landscaping and related equipment including, but not limited to, trees, shrubs, plants, screens, walkways, benches, fountains and irrigation systems shall be maintained by the present or subsequent owner of the property. The Owner of the property is responsible for maintaining or assuring the ongoing maintenance of installed landscaping so that the landscaping continues to thrive. Each owner shall be required at all times to keep all landscaping materials in good health, repair and maintenance.

The City may require the immediate replacement of any and all dead or damaged plant materials at any time. If any portion of the landscaping material or irrigation equipment is dead, dying, damaged, destroyed or otherwise affected, the owner of the development project shall replace or repair the damaged or affected material within thirty days following notification from the Director. If the season of the year makes the repair or replacement impractical within the thirty-day period, the person responsible for the landscaping shall submit a letter of request to the Director asking for a delay to replace materials and shall submit a time frame for the accomplishment of this work. If the repair or replacement is not accomplished in a timely fashion the Director may initiate proceedings to revoke the special use permit or business license for the subject use.

GENERAL LANDSCAPE NOTES:

CONTRACTOR TO PROVIDE PHOTOGRAPHS OR SAMPLES OF ALL TREE PLANT MATERIAL FOR APPROVAL BY THE DESIGN PROFESSIONAL OR OWNER'S REPRESENTATIVE TO SEE IF SPECIFICATIONS ARE MET. THIS DOES NOT GUARANTEE ACCEPTANCE OF ALL TREES UPON DELIVERY TO PROJECT SITE.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES PRIOR TO ANY DIGGING OR CONSTRUCTION. THE ACQUISITION OF ALL NECESSARY PERMITS ASSOCIATED WITH CONSTRUCTION SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING ALL NOTES, CHECKING PLANT NAMES AND CONFIRMING ALL NUMBERS, SIZES, AND PLANT AVAILABILITY PRIOR TO SUBMITTING BID.

IF QUANTITIES LISTED IN THE PLANTING SCHEDULES DO NOT CORRELATE WITH THE QUANTITIES INDICATED ON THE PLANS, THEN PLAN QUANTITIES SHALL GOVERN.

THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY TO INSTALL ALL MATERIALS COMPLETE AND IN PLACE AS SHOWN AND/OR SPECIFIED.

ROUGH GRADE, FINISH GRADE AND ALL BERM LOCATION/SHAPES SHALL BE ESTABLISHED BY THE CONTRACTOR AND APPROVED BY THE LANDSCAPE ARCHITECT BEFORE INSTALLATION OF THE IRRIGATION SYSTEM, SITE ELEMENTS OR ANY SOD.

ROUGH GRADE IN ALL PLANTING BED AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 8"-10' (MIN.) PRIOR TO INSTALLATION OF PLANT MATERIAL, BERMS.

ALL SOD AND PLANT MATERIALS SHALL BE #1 GRADE NURSERY STOCK AND WARRANTED FOR ONE YEAR AFTER FINAL PROJECT ACCEPTANCE. REPLACE ANY PLANT WHICH DIES WITHIN 30 DAYS AFTER NOTIFICATION, EXCEPT DURING WINTER, WHEN PLANTING MAY BE DELETED, WITH PLANTS EQUAL TO ORIGINAL MATERIALS.

THE CONTRACTOR SHALL BE REQUIRED TO EXCAVATE ALL PLANTING BED AREAS TO ESTABLISH ROUGH GRADE AND INSTALL REQUIRED SOIL AMENDMENTS. (4 1/2" BELOW TOP OF CURBS IN PLANTING AREAS)

ANY IMPORTED TOPSOIL REQUIRED FOR INSTALLATION OF THE BERMS OR ESTABLISHMENT OF ROUGH GRADE OR FINISH GRADE SHALL BE TOPSOIL MIX OR AN APPROVED BY THE LANDSCAPE ARCHITECT OR DESIGN PROFESSIONAL PRIOR TO INSTALLATION.

TREE STAKING SHALL BE DONE ON ALL TREES. CONTRACTOR SHALL STAKE AS PER DETAIL. ORIGINAL NURSERY STAKES ON TREES SHALL BE REMOVED BEFORE INSTALLATION. TREES MUST STAND UPRIGHT WITHOUT SUPPORT TO BE ACCEPTABLE.

INSTALL A PROFESSIONAL GRADE LANDSCAPE FABRIC UNDER ALL ROCK MULCH AREAS. SECURE TO ROUGH GRADE. DO NOT LEAVE EXPOSED. (SEE DEVELOPMENT STANDARDS 3.11) NO PLASTIC SHEETING CAN BE PLACED UNDER ROCK MULCH.

