EAGLE MOUNTAIN CITY

City Council Staff Report

JULY 7, 2015

Project:	**Oquirrh Mountain Ranch Phase A – Preliminary Plat**
Applicant:	Oquirrh Mountain Ranch LLC (Agent – Ryan Kent)
Type of Action:	Action Item
Planning Commission:	Recommended Approval with Conditions (4-0, with 1 absent)

Planning Commission Action

On February 10, 2015 the Planning Commission held a public hearing for this item and considered comments from SITLA concerning a 20-foot corridor along the south property line and sewer capacity concerns for the sewer line in Pony Express Parkway. The Commission recommended approval of the project with the following conditions (and additional conditions added by Staff in italics; with completed conditions shown with strikethrough):

1. Provide bench drains and inlets to handle storm water runoff on hillside lots that meet City Engineer's approval.
2. The 20-foot building setback on the southern boundary is to include a 10-foot landscaped corridor on the applicant's plans and plats – to be one-half of a 20-foot corridor to be cooperatively planned with SITLA, which will provide both the other 10-foot landscaped portion of the corridor and the trail.
3. Provide an approved fire department turnaround for dead end roads that exceed 150'.
4. Revise the master development agreement prior to City Council to reflect changes made to the master development plan in June 2014.
5. *Increase the sidewalk on the southwest side of Oquirrh Ranch Parkway to a minimum of six feet, in accordance with the Master Development Plan.*
6. *All petroglyphs must be clearly marked and protected prior to any construction within 300 feet of the petroglyphs.*
7. *A petroglyph protection plan must be approved by the City prior to recording the 1st final plat in this project.*
8. ~~Provide water model for project.~~
9. ~~Provide updated Traffic Impact Study for project.~~
10. ~~Street lighting plan (must include sprinkler timers for power needs) required (with final plats).~~ *(to be completed by City's new lighting contractor)*

PROPOSAL

The Oquirrh Mountain Ranch Phase A Plat is the first residential phase of the approved Oquirrh Mountain Ranch Master Development Plan, and includes Planning Areas 1, 2a, and 9a of that plan. The lots in this plat have not changed from the approved master plan, and the tabulations are shown here. →

A preliminary review includes the layout of lots, proper street circulation, utility demands, park and recreation sites, etc.

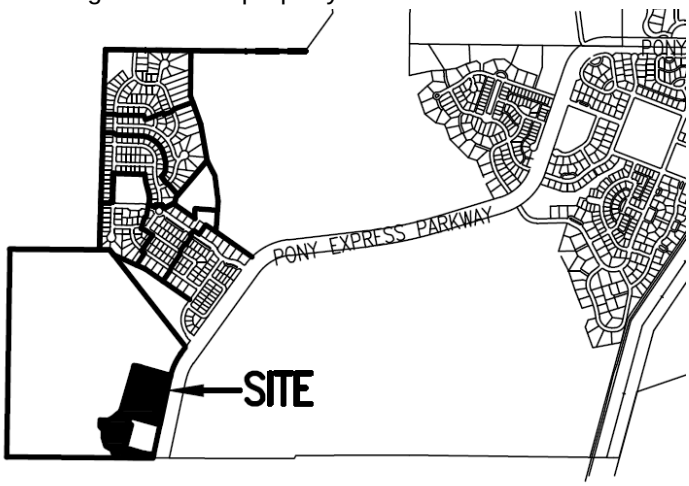
PLAT CALCULATIONS

TOTAL ACREAGE:	12.06 ACRES
BUILDABLE ACREAGE:	12.06 ACRES
TOTAL ACREAGE IN LOTS:	7.70 ACRES
TOTAL OPEN SPACE:	0.76 ACRES
TOTAL IMPROVED OPEN SPACE:	0.76 ACRES
PARKWAY OPEN SPACE:	2.43 ACRES
AVERAGE LOT SIZE:	6,709 SF/0.15 ACRES
LARGEST LOT SIZE:	12,147 SF/0.28 ACRES
SMALLEST LOT SIZE:	5,473 SF/0.13 ACRES
OVERALL DENSITY:	4.15 LOTS/ACRE
TOTAL # OF LOTS:	50 LOTS

Noteworthy Items

- Utilities – The applicant has been working with the City Engineer for review of plans for an off-site sewer line that heads south along Pony Express Parkway and connects with the existing sewer line near Mid-Valley Road.

- Fencing – The landscaping plan indicates a 6-foot perimeter fence for lots that front Pony Express Parkway and a 2-rail fence along the church property. There will be no fence where Harker's Way abuts the Pony Express Parkway landscaping. The landscaping plan indicates an optional 2-rail fence and curb along the stretch of right-of-way between this project and the Lone Tree neighborhood. The applicant has stated his intent to not complete the northern stretch of landscaping with this preliminary plat. The fencing will meet the fencing requirements of the Ranches HOA.



VICINITY MAP
NTS

- Water Rights –The developer plans to purchase CWP water from the City for this project.

- Open Space Dedication – The Master Development Plan requires a 0.7-acre park (OS 4) and a 0.1-acre trailhead park in this area, for a total of 0.8 acres. This plat provides 0.76 acres of improved open space. This project was submitted prior to the recent parks and open space code amendments, so the applicant planned the two parks to comply with the old park elements/amenities point table. 67.2 points are required for these parks, and the applicant has provided 81 points with the following breakdown:

Park Feature / Improvement	Points Available	Proposed Quantities	Proposed Points
Bench / Picnic Table (w/ Shade Structure or Trees)	2	4	8
Bicycle Rack (4+ bikes)	2	1	2
Trees (5)	3	6 (31 trees / 5)	18
Trails (per 100 linear feet)	4	3 (307 LF)	12
Playground Equipment	10-40	1	30
Other: Dogi-pot Dispenser and Receptacle	2	2	4
Other: Garbage Receptacle	2	2	4
Other: Pedestal BBQ	3	1	3
		TOTAL	**81 points**

  - The developer will also be improving a majority of the 2.43 acres of landscaping within the Pony Express Parkway right-of-way with this project (excluding the northern section between this project and the Lone Tree neighborhood). Please see the landscape plans for details of the xeriscaping that is proposed within the right-of-way. Several months ago the Council held a discussion concerning the need for a consistent landscape plan to be developed for Pony Express Parkway, and what type of landscaping was appropriate. That plan has not yet been developed. If you have comments or preferences on this topic, please discuss them in the meeting. All open space within the

project will be dedicated to the Oquirrh Mountain Ranch HOA, per the master development agreement.

- Transitioning and Setback Requirements – The master development agreement requires a 20-foot setback along the southern boundary. Additionally, the 20-foot building setback is to include a 10-foot landscaped corridor on the applicant's plans and plats – to be one-half of a 20-foot corridor to be cooperatively planned with SITLA, which will provide both the other 10-foot landscaped portion of the corridor and the trail. At the Planning Commission meeting the applicant stated his intent to dedicate the 10-foot strip to the City. If this is the case, the plat must be revised to indicate this.

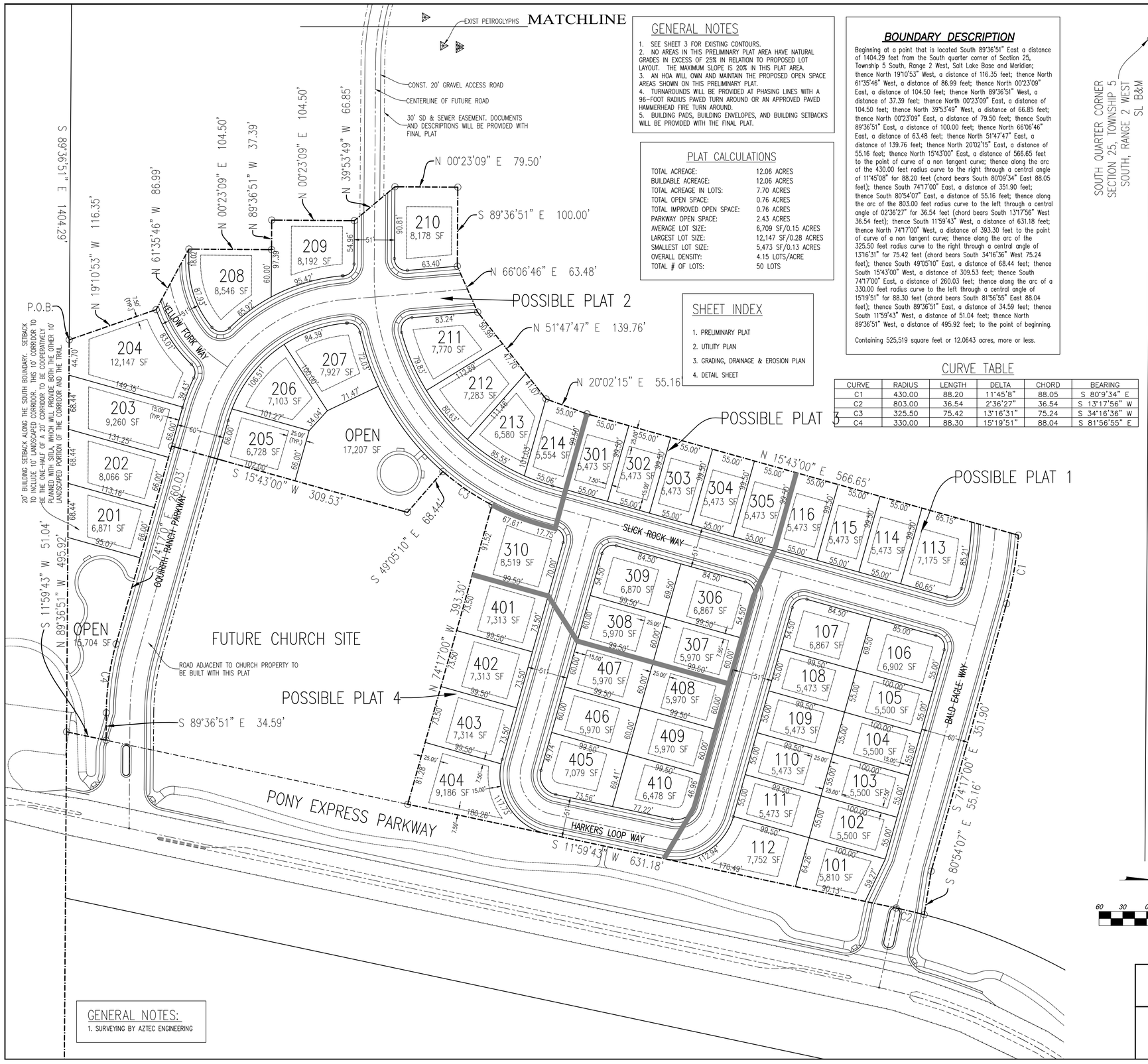
- Petroglyph Protection – The petroglyph rock art is located fairly close to this plat. The City and the applicants want to protect and preserve the petroglyphs and educate the public on these important historical artifacts. We are actively working on a solution and seeking other funding opportunities as well. We recommend that we not allow any plats to be recorded in this project until a preservation plan has been approved.

- Open Space Improvement – The open space for the project will be improved as stipulated in the master development agreement. A revised agreement is being considered by the Council that contains revised open space timing requirements.

- Community Improvements – A minimum of $2,000 per buildable acre must be provided as cash for the community improvements for this plat, as required by the City Code and the Oquirrh Mountain Master Development Agreement ($2,000 x 12.06 buildable acres = total of $24,120). A portion of these funds will be saved for use on the hillside trail system, lookout towers, and Petroglyph Park within the project, or for use within a nearby regional park or for a public building to benefit the residents of this subdivision.

ATTACHMENTS:

- ☐ Proposed plat/plans, landscape plans



GENERAL NOTES

1. SEE SHEET 3 FOR EXISTING CONTOURS.
2. NO AREAS IN THIS PRELIMINARY PLAT AREA HAVE NATURAL GRADES IN EXCESS OF 25% IN RELATION TO PROPOSED LOT LAYOUT. THE MAXIMUM SLOPE IS 20% IN THIS PLAT AREA.
3. AN HOA WILL OWN AND MAINTAIN THE PROPOSED OPEN SPACE AREAS SHOWN ON THIS PRELIMINARY PLAT.
4. TURNAROUNDS WILL BE PROVIDED AT PHASING LINES WITH A 96-FOOT RADIUS PAVED TURN AROUND OR AN APPROVED PAVED HAMMERHEAD FIRE TURN AROUND.
5. BUILDING PADS, BUILDING ENVELOPES, AND BUILDING SETBACKS WILL BE PROVIDED WITH THE FINAL PLAT.

PLAT CALCULATIONS

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SHEET INDEX

1. PRELIMINARY PLAT
2. UTILITY PLAN
3. GRADING, DRAINAGE & EROSION PLAN
4. DETAIL SHEET

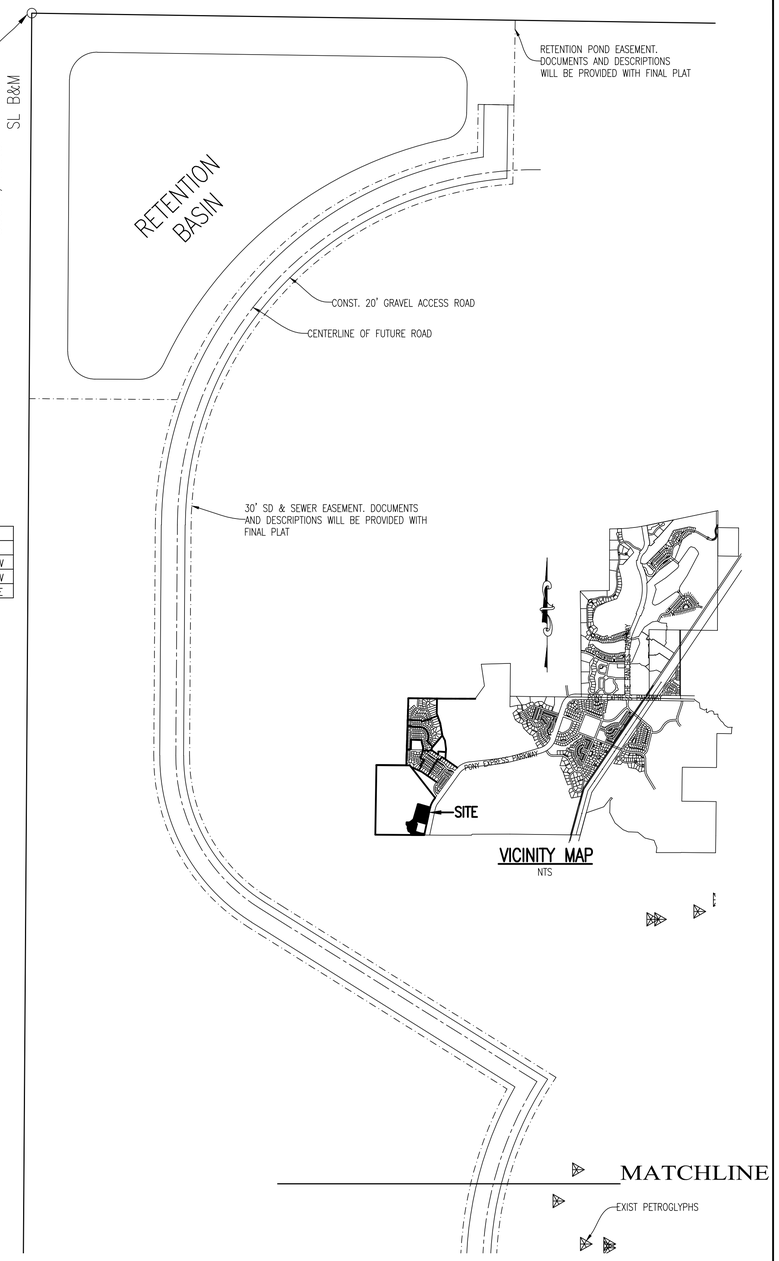
BOUNDARY DESCRIPTION

Beginning at a point that is located South 89°36'51" East a distance of 1404.29 feet from the South quarter corner of Section 25, Township 5 South, Range 2 West, Salt Lake Base and Meridian; thence North 19°10'53" West, a distance of 116.35 feet; thence North 61°35'46" West, a distance of 86.99 feet; thence North 00°23'09" East, a distance of 104.50 feet; thence North 89°36'51" West, a distance of 37.39 feet; thence North 00°23'09" East, a distance of 104.50 feet; thence North 39°53'49" West, a distance of 66.85 feet; thence North 00°23'09" East, a distance of 79.50 feet; thence South 89°36'51" East, a distance of 100.00 feet; thence North 66°06'46" East, a distance of 63.48 feet; thence North 51°47'47" East, a distance of 139.76 feet; thence North 20°02'15" East, a distance of 55.16 feet; thence North 15°43'00" East, a distance of 566.65 feet to the point of curve of a non tangent curve; thence along the arc of the 430.00 feet radius curve to the right through a central angle of 11°45'08" for 88.20 feet (chord bears South 80°09'34" East 88.05 feet); thence South 74°17'00" East, a distance of 351.90 feet; thence South 80°54'07" East, a distance of 55.16 feet; thence along the arc of the 803.00 feet radius curve to the left through a central angle of 02°36'27" for 36.54 feet (chord bears South 13°17'56" West 36.54 feet); thence South 11°59'43" West, a distance of 631.18 feet; thence North 74°17'00" West, a distance of 393.30 feet to the point of curve of a non tangent curve; thence along the arc of the 325.50 feet radius curve to the right through a central angle of 13°16'31" for 75.42 feet (chord bears South 34°16'36" West 75.24 feet); thence South 49°05'10" East, a distance of 68.44 feet; thence South 15°43'00" West, a distance of 309.53 feet; thence South 74°17'00" East, a distance of 260.03 feet; thence along the arc of a 330.00 feet radius curve to the left through a central angle of 15°19'51" for 88.30 feet (chord bears South 81°56'55" East 88.04 feet); thence South 89°36'51" East, a distance of 34.59 feet; thence South 11°59'43" West, a distance of 51.04 feet; thence North 89°36'51" West, a distance of 495.92 feet; to the point of beginning.

Containing 525,519 square feet or 12.0643 acres, more or less.

CURVE TABLE

CURVE	RADIUS	LENGTH	DELTA	CHORD	BEARING
C1	430.00	88.20	11°45'8"	88.05	S 80°9'34" E
C2	803.00	36.54	2°36'27"	36.54	S 13°17'56" W
C3	325.50	75.42	13°16'31"	75.24	S 34°16'36" W
C4	330.00	88.30	15°19'51"	88.04	S 81°56'55" E



60 30 0 60 120 180

Scale 1" = 60'

GENERAL NOTES:
1. SURVEYING BY AZTEC ENGINEERING

REVISIONS

Rev.	Date	Description	App'd
1	01/30/15	REVISED PER CITY PLANNING COMMENTS	

OMR INVESTMENTS, LLC
65 NORTH 920 EAST
OREM, UT 84097
801-372-8687

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David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
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OQUIRRH MOUNTAIN RANCH

EAGLE MOUNTAIN **SUBDIVISION** UTAH

PRELIMINARY PLAT PHASE A

LOCATED IN THE SOUTHEAST CORNER OF SECTION 25, TOWNSHIP 5 SOUTH, RANGE 2 WEST, SLB&M

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.
Scale: 1"=60'
Date: 12/12/14

MATCHLINE #1

EXIST PETROGLYPHS

CONST. 20' GRAVEL ACCESS ROAD

CENTERLINE OF FUTURE ROAD

30' SD & SEWER EASEMENT. DOCUMENTS AND DESCRIPTIONS WILL BE PROVIDED WITH FINAL PLAT

20' BUILDING SETBACK ALONG THE SOUTH BOUNDARY. SETBACK TO INCLUDE 10' LANDSCAPED CORRIDOR. THIS 10' CORRIDOR TO BE THE ONE-HALF OF A 20' CORRIDOR TO BE COOPERATIVELY PLANNED WITH SITLA, WHICH WILL PROVIDE BOTH THE OTHER 10' LANDSCAPED PORTION OF THE CORRIDOR AND THE TRAIL.

YELLOW FORK WAY

COURIER RANCH PARKWAY

REMOVE EXIST 12" DIA. RIPRAP ON OUTLET

ROAD ADJACENT TO CHURCH PROPERTY TO BE BUILT WITH THIS PLAT

FUTURE CHURCH SITE

OPEN

SLICK ROCK WAY

BALD EAGLE WAY

MARKERS LOOP WAY

PONY EXPRESS PARKWAY

CONNECT TO EXIST WATER

EXIST UP&L LINE

EXIST FIBER OPTIC LINE FIELD VERIFY LOCATION

EXIST 6" GAS LINE

CONST. PUMP LINE

CONST. PUMP LINE DOWN TO EXIST SEWER STUB NORTHEAST OF PROPERTY CORNER

CONNECT PUMP LINE TO EXIST 5' SSMH

MATCHLINE #2

RETENTION POND EASEMENT. DOCUMENTS AND DESCRIPTIONS WILL BE PROVIDED WITH FINAL PLAT

POND CAPACITY=5.06 ACRE-FT
1' OF FREE BOARD PROVIDED
TOP OF WATER SURFACE=4951.00
SEE DETAIL FOR POND BOTTOM SECTION

20' WIDE SPILL WAY W/ RIP-RAP DOWN THE BANK

RETENTION BASIN

PROPOSED SEWER LIFT STATION
10" SEWER & PUMP LINE
8" SEWER

10" SEWER & PUMP LINE

CONST. 20' GRAVEL ACCESS ROAD

CENTERLINE OF FUTURE ROAD

30' SD & SEWER EASEMENT. DOCUMENTS AND DESCRIPTIONS WILL BE PROVIDED WITH FINAL PLAT

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60 30 0 60 120 180

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UTILITY PLAN

Drawn by: D.W.P.
Designed by: D.W.P.
Checked by: D.W.P.
Scale: 1"=60'
Date: 12/12/14

MATCHLINE

EXIST. PETROGLYPHS

CONST. 20' GRAVEL ACCESS ROAD

CENTERLINE OF FUTURE ROAD

30' SD & SEWER EASEMENT. DOCUMENTS AND DESCRIPTIONS WILL BE PROVIDED WITH FINAL PLAT

20' BUILDING SETBACK ALONG THE SOUTH BOUNDARY. SETBACK TO INCLUDE 10' LANDSCAPED CORRIDOR. THIS 10' CORRIDOR TO BE THE ONE-HALF OF A 20' CORRIDOR TO BE COOPERATIVELY PLANNED WITH STILA, WHICH WILL PROVIDE BOTH THE OTHER 10' LANDSCAPED PORTION OF THE CORRIDOR AND THE TRAIL.

YELLOW FORK WAY

OQUIRRH RANCH PARKWAY

REMOVE EXIST 12" DIA. RIPRAP ON OUTLET

OPEN

FUTURE CHURCH SITE

ROAD ADJACENT TO CHURCH PROPERTY TO BE BUILT WITH THIS PLAT

PONY EXPRESS PARKWAY

SLICK ROCK WAY

HARKERS LOOP WAY

BALD EAGLE WAY

201 202 203 204 205 206 207 208 209 210 211 212 213 214 301 302 303 304 305 116 115 114 113 310 309 306 401 308 307 402 407 408 403 406 409 405 410 404 107 106 108 105 109 104 110 103 111 102 112 101

EROSION CONTROL NOTES:

1. EACH PHASE OF CONSTRUCTION WILL ADHERE TO THE FOLLOWING EROSION CONTROL PRACTICES
2. CONSTRUCT A SILT FENCE AROUND PERIMETER OF DOWNSTREAM PORTIONS OF EACH PHASE.
3. INSTALL A CONSTRUCTION ENTRANCE FOR EACH PHASE.
4. CONSTRUCT STORM DRAIN FACILITIES AND INSTALL INLET PROTECTION AFTER INSTALLATION.
5. IMPLEMENT DUST CONTROL MEASURES FOR EACH PHASE.
6. CONTRACTOR IS TO REMOVE INLET PROTECTION FROM CATCH BASINS AND CLEAN-OUT ALL CATCH BASINS BEFORE LEAVING THE SITE.

GRADING NOTES:

1. RETENTION WAS SIZED FOR 100-YEAR EVENT FOR THE ENTIRE DEVELOPMENT. PIPES WERE SIZED FOR 10-YEAR EVENT. SEE SEPARATE STORM DRAIN REPORT FOR CALCULATIONS.

2. THERE ARE NO FLOOD HAZARDS IN THIS PROJECT.

3. HISTORICAL HILLSIDE RUNOFF:
THE HILLSIDE RUNOFF TO THE NORTH OF THE DEVELOPMENT WILL FLOW TOWARDS THE SUBDIVISION AND WILL BE CAPTURED IN A PROPOSED BENCH DRAIN WHICH WILL BE ROUTED TO THE DETENTION BASIN. THIS OFF-SITE HILLSIDE AREA WAS INCLUDED IN THE STORM DRAIN CALCULATIONS.

THE SOUTHWEST HILLSIDE PORTION OF OF THE SUBDIVISION FLOWS AWAY FROM THE SUBDIVISION AND THE HISTORICAL DRAINAGE PATTERNS WILL NOT BE ALTERED PAST THE REAR OF THE PROPOSED LOTS.

4. EACH LOT IS TO BE GRADED UP AT 2% FROM THE STREET TO THE PROPOSED HOUSE. WATER FROM THE REAR OF THE HOME SHALL BE GRADED AROUND THE HOUSE AND OUT TO THE STREET TO PREVENT PONDING AND FLOODING. HOMES LOCATED ON THE SOUTHWEST SIDE OF THE SUBDIVISION MAY HAVE THE REAR YARD AREA DRAIN TO THE HILLSIDE; HOWEVER, THE ROOF AND FRONT YARD AREA SHALL DRAIN TO THE STREET.

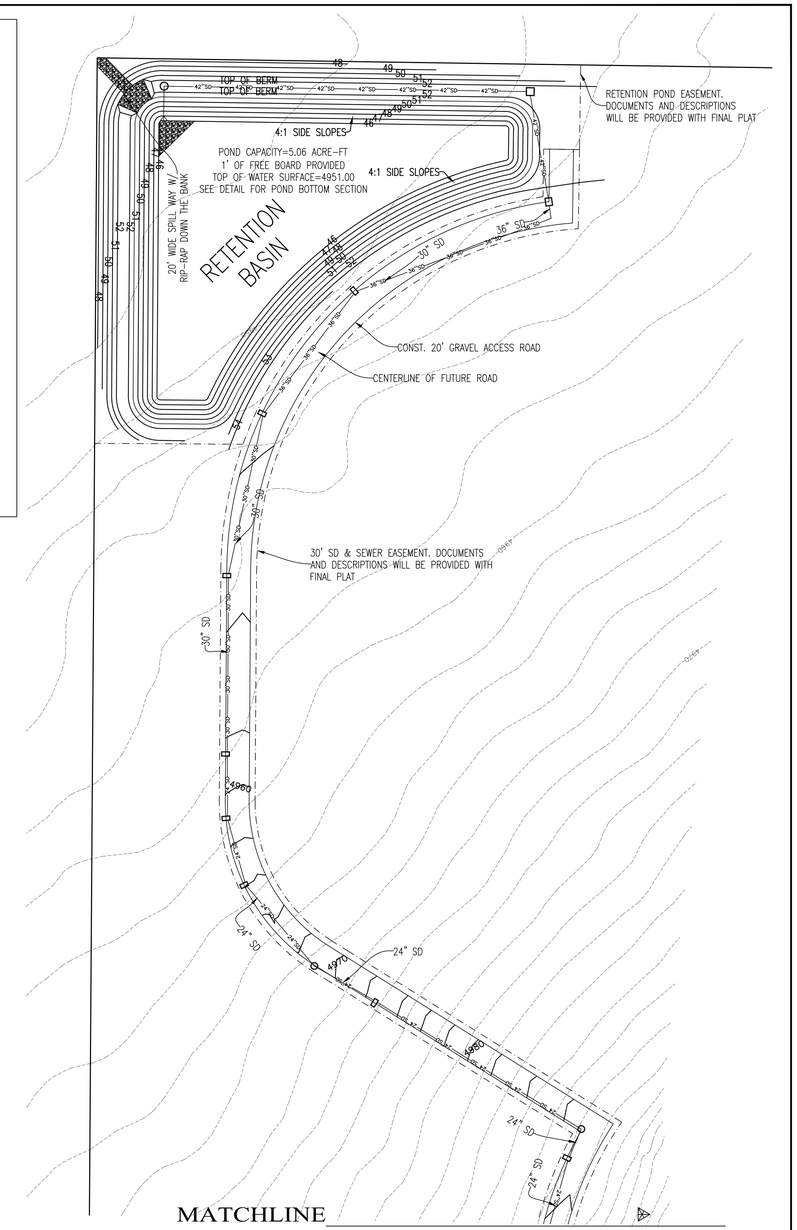
5. CUT OFF DITCHES AND BENCH DRAINS DETAILS WILL BE PROVIDED WITH FINAL DESIGN PLANS.