ROCK MULCH SHALL BE WASHED AND CLEANED. ROCK MULCH DEPTH TO BE 4"-6" MIN. AND TO BE INSTALLED IN ALL PLANTING AREAS AND OVER ALL BERMS AS SHOWN ON APPROVED LANDSCAPE PLANS. WEED FABRIC SHALL BE COVERED BY MULCH AND NOT VISIBLE.

ALL PLANTING PITS SHALL BE EITHER HAND OR BACKHOE DUG (NO AUGER). THE BOTTOM AND SIDES OF THE PLANTING PITS SHALL BE SCARIFIED BEFORE INSTALLATION OF THE PLANT MATERIAL. HOLES SHALL BE 3 TIMES AS WIDE AS THE ROOTBALL DIAMETER, THE SAME DEPTH AS THE ROOTBALL AND BACKFILLED WITH AN APPROVED SOIL MIX.

ALL PLANTING BEDS SHALL BE STRIPPED AND CLEARED OF ALL LAWN, ROOTS, WEEDS, AND DEBRIS AND SHALL BE RAKED TO A SMOOTH AND EVEN GRADE PRIOR TO PLANT MATERIAL.

INSTALL "I.B.D.U." WATER SOLUBLE STARTER PLANT FERTILIZER BAGS/TABLETS OR AN APPROVED EQUAL SHALL BE INSTALLED IN ALL PLANTING PITS. USE 1 PER 1-GALLON CONTAINER, 3 PER 5-GALLON CONTAINER, AND 5 PER 15-GALLON CONTAINER/ 2" CAL. OR LARGER TREE.

CONTRACTOR TO APPLY A PRE-EMERGENT HERBICIDE THROUGHOUT ALL ROCK MULCH AREAS PRIOR TO PLACING MULCH. NO PRE-EMERGENT HERBICIDE SHALL BE APPLIED IN PERENNIAL, GROUNDCOVER, BULB AND ANNUAL AREAS. ADD GRANULAR PRE-EMERGENT HERBICIDE PER MANUFACTURER'S WRITTEN RECOMMENDATIONS PRIOR TO INSTALLING LANDSCAPE FABRIC AND ROCK MULCH.

FINAL LOCATION OF ALL LANDSCAPE PLANT MATERIAL SHALL BE SET BY THE CONTRACTOR ACCORDING TO THE PLANS AND APPROVED BY THE LANDSCAPE ARCHITECT, DESIGN PROFESSIONAL OR OWNER'S REPRESENTATIVE BEFORE INSTALLATION.

NO PLANTS SHALL BE PLACED TO CONFLICT OR CREATE CONFLICT W/ SIGNS, LIGHTS, UTILITIES, ETC. IF PLANT LOCATION WILL CAUSE A CONFLICT, CONTACT THE LANDSCAPE ARCHITECT.

ALL PERENNIAL AND GROUNDCOVER AREAS SHALL BE HAND SET BY THE CONTRACTOR IN AREAS SHOWN ON DRAWINGS AND APPROVED BY THE LANDSCAPE ARCHITECT, DESIGN PROFESSIONAL OR OWNER'S REPRESENTATIVE BEFORE INSTALLATION.

THE CONTRACTOR SHALL REMOVE ALL BURLAP, TWINE, TIES, CONTAINERS AND WIRE BASKETS FROM ALL PLANT MATERIAL. DO NOT DISTURB ROOTBALLS. REMOVE ANY EXCESS SOIL ON TREES OR SHRUBS THAT HAS ACCUMULATED DURING THE PACKAGING & SHIPPING PROCESS, (B&B STOCK - ESPECIALLY) IN ORDER TO DETERMINE PROPER PLANTING DEPTH IN ORDER TO PLACE ROOTBALL AT 1" ABOVE GRADE. CLEAN DOWN TO THE TOP OF STRUCTURAL (FLARED) ROOT SYSTEM.

THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROVIDE EFFECTIVE DUST CONTROL OF ALL PREPARED SOIL AREAS.

ALL TREES TO BE #1 GRADE NURSERY STOCK AND MEET CURRENT INDUSTRY QUALITY STANDARDS ADOPTED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, ANSI Z60 AND NRS 555 (REGULATIONS OF NURSERY AND NURSERY STOCK). ALL TREES TO INCLUDE THE FOLLOWING.