6. MAXIMUM SLOPES ACROSS STREETS AND AT INTERSECTIONS NEED TO MEET CITY STANDARDS.

7. MASTER DRAINAGE PLANS TO BE APPROVED AND FOLLOWED BY BUILDERS.

8. SOILS REPORTS ARE REQUIRED FOR EACH LOT AND MUST BE PROVIDED PRIOR TO FOOTING FORMS.

9. RETAINING WALLS INSTALLED BY THE DEVELOPER THAT ARE OVER FOUR FEET IN HEIGHT SHALL BE ENGINEERED.



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OQUIRRH MOUNTAIN RANCH

EAGLE MOUNTAIN SUBDIVISION UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

GRADING, DRAINAGE & EROSION PLAN

Scale: 1"=60'
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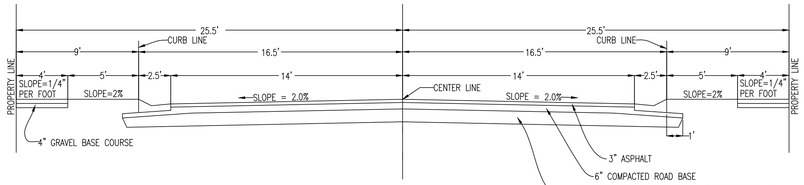
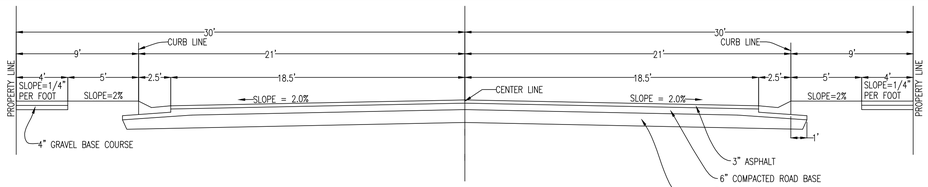


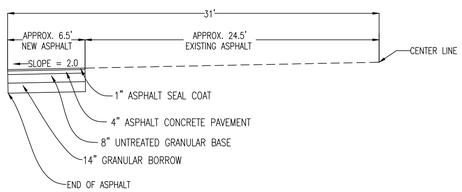
TYPICAL 51' STREET SECTION

SCALE: NONE



TYPICAL 60' STREET SECTION

SCALE: NONE



PONY EXPRESS PARKWAY SECTION

SCALE: NONE

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OQUIRRH MOUNTAIN RANCH

EAGLE MOUNTAIN **SUBDIVISION** UTAH

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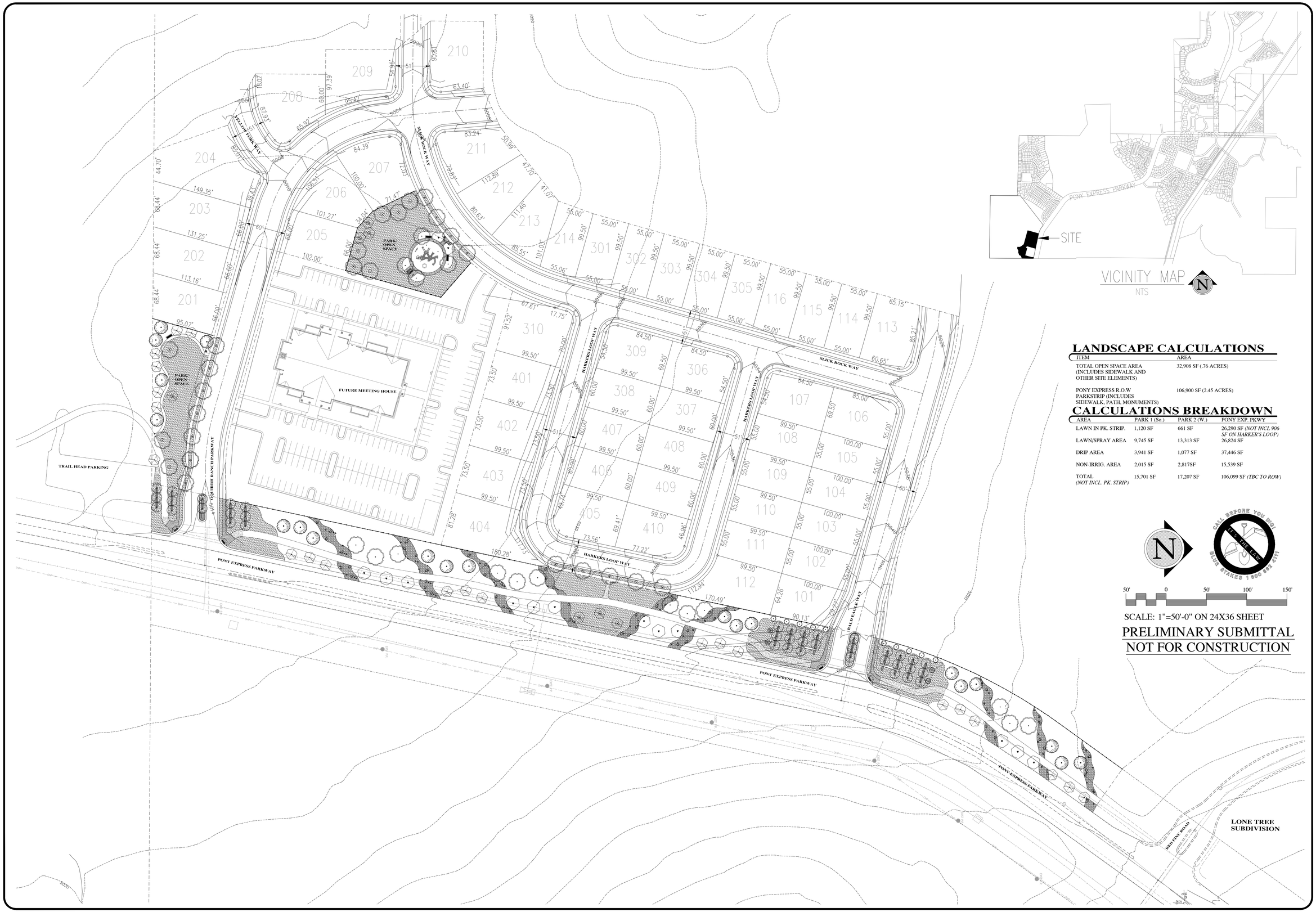
Checked by: D.W.P.

DETAIL SHEET

Scale: NTS
Date: 12/12/14



LANDSCAPE CALCULATIONS

ITEM	AREA
TOTAL OPEN SPACE AREA (INCLUDES SIDEWALK AND OTHER SITE ELEMENTS)	32,908 SF (.76 ACRES)
PONY EXPRESS R.O.W PARKSTRIP (INCLUDES SIDEWALK, PATH, MONUMENTS)	106,900 SF (2.45 ACRES)

CALCULATIONS BREAKDOWN

AREA	PARK 1 (So.)	PARK 2 (W.)	PONY EXP. PKWY
LAWN IN PK. STRIP.	1,120 SF	661 SF	26,290 SF *(NOT INCL 906 SF ON HARKER'S LOOP)*
LAWN/SPRAY AREA	9,745 SF	13,313 SF	26,824 SF
DRIP AREA	3,941 SF	1,077 SF	37,446 SF
NON-IRRIG. AREA	2,015 SF	2,817SF	15,539 SF
TOTAL *(NOT INCL. PK. STRIP)*	15,701 SF	17,207 SF	106,099 SF *(TBC TO ROW)*

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www.in-sitedesigngroup.com
greghecks@in-sitedesigngroup.com

CONSULTANTS:

STAMP

PROJECT:

OQUIRRH MOUNTAIN RANCH
PRELIMINARY PLATT SUMITTAL
EAGLE MOUNTAIN - UTAH - 84005

SHEET TITLE:

OVERALL SITE PLAN

DRAWN BY: SEW
CHECKED: CBW
DATE: 12-12-2014
REVISIONS: --
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JOB NO. 14-177

SHEET:
LS1.0

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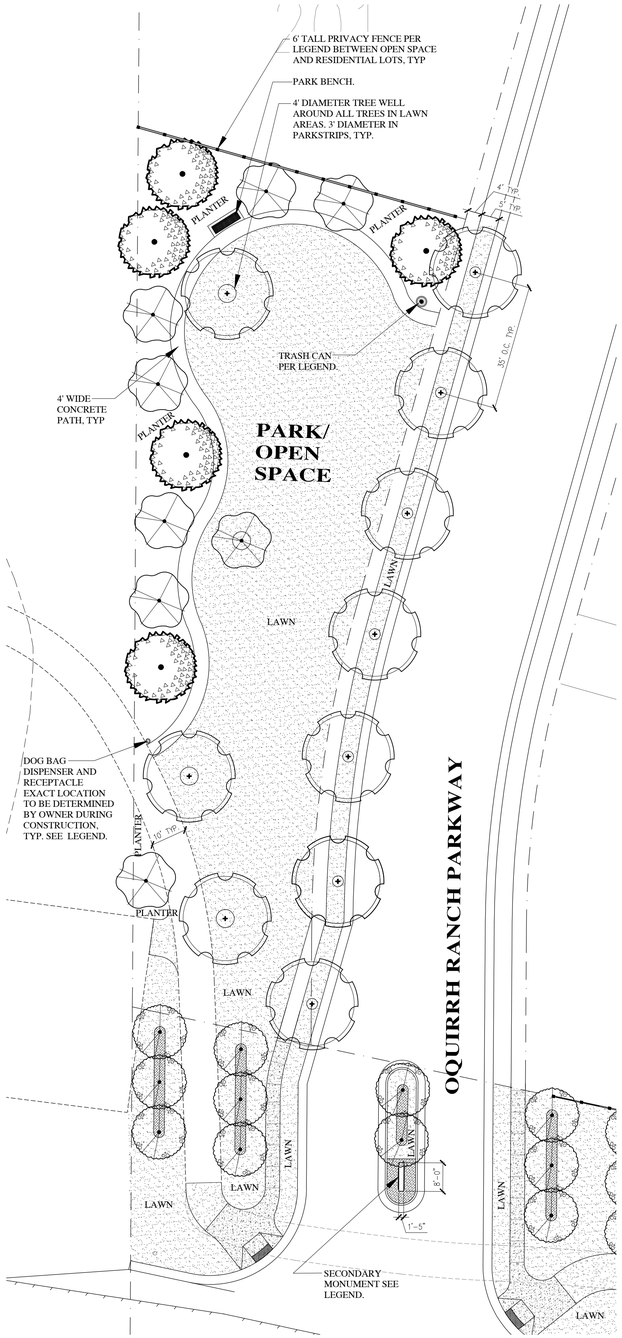

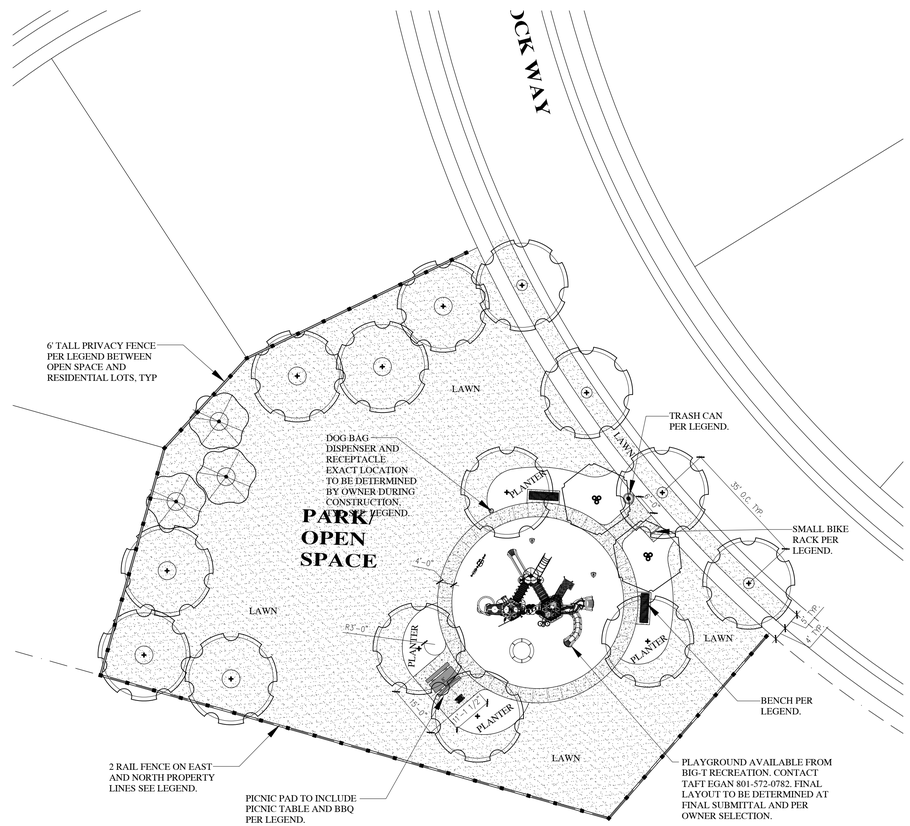

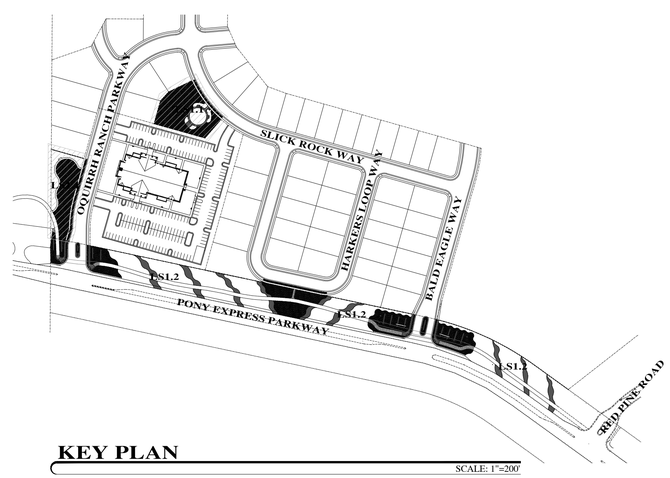

KEY PLAN

SCALE: 1"=200'

TREE LEGEND

SYMBOL	DESCRIPTION
	DECIDUOUS MEDIUM TO LARGE SHADE OR PARKSTRIP TREE
	EVERGREEN TREE
	ENTRY FLOWERING TREE
	ORNAMENTAL FLOWERING TREE
	COLUMNAR TREE

NOTE:
1. THIS PRELIMINARY PLAN DOESN'T SHOW TREE SHRUBS OR PERENNIALS SIZES AS WELL AS SHRUB ON PERENNIAL LOCATIONS THEY WILL BE PROVIDE IN THE FINAL SUBMITTAL.
2. ALL PLANT MATERIAL SHALL BE SELECTED FROM APPROVED PLANT LIST CONTAINED IN THE OQUIRRH MOUNTAIN RANCH AND THE RANCHES DESIGN GUIDELINES.
3. PLANT SIZE SHALL BE THE MINIMUM REQUIRED BY SUBDIVISION DESIGN GUIDELINES.

SITE ELEMENT LEGEND

SYMBOL	DESCRIPTION
	NEW CONCRETE WALKS & RAMPS
	NEW ASPHALT TRAIL. TIE INTO EXISTING ASPHALT TRIAL
LAWN	LAWN
NOT SHOWN	1" MINUS AT A 3" DEPTH. THESE AREAS TO RECEIVE A MIX OF TALL, MEDIUM AND SMALL SHRUBS. SPREADING EVERGREEN GROUNDCOVER TO ACCENTUATE SHRUB MATERIALS. COLOR TO BE DETERMINED. ALL PLANT MATERIAL TO BE WITHIN OQUIRRH MOUNTAIN RANCH AND THE RANCHES DESIGN GUIDELINES.
	4" TO 6" DECORATIVE ROCK WITH SINGLE AND GROUPINGS OF VARIOUS SIZED BOULDERS. ONLY EVERGREEN SHRUBS AND YUCCA'S TO BE PLANTED WITHIN THIS ROCK TYPE. COLOR OF ROCK AND BOULDERS TO BE DETERMINED. ALL PLANT MATERIAL TO BE WITHIN OQUIRRH MOUNTAIN RANCH AND THE RANCHES DESIGN GUIDELINES.
	SMALL DOUBLE SIDED ENTRY MONUMENT SIGNAGE WITH LIGHTING. LETTERING PER RANCHES HOA GUIDELINES. STONE TO MATCH OTHER RANCHES SIGNAGE.
	LARGE ENTRY MONUMENT SIGNAGE WITH LIGHTING. LETTERING PER RANCHES HOA GUIDELINES. STONE TO MATCH OTHER RANCHES SIGNAGE.
	6' TALL PERIMETER FENCE WITH TRANSITION SECTION TO TIE BACK INTO 4' TALL 2 RAIL FENCE FENCE PER RANCHES HOA FENCING GUIDELINES SECTION 1.2, TYPICAL ALONG FRONTAGE. FINISH PER RANCHES HOA GUIDELINES.
	4' TALL 2 RAIL FENCE AS TYPICALLY SEEN THROUGHOUT THE RANCHES AND PER 8.4.3 OF THE RANCHES DESIGN GUIDELINE. PROVIDE OPTIONAL 12" WIDE CONCRETE CURB UNDER 2 RAIL FENCE.
	HEAVY DUTY STEEL OR COMPOSITE PLASTIC EDGING BETWEEN LAWN AND PLANTERS AROUND TREES AT ENTRY MONUMENT LOCATIONS, TYP.
	36" DIA. TRASH RECEPTACLE FROM PREMIER SITE FURNISHINGS: MODEL #OAK132 (2)
	DOGI POT BAG DISPENSER WITH TRASH: #KDP1003 (2)
	8' BENCH FROM PREMIER SITE FURNISHINGS: #MM800RB (3)
	8' PICNIC TABLE FROM KAY PARK RECREATION: #82BGA (1)
	PEDESTAL BBQ FROM KAY PARK RECREATION: #SF16 (1)
	5 SPACE BIKE RACK FROM KAY PARK RECREATION: #613GIG (1)

LANDSCAPE CALCULATIONS

ITEM	AREA
TOTAL OPEN SPACE AREA (INCLUDES SIDEWALK AND OTHER SITE ELEMENTS)	32,908 SF (.76 ACRES)
PONY EXPRESS R.O.W PARKSTRIP (INCLUDES SIDEWALK, PATH, MONUMENTS)	106,900 SF (2.45 ACRES)

CALCULATIONS BREAKDOWN

AREA	PARK 1 (So.)	PARK 2 (W.)	PONY EXP. PKWY
LAWN IN PK. STRIP.	1,120 SF	661 SF	26,290 SF *(NOT INCL 906 SF ON HARKER'S LOOP)*
LAWN/SPRAY AREA	9,745 SF	13,313 SF	26,824 SF
DRIP AREA	3,941 SF	1,077 SF	37,446 SF
NON-IRRIG. AREA	2,015 SF	2,817SF	15,539 SF
TOTAL *(NOT INCL. PK. STRIP)*	15,701 SF	17,207 SF	106,099 SF *(TBC TO ROW)*

N

20' 0 20' 40' 60'

SCALE: 1"=20'-0" ON 24X36 SHEET

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CONSULTANTS:

STAMP

PROJECT:
OQUIRRH MOUNTAIN RANCH
PRELIMINARY PLATT SUMITTAL
EAGLE MOUNTAIN - UTAH - 84005

SHEET TITLE:
OPEN SPACE LANDSCAPE PLAN

DRAWN BY:	SEW
CHECKED:	CBW
DATE:	12-12-2014
REVISIONS:	--
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JOB NO.	14-177

SHEET:
LS1.1

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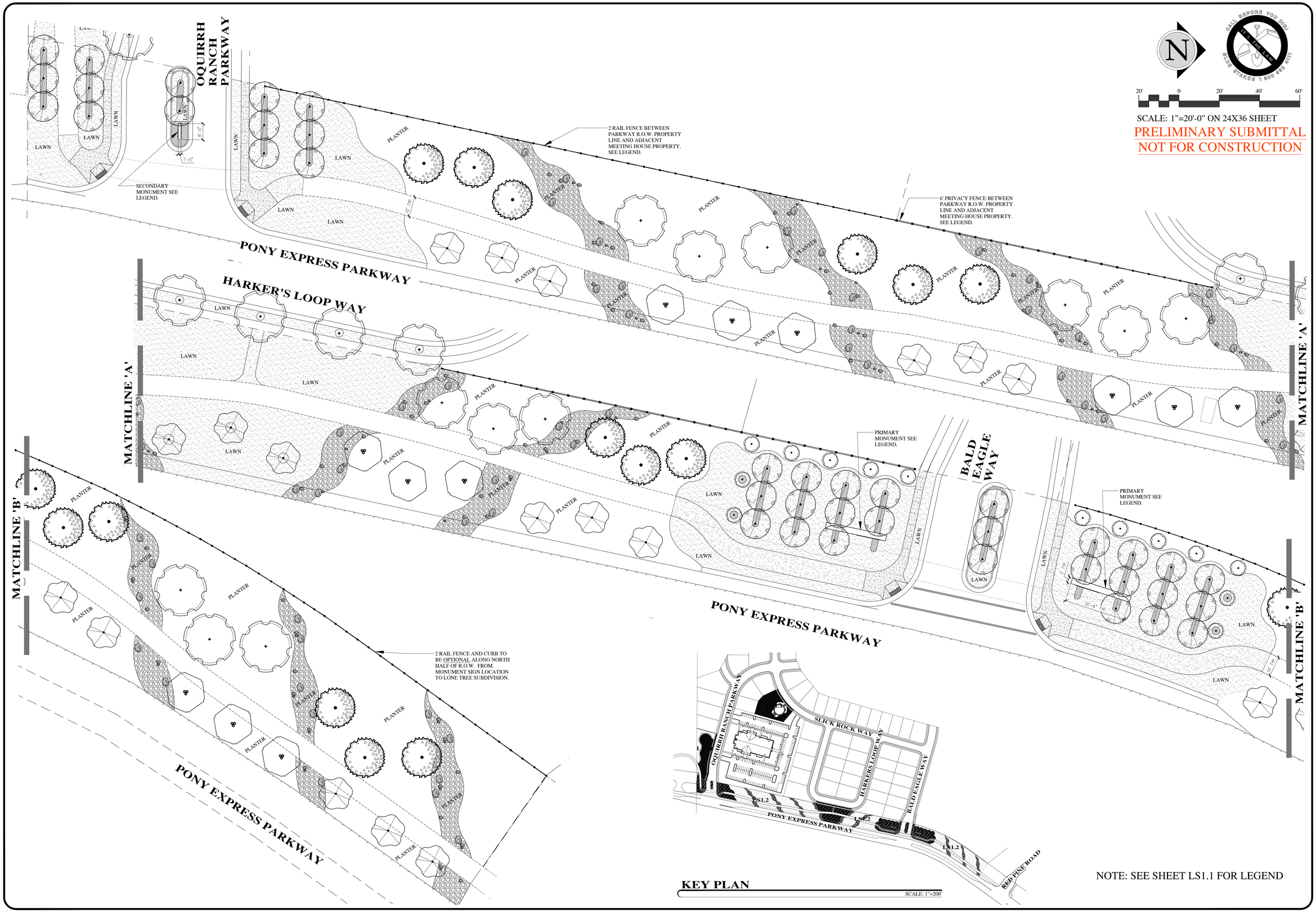

NOTE: SEE SHEET LS1.1 FOR LEGEND

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CONSULTANTS:

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PROJECT:

OQUIRRH MOUNTAIN RANCH

PRELIMINARY PLAT SUMITTAL
EAGLE MOUNTAIN - UTAH - 84005

SHEET TITLE:

R.O.W. LANDSCAPE PLAN

DRAWN BY:	SEW
CHECKED:	CBW
DATE:	12-12-2014
REVISIONS:	--
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JOB NO.	14-177

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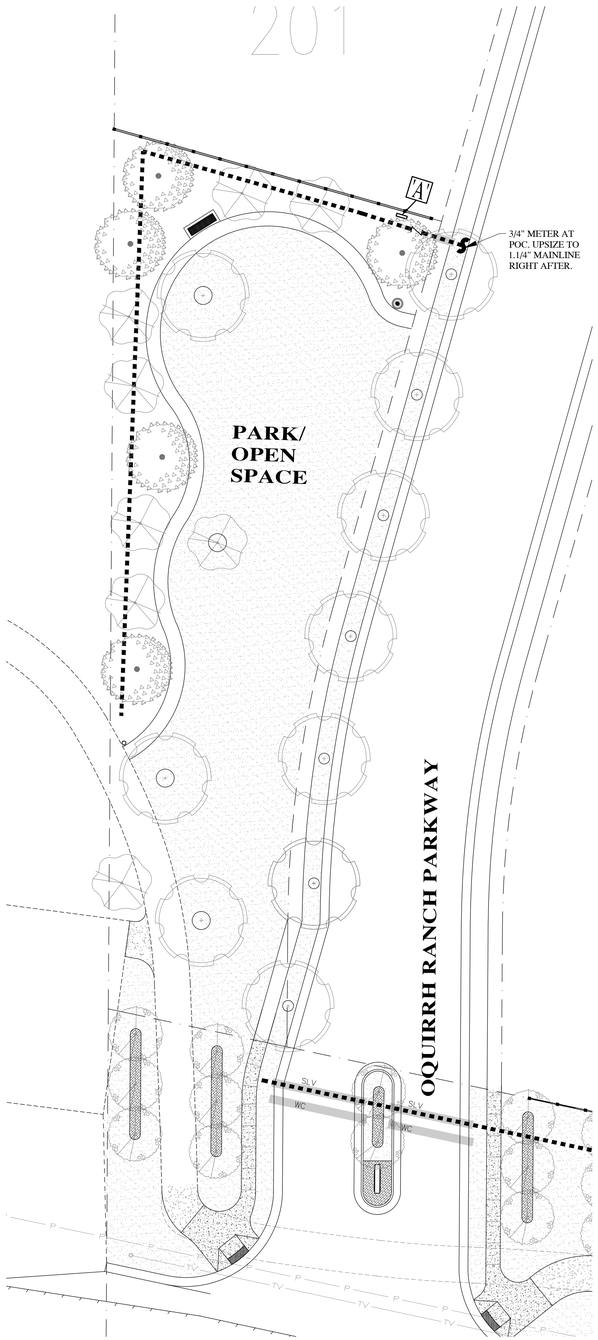
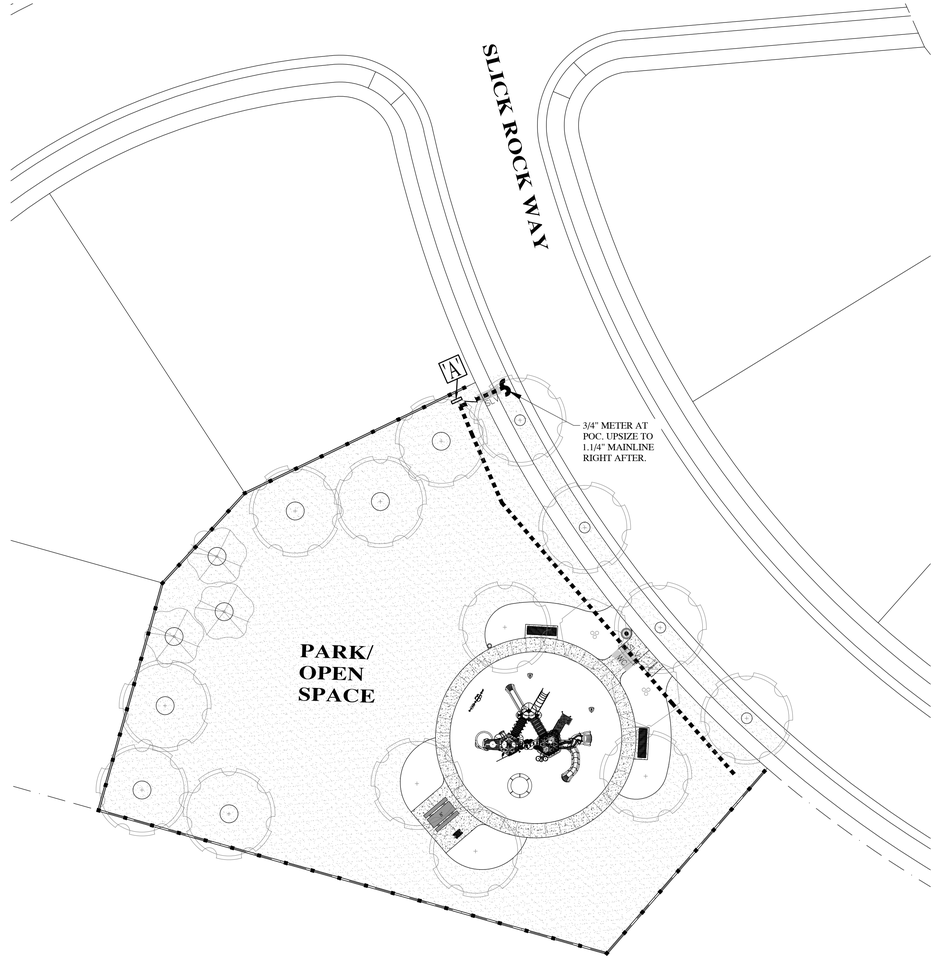