- NO GIRDLING, KINKED, CIRCLING OR "J" ROOTS.
- NO TREES THAT HAVE BEEN TOPPED.
- NO WOUNDS IN THE TRUNK BARK OR ON LIMBS.
- INSECT AND DISEASE FREE, RODENT AND MECHANICAL DAMAGE FREE.
- NO TREES THAT HAVE LARGE NURSERY STAKES THROUGH ROOTBALL OR HAVE BEEN GROWN ON A NURSERY STAKE.
- ROOTBALL TO BE APPROPRIATE TO CALIPER AND CROWN SIZE.
- TRUNK/ CROWN STRUCTURE AND TRUNK TAPER TO BE APPROPRIATE FOR THE SPECIES.
- ALL GRAFT UNIONS TO BE HEALTHY WITH TRUNK DIAMETER BELOW UNION LARGER THAN ABOVE UNION.
- ALL TREES TO STAND UPRIGHT WITHOUT STAKES.
- ROOTS, BARK AND SHOOT GROWTH TO GIVE EVIDENCE OF GOOD TREE VIGOR.
- ANY REPLACEMENT OF PLANT STOCK TO BE EQUAL TO ORIGINAL SPECIFICATION AND APPROVED BY THE OWNER'S REPRESENTATIVE OR DESIGN PROFESSIONAL AND THE COMMUNITY DEVELOPMENT PLANNING DEPARTMENT.

ALL PLANTING BEDS AND SOD AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS.

ALL BOX TREES TO BE STAKE FREE NURSERY STOCK, NO LARGE STAKES THROUGH ROOTBALL.

THE CONTRACTOR SHALL SPACE PLANT MATERIALS TO ACCOMMODATE EVERGREEN TREE GROWTH. SPACE ALL SHRUBS/ GROUND COVERS/ PERENNIALS A MINIMUM OF 8' AWAY FROM ANY EVERGREEN TREE TRUNK.

ANY SUBSTITUTION OF PLANT MATERIAL TO BE SUBMITTED IN WRITING FOR APPROVAL BY THE LANDSCAPE ARCHITECT OR DESIGN PROFESSIONAL AND THE COMMUNITY DEVELOPMENT DEPARTMENT.

THE CONTRACTOR SHALL INSPECT THE SITE REGULARLY TO REVIEW THE CONDITION OF ALL PLANTINGS. IF ANY CHANGES IN THE OVERALL MAINTENANCE PROGRAM ARE REQUIRED TO IMPROVE THE CONDITIONS TO AN ACCEPTABLE STANDARD, THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING. OTHERWISE THE CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR THE CONDITION OF THE PLANTINGS AND MUST HONOR THE GUARANTEE. ANY PLANTS REPLACED UNDER THIS GUARANTEE SHALL BE GUARANTEED FOR ONE FULL YEAR FROM THE DATE OF REPLACEMENT.

THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE MAINTENANCE OF THE ENTIRE IRRIGATION SYSTEM & ALL LANDSCAPING UNTIL FINAL PROJECT ACCEPTANCE. AFTER FINAL PROJECT ACCEPTANCE ALL PROJECT MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER UNLESS OTHERWISE NOTED (SEE LANDSCAPE SPECIFICATIONS).

UPON INSTALLATION LANDSCAPING AND THE IRRIGATION SYSTEM, THE REGISTERED DESIGN PROFESSIONAL OR LANDSCAPE ARCHITECT OR OTHERS AS ALLOWED PER NRS SHALL CERTIFY THAT THE INSTALLATION WAS COMPLETED PER THE APPROVED PLANS. THE REGISTERED DESIGN PROFESSIONAL SHALL CHECK THE INSTALLATION TO VERIFY COMPLIANCE WITH THE APPROVED PLANS. THEN THE PLANNING DEPARTMENT SHALL INSPECT FOR FINAL APPROVAL. PLANT SPECIES IDENTIFICATION TAGS ARE TO BE LEFT ON PLANTS UNTIL AFTER APPROVAL BEFORE THE LANDSCAPING AND THEN REMOVED.