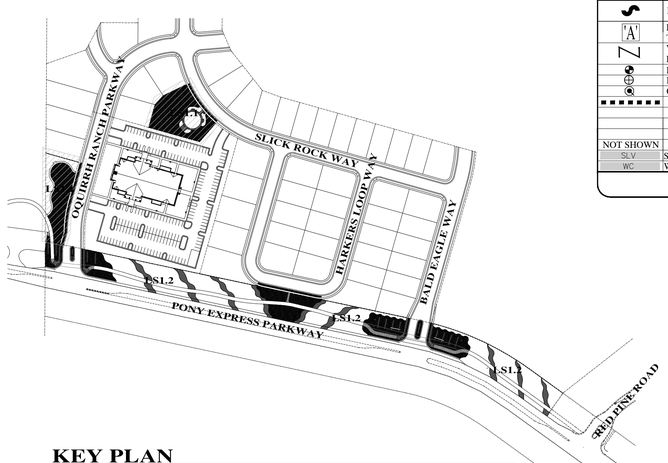


IRRIGATION NOTES

1. LANDSCAPE CONTRACTOR (L.C.) SHALL PROVIDE AND INSTALL SLEEVES FOR ALL PIPES AND WIRES UNDER PAVEMENT AND SIDEWALKS. SLEEVES SHALL BE 2 SIZES LARGER THAN PIPE INSIDE. ALL WIRE SHALL BE IN SEPARATE SLEEVES (NOT SHOWN). ALL CONTROL WIRE SHALL BE INSTALLED IN CLASS 200 PIPE. PLACE JUNCTION BOXES WHERE NECESSARY TO MINIMIZE LONG RUNS OR AT DIRECTIONAL CHANGES AS NECESSARY. CONTRACTOR TO INSTALL ONE EXTRA 6" SLEEVE FOR FUTURE USE ACROSS ALL ROAD CROSSINGS. CONTRACTOR TO INSTALL EXTRA CONDUIT ACROSS ALL ROAD CROSSINGS, TYP.
2. MAIN LINES SHALL BE 18" DEEP MIN. AND LATERAL LINES 12" DEEP MIN. NO ROCK GREATER THAN 3/4" DIAMETER SHALL BE ALLOWED IN TRENCHES.
3. PROVIDE AN AS-BUILT, REPRODUCIBLE DRAWING TO OWNER SHOWING ALL DRAINS, HEADS, VALVES, AND PIPES. PROVIDE INSTRUCTIONS TO MAINTENANCE PERSONNEL FOR WINTERIZATION. SPRINKLER SYSTEM TO BE BLOWN OUT WITH AN AIR COMPRESSOR EACH FALL.
4. PLACE PIPES, VALVE BOXES AND ALL OTHER SPRINKLER CONSTRUCTION IN LANDSCAPE AREAS. ALL PIPES SHALL BE ON PROPERTY OF OWNER. MODIFY LOCATION OF VALVE BOXES AS NECESSARY IN ORDER TO AVOID TREES AND SHRUBS PER PLANTING PLAN. DO NOT LOCATE VALVE BOXES IN LAWN AREAS IF POSSIBLE.
5. CONTRACTOR SHALL HAVE ALL UTILITIES BLUE STAKED BEFORE DIGGING. ANY DAMAGE TO THE UTILITIES SHALL BE REPAIRED AT THE EXPENSE OF CONTRACTOR WITH NO EXTRA COST TO THE OWNER.
6. MAIN LINE SHALL BE 1.1/4" (UNLESS OTHERWISE DIRECTED). LATERAL LINES SHALL BE NO SMALLER THAN 3/4" UNLESS NOTED ON PLAN. PIPES SHALL CARRY NO MORE THAN THE FOLLOWING: 3/4" PIPE MAX. 8GPM, 1" PIPE MAX. 13GPM, AND 1-1/4" PIPE MAX. 23GPM. ADJUST LOCATION OF MAINLINE AS NECESSARY IN ORDER TO AVOID PLACING BOULDERS, TREES AND SHRUBS DIRECTLY OVER MAINLINE AND LATERAL LINES.
7. DRIP LINES SHALL BE FLEXIBLE AR PVC TUBING BY GPH. FOR DRIP AREAS REQUIRING 0-4 GPM USE 1/2" TUBING. FOR DRIP AREAS REQUIRING 4-8GPM USE 3/4" TUBING AND FOR DRIP AREAS REQUIRING 8-13 GPM USE 1" TUBING. CONTRACTOR TO VERIFY PLANT QUANTITIES ON EACH DRIP LINE AND SIZE PIPE ACCORDINGLY.
8. INSTALL ALL HEADS 2" AWAY FROM ALL WALKS AND WALLS. VALVE BOXES SHALL BE INSTALLED 6" MIN. FROM WALKS AND WALLS SQUARED WITH THE WALK.
9. CONTRACTOR SHALL ONLY USE COMMERCIAL GRADE PRODUCTS AND IS RESPONSIBLE FOR ENSURING ACCURATE COUNTS AND QUANTITIES OF ALL IRRIGATION MATERIALS FOR BIDDING AND INSTALLATION PURPOSES.
10. CONTRACTOR SHALL BUILD IRRIGATION SYSTEM WITH BETTER THAN HEAD TO HEAD COVERAGE FOR ALL LAWN AREAS. VAN AND/OR U-SERIES NOZZLES SHALL BE USED WHERE NECESSARY TO PROVIDED HEAD TO HEAD COVERAGE AND/OR TO MINIMIZE OVER SPRAY ONTO STREETS, SIDEWALKS AND/OR BUILDINGS.
11. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE CITY AND/OR COUNTY CODES. THE L.C. SHALL APPLY AND PAY FOR ALL NECESSARY PERMITS.
12. ALL SPRINKLERS SHALL BE ADJUSTED ON-SITE AS NECESSARY TO AVOID ANY WATER SPRAYING ONTO STREETS, SIDEWALKS, FENCING AND BUILDINGS.
13. ACTUAL INSTALLATION OF IRRIGATION SYSTEM MAY VARY. CONTRACTOR IS RESPONSIBLE TO MAKE NECESSARY ADJUSTMENTS AS NEEDED TO ENSURE PROPER COVERAGE OF ALL LANDSCAPED AREAS. IN-SITE DESIGN GROUP CAN PREPARE IRRIGATION HEAD LAYOUT AND PIPE SIZE PLAN PER ADDITIONAL FEE TO BE DETERMINED.
14. POWER TO CONTROLLER TO BE PROVIDED BY ELECTRICAL CONTRACTOR. OWNER TO SPECIFY EXACT LOCATION OF CONTROLLER. CONTROLLER AND RPZ SHALL BE INSTALLED IN A LOCATION AS NOT TO BE PROMINENT, HIDE BEHIND OTHER SITE ELEMENTS WHERE POSSIBLE. CONTROLLER TO BE MOUNTED IN WEATHERPROOF LOCKING WALL MOUNTED CABINET PER MANUFACTURERS INSTRUCTIONS. LANDSCAPE CONTRACTOR SHALL ENSURE THE CONTROLLER IS GROUNDED PER LOCAL CODE AND PER MANUFACTURER SPECS.
15. THE IRRIGATION SYSTEM TO BE WINTERIZED BY BLOWING THE SYSTEM OUT EACH FALL THROUGH THE BLOWOUT KIT ON THE RPZ.
16. ALL SLEEVES INSTALLED SHALL BE DUCT TAPED TO PREVENT DIRT OR OTHER DEBRIS ENTERING PIPE. ALL SLEEVES SHALL BE IDENTIFIED BY WOOD OR PVC STAKES AND BE SPRAY PAINTED WITH MARKING PAINT. REMOVE STAKES ONCE IRRIGATION SYSTEM IS COMPLETE.
17. IRRIGATION SYSTEM AND TRENCHING SHALL BE VISUALLY INSPECTED ALL PRIOR TO BACKFILLING. IRRIGATION CONTRACTOR SHALL GIVE LANDSCAPE ARCHITECT OR OWNER REPRESENTATIVE MIN. 72 HR. NOTICE BEFORE INSPECTION IS TO BE MADE. IRRIGATION CONTRACTOR SHALL PRESSURE TEST MAINLINE FOR LEAKS PRIOR TO BACKFILLING,PER SPECIFICATIONS SEE SHEET LS4.1.
18. LANDSCAPE CONTRACTOR SHALL MATCH PRECIPITATION RATES AS MUCH AS POSSIBLE FOR ALL LANDSCAPED AREAS.
19. POINT OF CONNECTION: INSTALL A 1" STOP AND WASTE VALVE OFF OF THE NEW WATER METER. UPSIZE THE MAINLINE PIPING IMMEDIATELY AFTER THE STOP AND WASTE VALVE TO 1-1/4". INSTALL A 3/4" OR 1" RPZ PER THE LEGEND. INSTALL MISC. REDUCER FITTINGS AS NECESSARY BEFORE AND AFTER THE RPZ. THE POINT OF CONNECTION PIPING SHALL BE MIN. 150 PSI HDPE PIPE OR AS APPROVED BY THE CITY. ALL PIPING FROM 2' BEFORE THE RPZ TO 2' DOWNSTREAM OF THE RPZ TO BE COPPER, BRASS OR GALVANIZED. IF CORROSION POSSIBILITIES EXIST, USE A DIELECTRIC UNION WHEREVER A COPPER-BASED METAL (COPPER, BRASS, BRONZE) IS JOINED TO AN IRON-BASED METAL (IRON, GALVANIZED STEEL, STAINLESS STEEL).
20. IF THE STATIC PRESSURE AT THE POINT OF CONNECTION EXCEEDS 100 PSI, INSTALL A BRASS PRESSURE REDUCER IN-LINE WITH THE RPZ PER MANUFACTURER SPECS. INSTALL THE RPZ AND PRESSURE REDUCER IN A LOCKING METAL VANDAL RESISTANT CABINET. ADJUST PRESSURE AS REQUIRED FOR NORMAL OPERATION OF THE IRRIGATION SYSTEM.
21. INSTALL THE PRS-D OPTION FOR THE SPRAY VALVES IF THE STATIC PRESSURE AT THE SPRAY HEADS EXCEEDS 70 PSI.
22. THE SMT CONTROLLER HAS WEATHER/RAIN SENSOR AS PART OF THE CONTROLLER PACKAGE. INSTALL PER MANUFACTURER SPECS.

IRRIGATION LEGEND

SYMBOL	MANUFACTURER-MODEL NUMBER	REMARKS
S	POINT OF CONNECTION. INSTALL MISC. FITTINGS TO UPSIZE TO 1.1/4" SUPPLY LINE AND 1.1/4" MAINLINE.	SEE SPECIFICATIONS
"A"	RAIN BIRD ESP-SMT4 CONTROLLER WITH RAIN SENSOR. WALL MOUNT IN LOCATION AS DIRECTED BY OWNER. CONTRACTOR TO COORDINATE WITH TRADES TO RUN CONDUIT AND SLEEVING. ADD ESPSM3 3-STATION EXPANSION MODULES AS REQ.	SEE SPECIFICATIONS
Z	WILKENS 3/4" OR 1" PRZ BACK FLOW PREVENTION DEVICE WITH BLOW OUT KIT AND WYE STRAINER. INSTALL BACK FLOW PREVENTION DEVICE PER LOCAL CODE. INSTALL IN PLANTER BED IN APPROXIMATE LOCATION SHOWN.	SEE SPECIFICATIONS. INSTALL BACK FLOW IN A VANDAL RESISTANT ENCLOSURE, TYP.
	RAIN BIRD PEB-PRS-D AUTOMATIC CONTROL VALVE (SIZE AS NOTED ON PLAN) (INSTALL PRS-D OPTION PER DETAIL 'J')	SEE SPECIFICATIONS
	DRIP CONTROL ZONE KIT: RAINBIRD XCZ-075PRF OR XCZ-100-PRB-COM, SIZE PER PLAN	SEE SPECIFICATIONS
	QUICK COUPLER: RAINBIRD 44LRC	SEE SPECIFICATIONS
	1.1/4" MAINLINE SCH. 40 PVC PIPE UNLESS NOTED OTHERWISE.	SEE SPECIFICATIONS
		SEE SPECIFICATIONS
		SEE SPECIFICATIONS
		SEE SPECIFICATIONS
NOT SHOWN	18 GAUGE MULTI STRAND OR 14 GAUGE SINGLE STRAND SHIELDED COPPER IRRIGATION CONTROL WIRE.	COORDINATE WITH ALL TRADES
SLV	SLEEVE (SIZE TO BE A MINIMUM OF TWICE THE DIAMETER OF THE MAINLINE OR LATERAL.)	COORDINATE WITH ALL TRADES
WC	WIRE CHASE, SIZE TO BE TWICE THE DIAMETER OF THE WIRE BUNDLE WITHIN, 1" DIA. WC IS THE MINIMUM SIZED ALLOWED.	COORDINATE WITH ALL TRADES



KEY PLAN

SCALE: 1"=200'

N

20' 0 20' 40' 60'

SCALE: 1"=20'-0" ON 24X36 SHEET

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CONSULTANTS:

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PROJECT:
OQUIRRH MOUNTAIN RANCH
PRELIMINARY PLATT SUMITTAL
EAGLE MOUNTAIN - UTAH - 84005

SHEET TITLE:
OPEN SPACE IRRIGATION PLAN

DRAWN BY:	SEW
CHECKED:	CBW
DATE:	12-12-2014
REVISIONS:	--
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JOB NO.	14-177

SHEET:
LS2.1

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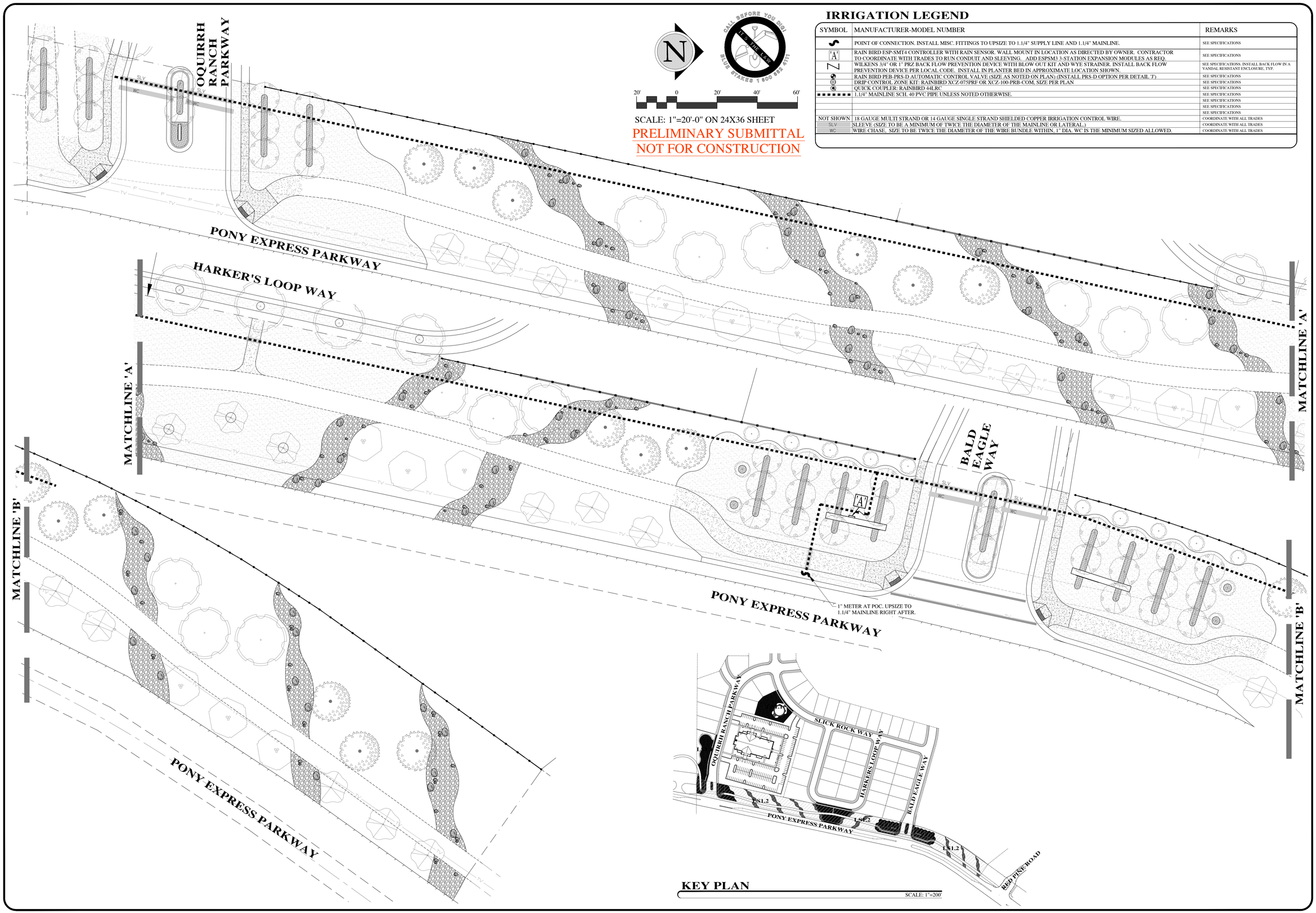

SCALE: 1"=20'-0" ON 24X36 SHEET

PRELIMINARY SUBMITTAL
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IRRIGATION LEGEND

SYMBOL	MANUFACTURER-MODEL NUMBER	REMARKS
S	POINT OF CONNECTION. INSTALL MISC. FITTINGS TO UPSIZE TO 1.1/4" SUPPLY LINE AND 1.1/4" MAINLINE.	SEE SPECIFICATIONS
A	RAIN BIRD ESP-SMT4 CONTROLLER WITH RAIN SENSOR. WALL MOUNT IN LOCATION AS DIRECTED BY OWNER. CONTRACTOR TO COORDINATE WITH TRADES TO RUN CONDUIT AND SLEEVING. ADD ESPSM3 3-STATION EXPANSION MODULES AS REQ.	SEE SPECIFICATIONS
Z	WILKENS 3/4" OR 1" PRZ BACK FLOW PREVENTION DEVICE WITH BLOW OUT KIT AND WYE STRAINER. INSTALL BACK FLOW PREVENTION DEVICE PER LOCAL CODE. INSTALL IN PLANTER BED IN APPROXIMATE LOCATION SHOWN.	SEE SPECIFICATIONS. INSTALL BACK FLOW IN A VANDAL RESISTANT ENCLOSURE, TYP.
	RAIN BIRD PEB-PRS-D AUTOMATIC CONTROL VALVE (SIZE AS NOTED ON PLAN) (INSTALL PRS-D OPTION PER DETAIL 'J')	SEE SPECIFICATIONS
	DRIP CONTROL ZONE KIT: RAINBIRD XCZ-075PRF OR XCZ-100-PRB-COM, SIZE PER PLAN	SEE SPECIFICATIONS
	QUICK COUPLER: RAINBIRD 44LRC	SEE SPECIFICATIONS
	1.1/4" MAINLINE SCH. 40 PVC PIPE UNLESS NOTED OTHERWISE.	SEE SPECIFICATIONS
		SEE SPECIFICATIONS
		SEE SPECIFICATIONS
		SEE SPECIFICATIONS
NOT SHOWN	18 GAUGE MULTI STRAND OR 14 GAUGE SINGLE STRAND SHIELDED COPPER IRRIGATION CONTROL WIRE.	COORDINATE WITH ALL TRADES
SLV	SLEEVE (SIZE TO BE A MINIMUM OF TWICE THE DIAMETER OF THE MAINLINE OR LATERAL.)	COORDINATE WITH ALL TRADES
WC	WIRE CHASE. SIZE TO BE TWICE THE DIAMETER OF THE WIRE BUNDLE WITHIN, 1" DIA. WC IS THE MINIMUM SIZED ALLOWED.	COORDINATE WITH ALL TRADES

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CONSULTANTS:

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PROJECT:

OQUIRRH MOUNTAIN RANCH
PRELIMINARY PLATT SUMITTAL
EAGLE MOUNTAIN - UTAH - 84005

SHEET TITLE:

R.O.W.
IRRIGATION
PLAN

DRAWN BY:	SEW
CHECKED:	CBW
DATE:	12-12-2014
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JOB NO.	14-177

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SECTION 312216 - FINE GRADING

PART 1 - GENERAL

1.1 SUMMARY
A. Includes But Not Limited To:
1. Perform fine grading work required to prepare site for paving finish grading and for landscape finish grading and soil preparation as described in Documents.
B. Related Sections:
1. Section 329113: Finish grading and soil preparation for landscaping.
2. Section 311000: Site clearing (if applicable).

1.2 REFERENCES
A. American Society For Testing And Materials:
1. ASTM D 1557-02, 'Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.'

1.3 QUALITY ASSURANCE
A. Pre-Installation Conference: Participate in pre-installation conference.
PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 EXAMINATION
A. Do not commence work of this Section until grading tolerances are met.

3.2 PREPARATION
A. Protection: Protect utilities and site elements from damage.
B. Surface Preparation:
1. Before grading, dig out weeds from proposed lawn and other planting areas by their roots and remove from site. Remove from site all rocks larger than 1/2 inches in size and foreign matter such as building rubble, wire, cans, sticks, concrete, etc. Excavate down deep enough in new planters and lawn areas to allow for new imported and/or amendments to stokepiled topsoil, wood mulch and cobble rock depth per plans.
2. Remove imported paving base material present in lawn or planting areas down to natural subgrade or other material acceptable to Landscape Architect. This shall be performed as part of the base bid and shall be done at no additional cost to the Owner.
3. Limit use of heavy equipment to areas no closer than 6 feet from building or other permanent structures.
4. See civil engineer's plans for additional requirements.
C. Contractor shall field verify all existing and proposed utilities, trees, plants, buildings, structures, roads, curb and gutter, sidewalks, irrigation system, utilities, easements, setbacks, Right-of-ways, etc. to make sure no conflicts exist between existing conditions and proposed plans. Contractor shall be responsible to make on-site field adjustments as may be required due to discrepancies found during construction. Contractor and Owner agrees to hold In-Site Design Group harmless for any and all such discrepancies including costs associated with such discrepancies including repair, replacement or anything related to such discrepancies.

3.3 PERFORMANCE
A. Site Tolerances:
1. Maximum variation from required grades shall be 1/10 of one foot.
2. To allow for final finish grades of planting areas, fine grade elevations before placing topsoil are:
a. New Sod Areas: Approx. 5-3/4 inches below top of walk or curb.
b. Tree, Shrub, Perennial, Groundcover and Ornamental Grass Areas: 16 to 16-1/2 inches below top of walk or curb under 3 deep Decorative Cobble Rock or wood mulch areas.
B. Do not expose or damage existing shrub or tree roots that are to be protected in place. Contractor shall confirm with Owner all vegetation that shall remain in place prior to demolition of the project. Refer to demolition plans and/or tree protection plans for additional information.
C. Distribute approved imported topsoil, amendments, cobble rock, wood mulch etc. per plans. Remove organic material, rocks and clods greater than 1-1/2 inch in any dimension, excavated planter soil, excavated lawn soil and other materials and other objectionable materials from the site at no additional cost to the Owner as part of the base bid.
D. Unless otherwise noted on civil plans, slope grade away from building for 12 feet minimum from walls at slope of 1/2 inch in 12 inches minimum unless otherwise noted. Direct surface drainage in manner indicated on Civil Drawings by molding surface to facilitate natural runoff of water. Fill low spots and pockets with specified fill material and grade to drain properly.

END OF SECTION 312216

SECTION 320101 - PLANT MAINTENANCE

PART 1 - GENERAL

1.1 SUMMARY
A. Includes But Not Limited To:
1. Provide maintenance for new landscaping as described in Contract Documents.
B. Related Sections:
1. Section 329001: Common Planting Requirements.

PART 2 - PRODUCTS: Not Used

PART 3 - EXECUTION

3.1 PERFORMANCE
A. General:
1. Before beginning maintenance period, plants shall be in at least as sound, healthy, vigorous, and in approved condition as when delivered to site, unless accepted by Landscape Architect in writing at final landscape inspection
2. Maintain all new lawn and landscaping from completion of landscape installation to 60 days after Substantial Completion Meeting.
3. Replace landscaping that is dead or appears unhealthy or non-vigorous as directed by Architect at end of maintenance period. Make replacements within 5 days of notification. Lawn that does not live and has to be replaced shall be guaranteed and maintained an additional 60 days from date of replacement.
B. Sodded Lawn:
1. Maintain sodded lawn areas until lawn complies with specified requirements and throughout maintenance period.
2. Water sodded areas in sufficient quantities and at required frequency to maintain sub-soil immediately under sod continuously moist 3 to 4 inches deep.
3. Cut grass first time when it reaches 3 inches high. Continue to mow at least once each week throughout maintenance period. Remove clippings.
4. Apply weed killer as necessary to maintain weed-free lawn. Apply weed killer in accordance with manufacturer's instructions during calm weather when air temperature is between 50 and 80 deg F.
5. At end of 60 day maintenance period, fertilize lawns with 16-16-8 (or per Owner's/Manufacturers/Landscape Architects directive) at rate recommended by Fertilizer Manufacturer.
C. Trees, Shrubs and Plants:
1. Maintain by pruning, cultivating, and weeding as required for healthy growth.
2. Restore planting basins.
3. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical positions as required.
4. Spray as required to keep trees and shrubs free of insects and disease.
5. Provide supplemental water by hand as needed in addition to water from sprinkling system.
6. Adjust run time of sprinklers and drip as necessary (during 1 year warranty period) in order to avoid over or under watering of lawn, plants and trees including adjusting quantity, size, etc. of drip emitters.
7. Provide at least monthly visual inspections (during the 1 year warranty period) of project during normal growing season to monitor and make sure plants and lawn are not being over or under watered. Prepare and file a monthly report of findings to Architect and Owner. Make adjustments to system based on findings at no additional cost to Owner including reprogramming of controller(s) and/or adjusting quantity and size of emitters to plants each month during the first year (growing season only) as necessary.

END OF SECTION 320101

SECTION 329001 - COMMON PLANTING REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY
A. Includes But Not Limited To:
1. Common procedures and requirements for landscaping work.
B. Related Sections:
1. Section 328423: Underground Irrigation.

1.2 QUALITY ASSURANCE
A. Qualifications:
1. Trained personnel familiar with required planting procedures and Contract Documents shall perform planting.
2. Planting shall be performed under direction of foreman or supervisor with minimum five years experience in landscape installations.
B. Pre-Installation Conferences:
1. Participate in pre-installation conference.
2. Schedule planting pre-installation conference after completion of Fine Grading specified in Section 312216, but before beginning landscape work. In addition to these requirements:
a. Establish responsibility for maintenance of new landscaping during all phases of construction period.
b. Prepare three typical landscape planting excavations (at different locations around the site) and conduct percolation test to verify that water drains away within two hours. Discuss results of percolation tests with Landscape Architect and Owner's representative prior to proceeding with planting. If this is not done, Contractor assumes all liability for planting in soils that do not drain properly.

1.3 DELIVERY, STORAGE, AND HANDLING
A. Deliver packaged materials in containers showing weight, analysis, and name of Manufacturer. Protect materials from deterioration during delivery and while stored at site. A minimum of 25% of all plant material shall be labeled with the Botanical Name of the plant as well as the plant/pot size.
B. Deliver sod, plants, trees, and shrubs and other plants in healthy and vigorous condition and store in location on site where they will not be endangered and where they can be adequately watered and kept in healthy and vigorous condition.

1.4 SEQUENCING
A. Do not plant trees and shrubs until major construction operations are completed. Do not commence landscaping work until work of Sections 312216 and 328423 has been completed and approved.
B. Coordinate installation of planting materials during normal planting seasons for each type of plant material required.

PART 2 - PRODUCTS: Not Used

PART 3 - EXECUTION

3.1 INSTALLERS
A. To be pre-approved by Owner before bidding.

3.2 EXAMINATION
A. Inspect site and Contract Documents to become thoroughly acquainted with locations of existing and proposed utilities on site. Repair damage to these and other items adjacent to landscaping caused by work of this Section or replace at no additional cost to Owner. Contractor shall call Blue Stakes prior to commencing work on the project and shall keep the Blue Staking up to date as required. Any damage to existing Utilities, landscaping and irrigation shall be repaired at the expense of the Contractor with no additional costs to the Owner.

3.3 PREPARATION
A. Before proceeding with work, verify dimensions and quantities. Report variations between Drawings and site to Landscape Architect before proceeding with landscape work.
1. Plant and all other landscape totals are for convenience of Contractor only and are not guaranteed. Verify amounts shown on Drawings prior to submitting bid and notify Architect of any discrepancies.
2. All planting and other landscaping indicated on Drawings is required unless indicated otherwise.
B. Contractor shall field verify all existing and proposed utilities, trees, plants, buildings, structures, roads, curb and gutter, sidewalks, irrigation system, utilities, easements, setbacks, right-of-ways, etc. to make sure no conflicts exist between existing conditions and proposed plans. Contractor shall be responsible to make on-site field adjustments as may be required due to discrepancies found during construction. Contractor and Owner agrees to hold In-Site Design Group, harmless for any and all such discrepancies including costs associated with such discrepancies including repair, replacement or anything related to such discrepancies.
C. Protection:
1. Take care in performing landscaping work to avoid conditions that will create hazards. Post signs or barriers as required.
2. Provide adequate means for protection from damage through excessive erosion, flooding, heavy rains, etc. Repair or replace damaged areas.
3. Keep site well drained and landscape excavations dry.

3.4 INSTALLATION
A. All excavation with-in the dripline of any trees or plants to remain shall be done by hand.
B. Maintain grade stakes until parties concerned mutually agree upon removal.
C. When conditions detrimental to plant growth are encountered, such as rubble fill or adverse drainage conditions, notify Landscape Architect before planting.

3.5 FIELD QUALITY CONTROL
A. Inspection:
1. Landscape Architect will inspect landscaping installation approximately one to two weeks before Substantial Completion. Contractor shall replace landscaping that is dead or appears dead as directed by Landscape Architect within 3 days of notification and before Substantial Completion.

3.6 ADJUSTING
A. Replace damaged plantings at no additional cost to Owner.

3.7 CLEANING
A. Immediately clean up soil or debris spilled onto pavement and dispose of deleterious materials at no additional cost to the Owner.

3.8 PROTECTION
A. Protect planted areas against traffic or other use immediately after planting is completed by placing adequate warning signs, barricades etc. as approved by Owner.
B. Provide adequate protection of planted areas against trespassing, erosion, and damage of any kind. Remove this protection after Landscape Architect and Owner has accepted planted areas.

END OF SECTION 329001

SECTION 329113 - FINISH GRADING AND SOIL PREPARATION

PART 1 - GENERAL

1.1 SUMMARY
A. Includes But Not Limited To:
1. Perform finish grading and soil preparation work required to prepare site for installation of landscaping as described in Contract Documents.
2. Furnish and implement imported topsoil as described in Contract Documents.
3. Furnish and apply soil amendments and conditioners as described in Contract Documents.
4. Excavate existing landscape areas in order to implement new lawn, plants, cobble rock or wood mulch and soil and amendments.
B. Related Sections:
1. Section 329223: Sodding.
2. Section 312216: Fine Grading.
3. Section 311000: Site Clearing (if applicable).

1.2 REFERENCES
A. American Society For Testing And Materials:
1. ASTM 1557-02, 'Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.'

1.3 SUBMITTALS
A. Product Data:
1. Chemical / nutrient analysis of imported topsoil.
2. Product literature and chemical / nutrient analysis of soil amendments, conditioners and fertilizers.
B. Provide (4) copies of all submittals for this project in a 3-ring binder including irrigation submittals, soils and amendments submittals, etc. Submittals shall be received and approved by Landscape Architect and Owner prior to Contractor beginning construction activities. With Owner approval, submittals may be submitted electronically via email.
C. Samples: Sample of soil amendments and conditioner for approval before delivery to site. Include product analysis list. Samples are only needed for these items if requested by Owner. Landscape Architect only needs analysis and data cut sheets in order to approve the materials.
D. Quality Assurance / Control:
1. Delivery slips indicating amount of soil amendments and conditioner delivered to Project site.