IT IS UNDERSTOOD THAT MINOR DEVIATION AND/OR PLANT SUBSTITUTIONS MAY BE NECESSARY DURING THE COURSE OF THE PROJECT. THESE DEVIATIONS MAY BE DONE IF APPROVED BY THE LANDSCAPE ARCHITECT OR DESIGN PROFESSIONAL OR OTHERS AS ALLOWED PER NRS, AND IF CONSISTENT WITH THE ORIGINAL APPROVED DESIGN AND PLANTS SELECTED ARE SIMILAR TO THE ORIGINAL PLAN AND INTENDED PURPOSE. NOTIFICATION IN WRITING TO THE COMMUNITY DEVELOPMENT PLANNING DEPARTMENT IS REQUIRED FOR THESE INSTANCES. APPROVAL IS REQUIRED FROM THE DIRECTOR PRIOR TO INSTALLATION. UPON COMPLETION, AS-BUILT LANDSCAPE PLANS SHALL BE SUBMITTED TO COMMUNITY DEVELOPMENT PLANNING DEPARTMENT. MAJOR DESIGN REVISIONS MAY REQUIRE NEW FEES AND ADDITIONAL STAFF RESOURCES.

ALL LANDSCAPE AREAS MUST BE MAINTAINED BY THE PROPERTY OWNERS, INCLUDING USING THE MOST CURRENT PRUNING STANDARDS ACCEPTED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE AND/OR THE NATIONAL ARBORIST ASSOCIATION. ANY DAMAGED OR DEAD PLANT MUST BE REPLACED OR REPAIRED BY THE PROPERTY OWNERS WITHIN 30 DAYS FOLLOWING NOTIFICATION BY THE DIRECTOR. IF THE SEASON OF THE YEAR MAKES THIS REPAIR OR REPLACEMENT WITHIN A 30 DAY PERIOD IMPRACTICAL, THE PERSON RESPONSIBLE FOR LANDSCAPING SHALL SCHEDULE AN APPROPRIATE TIME FOR THE COMPLETION OF THE ACCOMPLISHMENT OF THIS WORK AS REQUIRED BY THE DIRECTOR.

MAINTENANCE MUST INCLUDE THE CHECKING OF THE SPRINKLER PATTERN AND DRIP SYSTEM, PLANT CONDITION, WEEDING, FERTILIZATION, PEST CONTROL, REPLACEMENT OF MULCHES, WEED BARRIER AND CLEAR AWAY DEBRIS, PROPER PRUNING AND USE OF PROPER MOWING HEIGHTS, RADICAL PRUNING OR TRIMMING SUCH AS TOPPING SHALL REQUIRE REPLACEMENT OF THE PLANT MATERIAL.

GENERAL IRRIGATION NOTES:

ALL PLUMBING AND ELECTRICAL WORK SHALL BE COMPLETED AS PER ALL LOCAL CODES.

INSTALLATION OF MATERIALS SHALL BE PER MANUFACTURERS RECOMMENDATIONS OR AS SPECIFIED. SPRINKLER HEADS ARE EXACT. NO EXTRA PAYMENT WILL BE MADE WHERE PIPING MUST BE OFFSET TO AVOID EXISTING CONDITIONS, OTHER WORK OR WHERE CHANGES ARE NECESSARY TO FACILITATE INSTALLATION.

THE IRRIGATION SYSTEM SHALL BE CONSTRUCTED FOR COMPRESSED AIR BLOW OUT AND SHALL BE BLOWN DRY AFTER THE FIRST FROST IN THE FALL, BY THE CONTRACTOR.

ALL MATERIALS SHALL BE NEW, WITHOUT FLAWS AND CONSIDERED THE BEST AVAILABLE IN STOCK. THE COMPLETE SYSTEM SHALL HAVE A ONE-YEAR WARRANTY AFTER FINAL PROJECT ACCEPTANCE ON ALL PARTS AND LABOR.

PRIOR TO FINAL PROJECT ACCEPTANCE, THE CONTRACTOR SHALL INSTRUCT THE OWNER, OR HIS REPRESENTATIVE, IN THE PROPER OPERATION, MAINTENANCE, AND WINTERIZATION OF THE ENTIRE IRRIGATION SYSTEM.

THE CONTRACTOR SHALL PROVIDE AND KEEP CURRENT A COMPLETE SET OF RECORD DRAWINGS WHICH SHALL BE CORRECTED DAILY TO SHOW CHANGES IN THE ORIGINAL DRAWINGS. ALL MAINLINE PIPING AND VALVE LOCATIONS SHALL BE SHOWN WITH ACTUAL MEASUREMENTS TO REFERENCE POINTS. THESE DRAWINGS SHALL BE SUBMITTED TO THE PARKS AND RECREATION DEPARTMENT PRIOR TO FINAL PAYMENT.

WHEN THE SYSTEM IS COMPLETE, THE CONTRACTOR SHALL PERFORM A COVERAGE TEST. THE IRRIGATION SYSTEM SHALL PROVIDE 100% COVERAGE OF ALL LAWN & LANDSCAPE PLANTING BED AREAS.

ALL IRRIGATION MAINLINE PIPING & LATERAL PIPING SHALL BE SCHEDULE 40 PVC PIPE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SETTLING IN THE IRRIGATION TRENCHES OR ASSOCIATED IRRIGATION WORK AS A WARRANTY ITEM.

ALL IRRIGATION VALVES SHALL BE LOCATED IN "CARSON INDUSTRIES INC." VALVE BOXES WITH LOCKING COVERS (OR APPROVED EQUAL). SIZE OF VALVE BOXES SHALL VARY WITH NUMBER OF VALVES LOCATED IN BOX. ALL VALVE BOX LID ELEVATIONS SHALL BE SET FLUSH WITH FINISHED LAWN LEVEL. PROVIDE BOX SIZE THAT WILL ALLOW 6" CLEARANCE AROUND ALL SIDES OF VALVES. PROVIDE BOLTS PER MANUFACTURER'S RECOMMENDATIONS AND SECURE EACH VALUE BOX.

ON ALL THREADED JOINTS WITHIN THE IRRIGATION SYSTEM, THE CONTRACTOR SHALL USE 2-3 FULL TURNS OF TEFLON TAPE AT EACH CONNECTION.

WIRE CONNECTORS SHALL BE USED ON ALL FIELD WIRE SPLICES AND CONNECTIONS.

ALL CONTROL WIRE SHALL BEAR A U/L APPROVED LABEL FOR DIRECT UNDERGROUND BURIAL IN NATIONAL ELECTRIC CODE CLASS II CIRCUITS. AWG SIZES. MINIMUM SIZE #12. ALL CONTROL WIRE RUNS LESS THAN 1000' SHALL HAVE NO SPLICES. IF A SPLICE OCCURS ON A FIELD CONTROL WIRE, THE CONTRACTOR SHALL INSTALL THE SPLICE IN A 6" ROUND VALVE BOX, IF APPROVED BY THE LANDSCAPE ARCHITECT OR DESIGN PROFESSIONAL. OTHERWISE THE ENTIRE FIELD CONTROL WIRE SHALL BE REMOVED & REPLACED.

TAPE AND BUNDLE ALL CONTROL WIRE TO BOTTOM OF MAINLINE PIPE AT 10' O.C.

THE IRRIGATION CONTROLLER SHALL BE INSTALLED IN A LOCATION AS SHOWN ON THE PLANS. THE LANDSCAPE ARCHITECT, DESIGN PROFESSIONAL, OR THE OWNER'S REPRESENTATIVE WILL APPROVE FINAL CONTROLLER LOCATION.

IRRIGATION VALVE BOXES ARE TO BE INSTALLED IN LANDSCAPE PLANTING BEDS OR OTHER PROTECTED AREAS. VALVE BOXES SHALL NOT BE INSTALLED IN LAWN AREAS.

THE CONTRACTOR SHALL INSTALL SCHEDULE 40 GALVANIZED PIPING 5' ON EITHER SIDE OF THE BACKFLOW PREVENTER, WITH ONE SET OF UNION JOINTS AS DEPICTED IN THE STANDARD DETAIL FOR REMOVAL.

FILTER FABRIC FOR ABOVE ALL ROCK SUMPS SHALL BE DEWITT PRO 5 WEED BARRIER OR AN APPROVED EQUAL.

IRRIGATION MAINLINE TO BE BURIED 24" BELOW FINISHED GRADE AND ALL LATERAL LINE PIPING TO BE BURIED 18" BELOW FINISHED GRADE. ALL 3/4" DRIP IRRIGATION TUBING TO BE BURIED 4" - 6" BELOW FINISH GRADE.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES PRIOR TO ANY CONSTRUCTION. THE ACQUISITION OF ALL NECESSARY PERMITS ASSOCIATED WITH CONSTRUCTION SHALL BE THE CONTRACTORS RESPONSIBILITY.

ALL GALVANIZED PIPE IN CONTACT WITH SOIL SHALL BE COVERED WITH P.V.C. TAPE TO PREVENT PIPE CORROSION (PER UNIFORM PLUMBING CODE).

THE CONTRACTOR SHALL INSTALL A CURB STOP AND WASTE VALVE AT THE BACKFLOW PREVENTER (SIZE TO MATCH MAINLINE) (AS PER DETAIL).