1.4 QUALITY ASSURANCE
A. Pre-Installation Conference: Participate in pre-installation conference.

PART 2 - PRODUCTS

2.1 MATERIALS
A. Topsoil:
1. Imported or Stockpiled on-site topsoil for use in landscaped areas shall be fertile, loose, friable soil meeting following criteria:
a. Chemical Characteristics:
1) Acidity / alkalinity range: pH 5.5 to 8.0
2) Soluble Salts: less than 3.0 mmhos/cm
3) Sodium Absorption Ratio (SAR): less than 6.0
4) Organic Matter: greater than two percent
b. Physical Characteristics:
1) Gradation as defined by USDA triangle of physical characteristics as measured by hydrometer.
a) Sand: 15 to 60 percent.
b) Silt: 10 to 60 percent.
c) Clay: 5 to 30 percent.
2) Clean and free from toxic minerals and chemicals, noxious weeds, rocks larger than 1-1/2 inch in any dimension, and other objectionable materials.
3) Soil shall not contain more than 5 percent by volume of rocks measuring 2mm to 4.75mm in largest size.
4) All rocks greater than 4.75mm shall be screened and removed from the on-site topsoil prior to use. All roots, plants and any other material over ½ inch in any dimension shall be screened out of the topsoil prior to reuse in lawn and landscape areas.
2. When calculating quantities for topsoil and amendments, a compaction factor of 10% should be added therefore instead of adding just 4 of topsoil in lawn areas for example, the contractor will really be responsible for spreading 4.4 of topsoil in lawn areas. The same rule applies for soil and soil amendments in lawn and planter areas. Topsoil shall be settled (per section 3.3 below) prior to installing sod and plants.
3. When backfilling planter pits, the native soil, imported soil and amendments shall be thoroughly mixed so that soil interfacing does not occur .

PART 3 - EXECUTION

3.1 EXAMINATION
A. Do not commence work of this Section until grading tolerances specified in Section 312216 are met.
B. Contractor shall field verify all existing and proposed utilities, trees, plants, buildings, structures, roads, curb and gutter, sidewalks, irrigation system, utilities, easements, setbacks, right-of-ways, etc. to make sure no conflicts exist between existing conditions and proposed plans. Contractor shall be responsible to make on-site field adjustments as may be required due to discrepancies found during construction. Contractor and Owner agrees to hold In-Site Design Group harmless for any and all such discrepancies including costs associated with such discrepancies including repair, replacement or anything related to such discrepancies.

3.2 PREPARATION
A. Protection: Protect utilities and site elements from damage.
B. Surface Preparation:
1. Haul-off and removal of tree stumps, shrubs, concrete, excavated soils and other materials shall be a lump sum price and shall be part of the base bid.
2. After excavation of lawn and planter areas has occurred, disk, till, or aerate with approved agricultural aerator to a depth of 6 inches in lawn areas and 12 in planter areas. Cross rip or till subgrade before placing topsoil and amendments in all areas.
3. Contractor shall be responsible for removing all unused soils and/or excavated soils and other materials (including excavated rock, cobble, bark, tree stumps, shrubs and other plant material, concrete, etc.) from the site at no additional cost to the Owner. Owner shall approve removal of all extra stripped soil prior to removal from the site. Owner retains ownership if they so desire otherwise the contractor will be responsible for removing excess soils from the site as part of their base bid.
4. Seven days maximum before beginning planting:
a. Loosen area 4 inches deep, dampen thoroughly, and cultivate to properly break up clods and lumps.
b. Rake area to remove clods, rocks, weeds, roots, and debris.
c. Grade and shape landscape area to bring surface to true uniform planes free from irregularities and to provide drainage and proper slope to catch basins.
5. Limit use of heavy equipment to areas no closer than 6 feet from building or other permanent structures. Use hand held tillers for preparation of subsoil in areas closer then 6 feet.

3.3 PERFORMANCE
A. Site Tolerances:
1. Total Topsoil Depth:
a. New Lawn Planting Areas: 4 inches minimum including amendments (plus the 10% for compaction).
b. New Tree and Shrub Planting Areas: 5x the root ball width to depth of root ball for Trees and 3x root ball width on shrubs including amendments (plus the10% for compaction).
2. Finish grade of planting areas before planting and after addition of soil additives shall be specified distances below top of adjacent pavement of any kind:
a. Sodded Areas: Approx. 1inch below (from top of pavement to top of sod, not bottom of sod).
b. Shrub Areas: 4 to 4-1/2 inches below in 3 inch deep decorative cobble rock or wood mulch areas. See landscape plans for more information.
B. Do not expose or damage existing shrub or tree roots. See section 322216 and tree protection plan (if part of the drawing package) for more information.
C. Distribute approved imported topsoil and amendments. Remove organic material, rocks and clods greater than 1-1/2 inch in any dimension, and other objectionable materials and remove from site as part of the base bid and at no additional cost to the Owner.
D. Water settle topsoil in lawn and planter areas as may be required so that lawn, plants and irrigation components do not settle and sink.
E. Where topsoil depth is 12 inches or greater, place topsoil in layers not to exceed 12 inches and, to prevent settling, compact to 85 percent relative density in accordance with ASTM D 1557. Do not place topsoil whose moisture content makes it prone to compaction during placement process.
F. Slope grade away from building for 12 feet minimum from walls at slope of 1/2 inch in 12 inches minimum unless otherwise noted. Direct surface drainage in manner indicated on Drawings by molding surface to facilitate natural run-off of water. Fill low spots and pockets with topsoil and grade to drain properly.
G. Add specified soil amendments at specified rates to lawn and planter areas. Roto-till or otherwise mix amendments evenly into top 4 inches of topsoil in lawn areas and into top 12 inches in other planter areas. Incorporate and leach soil amendments which require leaching, such as gypsum, within such time limits that soil is sufficiently dry to allow proper application of fertilizer, soil amendments and conditioners.
H. After landscape areas have been prepared, take no heavy objects over them except lawn rollers. Immediately before planting lawn and with topsoil in semi-dry condition, roll areas that are to receive lawn in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs, depending on soil type. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.

END OF SECTION 329113

SECTION 329223 - SODDING

PART 1 - GENERAL

1.1 SUMMARY
A. Includes But Not Limited To:
1. Furnish and install sodded lawn as described in Contract Documents.
B. Related Sections:
1. Section 329001: Common Planting Requirements.
2. Section 329113: Finish Grading and Soil Preparation.

1.2 SUBMITTALS
A. Quality Assurance / Control:
1. Written certification confirming lawn seed quality and mix.

1.3 DELIVERY, STORAGE, AND HANDLING
A. Harvest, deliver, store, and handle sod in accordance with requirements of 'American Sod Producers
(ASPA) Specifications for Turfgrass Sod Materials and Transplanting / Installing.'
B. Cut and lift sod by method acceptable to Landscape Architect. Cut sod in pieces approx. 3/4 to 1 inch
thick. Roll or fold sod so it may be lifted and handled without breaking or tearing and without loss of soil.
C. Schedule deliveries to coincide with topsoil operations and laying. Keep storage at job site to minimum
without causing delays.
1. Deliver, unload, and store sod on pallets within 24 hours of being lifted.
2. Do not deliver small, irregular or broken pieces of sod.
D. During wet weather, allow sod to dry sufficiently to prevent tearing during lifting and handling. During dry
weather, protect sod from drying before installation. Water as necessary to insure vitality and to prevent
excess loss of soil in handling. Sod that dries out before installation will be rejected.

1.4 SEQUENCING
A. Do not commence work of this Section until work of Sections 329113 and 329300 have been completed
and approved.

PART 2 - PRODUCTS

2.1 MATERIALS
A. Certified Sod:
1. Superior sod grown from certified, high quality, seed of known origin or from plantings of certified grass seedlings or stolons:
a. Assure satisfactory genetic identity and purity.
b. Assure over-all high quality and freedom from noxious weeds or an excessive amount of other crop and weedy plants at time of harvest.
2. Sod shall be composed of 100% Kentucky Bluegrass (three varieties minimum).

PART 3 - EXECUTION

3.1 INSTALLATION
A. Site Tolerances: Final grade of soil (the top of the sod) after sodding of lawn areas is complete shall be approx. one inch below top of adjacent curb, sidewalk or pavement of any kind. Consult with Landscape Architect and Owner on-site to determine final finished grade of lawn areas prior to installing sod.
B. Laying of Sod:
1. Roll sod areas prior to laying sod per Section 329113.
2. Lay sod during growing season. Sodding during dry summer period, at freezing temperatures, or over frozen soil is not acceptable.
3. Lay sod within 36 hours of being lifted.
4. Lay sod in rows with joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with a sharp knife.
5. Lay sod flush with adjoining existing sodded surfaces.
6. Do not sod slopes steeper than 3:1. Consult with Landscape Architect for alternate treatment.
C. After Sodding Is Complete:
1. Roll horizontal surface areas in two directions perpendicular to each other.
2. Repair and re-roll areas with depressions, lumps, or other irregularities. Heavy rolling to correct irregularities in grade will not be permitted.
3. Water sod immediately after laying to obtain moisture penetration into top 4 of amended topsoil.

3.2 FIELD QUALITY CONTROL
A. Inspection:
1. Sodded areas will be accepted at final inspection if:
a. Sodded areas are properly established.
b. Sod is free of bare and dead spots and is without weeds.
c. No surface soil is visible when grass has been cut to height of 2 inches.
d. Sodded areas have been mowed a minimum of twice by Contractor. Sod shall still be maintained min. 60 days from substantial completion.
2. Areas sodded after Nov. 1st will be accepted following spring (May 1st) approximately one month after start of growing season if specified conditions have been met.

END OF SECTION 329223

SECTION 329300 - PLANTS

PART 1 - GENERAL

1.1 SUMMARY
A. Includes But Not Limited To:
1. Furnish and install landscaping plants as described in Contract Documents.
B. Related Sections:
1. Section 329001: Common Planting Requirements.

1.2 REFERENCES
A. American Nursery & Landscape Association / American National Standards Institute:
1. ANLA / ANSI Z60.1-2004, 'American Standard for Nursery Stock.'

1.3 SUBMITTALS
A. Samples: Decorative cobble rock and/or wood mulch for approval before delivery to site. Owner and/or Landscape Architect shall approve samples prior to delivery to site.
B. Cut sheets and manufacturer information for weed barrier fabric and stakes, tree staking materials, herbicide and pre-emergent herbicide.
C. Provide (3) hardcopy copies of all submittals for this project including irrigation submittals, soils and amendments submittals, etc. Submittals shall be received and approved by Landscape Architect and/or Owner prior to Contractor beginning construction activities.
D. With Owner approval, these submittals as well as other landscape and irrigation submittals may be done electronically vial email.

1.4 DELIVERY, STORAGE, AND HANDLING
A. Deliver healthy and vigorous trees, shrubs and other plant material.
1. Do not prune before delivery, except as approved by Landscape Architect.
2. Protect bark, branches, and root systems from sun scald, drying, whipping, and other handling and tying damage.
3. Do not bend or bind-in tree or shrubs in such a manner as to destroy natural shape.
4. Provide protective covering during delivery.
B. Handle balled stock by root ball or container. Do not drop trees and shrubs during delivery.
C. Deliver trees, shrubs, ornamental grasses and plants after preparations for planting have been completed and install immediately.
1. If planting is delayed more than six hours after delivery, set planting materials in shade and protect from weather and mechanical damage.
2. Set balled stock on ground and cover ball with soil, saw dust, or other acceptable material approved by Landscape Architect. Do not place on pavement.
3. Do not remove container-grown stock from containers before time of planting.
4. Water root systems of trees and shrubs stored on site with fine mist spray. Water as often as necessary to maintain root systems in moist condition.

1.5 SEQUENCING
A. Do not commence work of this Section until work of Section 329113 has been completed and approved.

1.6 WARRANTY:
A. Provide written warranties confirming following:
1. Furnished shrubs guaranteed to live and remain in strong, vigorous, and healthy condition for 1 year minimum from date landscape installation is accepted as 100% complete.
2. Trees guaranteed to live and remain in strong, vigorous, and healthy condition for 1 year from date landscape installation is accepted as 100% complete.
3. Any trees or other plants that die or are seriously stressed as determined by Owner or Landscape Architect only need to be replaced one time during the warranty period. If the same plant or trees dies twice within the 1 year warranty period, the Owner will be responsible for replacement at Owner's cost.
4. Contractor shall document clearly on as-built plans all plants and trees that are replaced during warranty period. If contractor fails to document this immediately after replacement (within 3 days of replacement) and provide written documentation to Architect and Owner within 5 days, Contractor will be liable for a second replacement if plant dies a second time during the 1 year warranty period.
5. 1 year warranty on all mowcurb, planter boxes, site furnishings and all other landscape and related items.

1.7 OWNER'S INSTRUCTIONS
A. Provide written instructions covering maintenance requirements by Owner for first 60 days of guarantee period beyond Contract maintenance period specified in Section 320101.

PART 2 - PRODUCTS

2.1 MATERIALS
A. Plants:
1. Conform to requirements of Plant List and Key on Drawings and to ANSI Z60.1.
2. Nomenclature: Plant names used in Plant List conform to 'Standardized Plant Names' by American Joint Committee on Horticultural Nomenclature except in cases not covered. In these instances, follow custom of nursery trade. Plants shall bear a tag showing the genus, species, and variety of at least 25 percent of each species delivered to site. All plants shall be approved by Landscape Architect prior to planting. Min. 72 hour notice shall be given to Landscape Architect for requested inspection.
3. Quality:
a. Plants shall be sound, healthy, vigorous, free from plant disease, insect pests or their eggs, noxious weeds, and have healthy, normal root systems. Container stock shall be well established and free of excessive root-bound conditions.
b. Do not prune plants or top trees prior to delivery.
c. Plant materials shall be subject to approval by Landscape Architect as to size, health, quality, and character.
d. Bare root trees are not acceptable.
e. Provide plant materials from licensed nursery or grower.
4. Measurements:
a. Measure height and spread of specimen plant materials with branches in their normal position as indicated on Drawings or Plant List.
b. Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches widest direction and 9 inches in narrowest would be classified as 12 inch stock.
c. Plants properly trimmed and transplanted should measure same in every direction.
d. Measure caliper of trees 6 inches above surface of ground.
e. Where caliper or other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.
f. Plant materials larger than those specified may be supplied, with prior written approval of Landscape Architect, and:
1) If complying with Contract Document requirements in all other respects.
2) If at no additional cost to Owner.
3) If sizes of roots or balls are increased proportionately.
5. Shape and Form:
a. Plant materials shall be symmetrical or typical for variety and species and conform to measurements specified in Plant List.
b. Well grown material will generally have height equal to or greater than spread. However, spread shall not be less than 2/3's of height.
B. Planting Mix in Tree and Other Plant Pits in planter areas: Treee and Shrub Backfill shall be 60% native soil excavated from planting pit, 20% Soil Pep and 20% Utelite Soil Conditioner thoroughly mixed prior to back-filling. See finish grading and soil preparation spec. for additional information. Fill material under concrete and other paving shall comply with civil and structural engineer plans and specs. See plans for more information.
C. Planting Tablets: Do not use.
D. Tree Stakes:
1. Acceptable Products:
a. 2 inch diameter Lodgepole Pine.
b. Equal as approved by Landscape Architect before bidding.
E. Tree Staking Ties:
1. Type Two Acceptable Products:
a. As indicated on plans.
b. Equal as approved by Landscape Architect before bidding.
F. Pre-Emergent Herbicide:
1. Contractor shall ensure that all plants noted in the planting plan will not be harmed by the selected pre-emergent herbicide. Contractor shall provide documentation to Landscape Architect showing acceptable use of selected herbicide. Contractor shall select the Pre-Emergent Herbicide and provide manufacture cut sheet to Landscape Architect for approval.
G. Weed Barrier:
1. DeWitt #5 20 year woven polypropylene weed barrier with staples at 5" O.C. triangular spacing and as per details.
2. Equal as approved by Landscape Architect before bidding.
I. Cobble Rock Mulch:
1. Acceptable Products:
a. Install double washed crushed rock. Exact material type and color to be selected by owner prior to installation through submittal process. Landscape contractor shall be responsible to wash rock if manufacturer does not wash the rock before delivery. See plans for depths. Equal as approved by Owner and Landscape Architect before bidding.
I. Wood Mulch:
1. Acceptable Products:
a. Chocolate colored wood mulch installed per plans. See plans for depths.
L. Mowcurb:
1. Acceptable Products:
a. Mowcurb under fence line shall be 6 deep x 12 wide flat cast-in-place concrete mowcurb under all 2 rail fencing or per plans.