PIPE DOPE SHALL NOT BE USED ANYWHERE ON THE IRRIGATION SYSTEM.

NO 3/4" PIPE SHALL BE USED ANYWHERE ON THE IRRIGATION SYSTEM. (EXCEPT FOR 3/4" SWING JOINT ASSEMBLIES FOR POP-UP SPRAY HEADS).

THE CONTRACTOR SHALL EXPOSE ENDS OF ALL IRRIGATION SLEEVES. ANY BROKEN OR SHATTERED ENDS OF THE IRRIGATION SLEEVES SHALL BE CUT TO A CLEAN END BEFORE INSTALLATION OF EITHER MAINLINE PIPE, LATERAL LINES OR DRIP IRRIGATION TUBING. ALL SLEEVE ENDS SHALL BE INSPECTED BY THE LANDSCAPE ARCHITECT/ DESIGN PROFESSIONAL BEFORE BURYING.

FINAL CONNECTION OF THE VALVE WIRES TO THE CONTROLLER SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

THE CONTRACTOR SHALL AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND UTILITIES WHICH MAY EFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO THE SAME.

THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD OR UNDERGROUND POWER AND/OR TELEPHONE, WATER, GAS AND SEWER FACILITIES SO AS TO SAFELY PROTECT ALL UTILITIES, PERSONNEL, AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COSTS AND LIABILITY IN CONNECTION THEREWITH.

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR RECONSTRUCTED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.

ALL MAINLINES SHALL BE PRESSURE TESTED AT 1.5 TIMES THE STATIC PRESSURE FOR A MINIMUM 2 HOUR PERIOD PRIOR TO BACKFILLING OF TRENCHES. TEST WILL BE CONSIDERED SUCCESSFUL IF NO PRESSURE LOSS OCCURS DURING THE TWO HOURS. IF ANY LEAKS ARE PRESENT THEY SHALL BE CORRECTED AND LINES SHALL BE RE-TESTED PRIOR TO BACKFILLING TRENCHES.

PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS OF SMALLER PIPE SIZES SHALL BE PERMITTED, BUT SUBSTITUTIONS OF LARGER SIZES MAY BE APPROVED. ALL DAMAGED AND REJECTED PIPE SHALL BE REMOVED FROM THE SITE AT THE TIME OF SAID REJECTION.

THE CONTRACTOR SHALL FLUSH ALL LATERALS AND EMITTER LINES PRIOR TO INSTALLING EMITTERS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FAMILIARIZE HIMSELF WITH ALL GRADE DIFFERENCES, LOCATION OF WALLS, STRUCTURES AND UTILITIES. THE IRRIGATION CONTRACTOR SHALL REPAIR OR REPLACE ALL ITEMS DAMAGED BY HIS WORK. HE SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS, FOR THE LOCATION AND INSTALLATION OF PIPE SLEEVES AND LATERALS UNDER SIDEWALKS AND PAVING.

SHOULD DISCREPANCIES ARISE BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS WHICH REQUIRE FIELD MODIFICATIONS OR PLAN REVISIONS, THE OWNER'S REPRESENTATIVE SHALL BE CONTACTED PRIOR TO CONSTRUCTION FOR RESOLUTION OR PLAN REVISION.

DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE DESIGN. SUCH OBSTRUCTIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, DESIGN PROFESSIONAL, OR OWNER'S REPRESENTATIVE. IN THE EVENT THIS NOTIFICATION IS NOT PERFORMED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.

THE IRRIGATION CONTROLLER SHALL BE WIRED DIRECTLY TO A 110 VOLT POWER SOURCE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE IRRIGATION CONTROLLER WIRING TO THE POWER SOURCE. CONNECTING THE CONTROLLER TO THE POWER SOURCE SHALL BE THE RESPONSIBILITY OF A LICENSED ELECTRICAL CONTRACTOR . THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ANY LOCAL CODES OR ORDINANCES THAT APPLY. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE POWER SOURCE AND EXACT LOCATION OF THE CONTROLLER WITH OWNER'S REPRESENTATIVE.

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REGISTERED LANDSCAPE ARCHITECT
RYAN HANSEN
440
Expires: 6/30/16
STATE OF NEVADA

Landscape & Irrigation Specifications

OAK RIDGE DRIVE

Silver Oak Development

Carson City Nevada

No.	Revision Date

LA No:	601-501-01-16
Designed:	GSS
Drawn:	GSS
Checked:	RWH
CAD File:	L3-601-501-Dtls
Date:	2/4/16

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