PART 1 - EXECUTION

1.1 EXAMINATION
A. Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and site to Landscape Architect before proceeding with work of this Section.
B. Plant and landscape totals are for convenience only and are not guaranteed. Verify amounts shown on Drawings. All planting and landscaping materials indicated on Drawings is required unless indicated otherwise by Owner or Landscape Architect.
C. Contractor shall field verify all existing and proposed utilities, trees, plants, buildings, structures, roads, curb and gutter, sidewalks, irrigation system, utilities, easements, setbacks, right-of-ways, etc. to make sure no conflicts exist between existing conditions and proposed plans. Contractor shall be responsible to make on-site field adjustments as may be required due to discrepancies found during construction. Contractor and Owner agrees to hold In-Site Design Group harmless for any and all such discrepancies including costs associated with such discrepancies including repair, replacement or anything related to such discrepancies.

1.2 PREPARATION
A. Layout individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas. Secure Landscape Architect's and/or Owners acceptance before planting. Make minor adjustments as may be requested.

1.3 INSTALLATION
A. Excavation:
1. If underground construction work or obstructions are encountered in excavation of planting holes, Landscape Architect will select alternate locations.
2. Plant Excavation Size:
a. Diameter: Trees in planter areas or lawn areas with to be planted with amended topsoil and shall have five times the diameter of the root ball or container minimum hole over excavated. Shrubs planted in 100% amended soil will need over excavation if entire shrub bed areas has ben excavated down 12". If shrubs are located in isolated grouping shrubs materials shall have three times the diameter of the root ball or container hole be excavated.
See Section 329113 for more information.
b. Depth:
1) Shrubs: Depth of rootball in container (see detail).
2) Trees: Depth of rootball in burlap or container (see detail).
3. Roughen sides and bottoms of excavations.
B. Planting:
1. Before planting, test three typical planting excavations (in different areas of the site) with water and verify that water drains away within two hours. Inform Landscape Architect in writing if water does not drain properly. Do not plant trees or shrubs in holes that do not properly drain. If documentation is not given to Landscape Architect, the contractor will be liable for plants that die due to poor drainage including costs to further amend the soils and make plant replacements.
2. Removing Binders And Containers:
a. Remove top one / third of wire basket and burlap binders.
b. Remove plastic and twine binders from around root ball and tree trunk.
c. Remove wood boxes from around root ball. Remove box bottoms before positioning plant in hole. After plant is partially planted, remove remainder of box without injuring root ball.
3. Plant immediately after removing binding material and containers. Place trees and shrubs in holes so, after watering and settling, top of root ball shall be approximately one inch higher than finished grade. See details for more information.
4. Properly cut off broken or frayed roots.
5. Center plant in hole and backfill with specified planting mix. Except in heavy clay soils, make ring of mounded soil around hole perimeter to form watering basin.
6. Fill landscape excavations tamped planting mix. Settle by firming and watering to ensure top of ball one inch higher than surrounding soil.
7. Do not use muddy soil for backfilling.
8. Make adjustments in positions of plants as directed by Landscape Architect.
9. Thoroughly water trees and shrubs immediately after planting.
C. Supports for New Trees:
1. Provide new supports for trees noted on Drawings to be staked.
a. Remove nursery stakes delivered with and attached to trees.
b. Support shall consist of at least three tree stakes driven into hole base before backfill so roots are not damaged. Place stakes vertically and run parallel to tree trunk. Install stakes so 3 feet of stake length is below finish grade.
c. Place tree ties 6 to 12 inches below crotch of main tree canopy. Second set of tree ties may be required 18 to 24 inches above finish grade, if directed by Architect.
d. Remove tops of tree stakes so top of stake is 6 inches below main tree canopy to prevent damage to tree branches and canopy growth.
e. Provide bid alternate for tree staking. Tree staking will not be part of the base bid.
D. Weed Barrier Fabric:
1. Before placing weed barrier fabric and cobble rock, apply a granular pre-emergent herbicide to soil. After placing weed barrier fabric, plants and cobble rock, rake cobble rock smooth, wet cobble rock to entire depth, allow to dry, then apply a secondary application of pre-emergent herbicide to top of cobble rock.
2. Before planting and after application of herbicide in shrub beds, apply covering of specified weed barrier fabric.
3. Achieve 100 percent coverage over ground areas.
4. Overlap seams 6 inches minimum and fold over as per Contract Documents.
5. Staple at 5 feet on center each way with two at each corner.
6. Staple fabric at 12 inches on center along seams.
E. Post Planting Weed Control:
1. Apply specified pre-emergent herbicide to shrub planting areas after completion of planting.
2. Areas shall be free of existing weed growth prior to application of herbicide.
F. Mulching:
1. After initial application of pre-emergent herbicide, mulch tree and shrub areas with a layer of Decorative Cobble Rock or wood mulch as specified. Apply a secondary pre-emergent herbicide application once plants, wood mulch and cobble rock have been installed as noted above.
2. Place top dressing mulch to uniform depth for a neat finished appearance.
G. Mowcurb:
1. Compact subgrade and soil under mowcurb to a minimum of 85%.
2. Install cast-in-place concrete mowcurb per plans.
3. Provide control joints at 10' O.C.
4. Provide expansion joints with expansion material at 30' O.C. and where curb meets other hard surface areas such as sidewalks, curb and gutter, etc.
END OF SECTION 329300

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CONSULTANTS:

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PROJECT:
OQUIRRH MOUNTAIN RANCH
PRELIMINARY PLATT SUMITTAL
EAGLE MOUNTAIN - UTAH - 84005

SHEET TITLE:
PLANTING SPECIFICATIONS

DRAWN BY: SEW
CHECKED: CBW
DATE: 12-12-2014
REVISIONS: --
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JOB NO. 14-177

SHEET:
LS1.3

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SECTION 328423 - UNDERGROUND IRRIGATION

PART 1 - GENERAL

1.1 SUMMARY
A. Includes But Not Limited To:
1. Furnish and install planting irrigation system as described in Contract Documents complete with accessories/fittings necessary for proper installation and function.

1.2 SUBMITTALS
A. Product Data: Some irrigation materials specified are manufacturer specific however each bidding contractor may request substitutes for any parts of the irrigation system. This submittal shall be made during the bid process as per specs. All materials different than what is specified shall be approved in writing prior to bid submission. If submittals are not provided and approved per specs, the contractor shall use the specified manufactures for all irrigation components.
1. Manufacturer's cut sheets for each element of system. Provide (4) copies in 3-ring binders.
2. Parts lists for operating elements of system.
3. Manufacturer's printed literature on operation and maintenance of operating elements of system.
4. With Owner approval, these submittals as well as other landscape and irrigation submittals may be done electronically vial email.
B. Closeout:
1. Record Drawings:
a. As installation occurs, prepare accurate redlined record drawing to be submitted before final inspection, including:
1) Detail and dimension changes made during construction.
2) Significant details and dimensions not shown in original Contract Documents.
3) Field dimensioned locations of valve boxes, manual drains, quick-coupler valves, isolation valves, control wire runs not in mainline ditch, and both ends of sleeves.
4) Take dimensions from permanent constructed surfaces or edges located at or above finish grade.
5) Take and record dimensions at time of installation.
6) Give a copy of the as-builts to the Landscape Architect at substantial completion.
b. Reduce copy of record drawing to half-size, color all circuits, and laminate both sides with 5 mil thick or heavier plastic and give to Owner at project close-out.
2. Operations And Maintenance Manual Data:
a. Provide the following:
1) Instruction manual that contains complete instructions for system operation and maintenance, including spring start-up and winterizing.
2) Complete instructions on how to drain entire system.
3) At Owners request Contractor shall provide complete watering schedule for grow-in and long term watering. This shall be part of the base bid.

1.3 QUALITY ASSURANCE
A. Qualifications:
1. Use only trained personnel familiar with required irrigation system installation procedures.
2. Perform installation under direction of foreman or supervisor with five years minimum experience in sprinkling system installations.
B. Regulatory Requirements: Work and materials shall be in accordance with latest rules and regulations, and other applicable state or local laws. Nothing in Contract Documents is to be construed to permit work not conforming to these codes. Contractor shall apply for all permits and pay for the same. Please check all necessary building codes and other local codes and ordinances for proper installation of all project components including electrical work for controller(s). Provide documentation from governing authority as required by Architect.
C. Pre-Installation Conference: Schedule pre-installation conference before irrigation system installation begins. Demonstrate or describe method to be used to maintain head spacing from concrete walks, curbs etc. and to stabilize heads.
D. Weekly (or as deemed necessary by Landscape Architect) job site inspections and/or coordination meetings will be held throughout the construction process. Contractor is required to attend all site construction meetings with Owner and Architect.
E. Do not cut or trench through any roots 1-1/2 and larger. Hand excavate within the dripline of all existing trees and other plants noted to remain. Refer to Eagle Mountain City's guidelines for any irrigation to be installed under the existing Cedar Tree.
F. Insert a dielectric union wherever a copper-based metal (copper, brass, bronze) and an iron based metal (iron, galvanized steel, stainless steel) are joined together.
G. Contractor shall perform pressure test at irrigation stub where the RPZ will be installed prior to installation of irrigation system. If static pressure is greater than 100 psi, a pressure reducer will be required. Notify Landscape Architect of existing static pressure before beginning work on the system to determine if some redesign of the system if necessary.

1.4 DELIVERY, STORAGE, AND HANDLING
A. During delivery, installation, and storage protect materials from damage and prolonged exposure to sunlight.

1.5 SEQUENCING
A. Install sleeves before installation of cast-in-place concrete site elements, paving, walls, etc.

1.6 WARRANTY
A. Standard one year guarantee shall include:
1. Filling and repairing depressions and replacing plantings due to settlement of irrigation system trenches.
2. Adjusting system to supply proper coverage of areas to receive water. Remove or add additional sprinklers, valves, piping, tubing and emitters as may required so that over or under watering does not occur.
3. Provide at least monthly visual inspections (during the 1 year warranty period) of project during normal growing season to monitor and make sure plants are not being over or under watered. Prepare and file a monthly report of findings to Architect and Owner. Make adjustments to system based on findings at no additional cost to Owner including reprogramming of controller(s) and adjusting quantity and size of emitters each month during the first year (growing season only) if necessary.
4. Repair and replace any damaged and/or malfunctioning part of the irrigation system.
5. Ensuring system can be adequately drained and winterized.
6. Provide winterization and spring start-up of entire system during the first year of operation.

1.7 OWNER'S INSTRUCTIONS
A. After system is installed and approved, instruct Owner's designated personnel in complete operation and maintenance procedures. Program each new station for valves modified within scope of work.

1.8 MAINTENANCE
A. Extra Materials:
1. Furnish the following items before Final Closeout Review:
a. Two heavy-duty keys for isolation valves (if installed on this project).
b. Two heavy-duty keys for manual drains (if installed on this project).
c. Two quick coupler keys with brass hose swivel.

PART 2 - PRODUCTS

2.1 MATERIALS
A. Rock-Free Soil:
1. Backfill soil around PVC pipe.
2. Soil shall have rocks no larger than 1/2 inch in any dimension.
3. Can be on-site or imported material.
B. Pea Gravel:
1. For use around drains, valves, quick couplers, and rotor heads.
2. 1/2 inch maximum dimension, washed rock.
C. Sand: Fine granular material naturally produced by rock disintegration and free from organic material, mica, loam, clay, and other deleterious substances.
D. Native Material: Soil native to project site free of wood and other deleterious materials and rocks over 1/2 inches.
E. Topsoil: Imported topsoil material meeting the specified requirements. Remove rocks, roots, sticks, clods, debris, and other foreign matter over 1/2 inches longest dimension encountered during trenching and prior to installing topsoil.

2.2 COMPONENTS
A. Pipe, Pipe Fittings, And Connections:
B. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials which match pipe materials used in potable water systems. Where more than one type of materials or products are indicated, selection is Installer's option.
C. Piping: Provide pipe fittings and accessories of same material and weight/class as pipes, with joining method as indicated.
D. Pipe, Pipe Fittings and Connections:
1. Pipe shall be continuously and permanently marked with Manufacturer's name, size, schedule, type, and working pressure.
2. Pipe sizes shown on Drawings are minimum. Larger sizes may be substituted if at no additional cost to Owner.
3. Pipe:
a. Pressure Lines: PVC Sch. 40 pipe for irrigation mainline with sch. 80 fittings.
b. Lateral Lines: Schedule 40 PVC.
c. Quick Coupler Piping: Sch. 80 PVC or galvanized pipe per plans and details.
4. Fittings: Schedule 80 fittings except where detailed otherwise.
5. Use a dielectric union wherever a copper-based metal (copper, brass, bronze) is joined to an iron-based metal (iron, galvanized steel, stainless steel).
6. Sleeves for mainline and lateral lines:
a. Under Parking Area and Driveway Paving: Schedule 40 PVC Pipe up to 3 and Class 200 for 4 and larger.
b. All Other: Class 200 PVC Pipe.
c. Sleeve diameter shall be two times larger than pipe installed in sleeve.
7. Sleeves for control wiring:
a. Schedule 80 PVC grey electrical conduit shall be used for all sleeving of control wires under hardscape surfaces.
b. Sleeve diameter shall be two times larger than wire bundle installed in sleeve.
E. Sprinkler Heads:
1. Each type of head shall be the product of a single manufacturer.
2. Spray Heads in Lawn Areas:
a. Use the following:
1) Rainbird: 1804-PRS Series with MPR nozzles as noted on plans and legend for new lawn areas.
2) Equal as approved by Landscape Architect before bidding.
F. Sprinkler Risers:
1. Pop-up sprinkler heads shall have risers made up one of the following ways:
a. Risers for sprinkler heads 14 inches long minimum and 24 inches maximum.
1) Rainbird: Swing Pipe with barbed fittings.
2) Equal as approved by Landscape Architect before bidding.
G. Automatic Irrigation Control Wiring and Controller:
1. Control wire shall be UF-UL listed, 14 gauge insulated single strand copper wire.
2. Waterproof Wire Connectors:
a. Type Two Acceptable Products:
1) DBY or DBR by 3M
2) 'One Step' 20111SP by King Safety
3. Automatic controllers:
a. Rainbird Controller as noted in the Legend (size as required).
H. Valves:
1. Manual Drain Valves: Bronze or Brass ball valve (Ford Curb Stop) on main lines.
2. Automatic Valves:
a. Category Approved Products.
1) Rainbird: PEB Series valve with PRS-D option if the static water pressure at the first spray head after the valve is greater than 70 PSI.
2) Rainbird: XCZ-100-PRB-COM or XCZ-150-PRB-COM Control Zone Kits as noted in the legend.
3) Equal as approved by Landscape Architect before bid submission.
3. Isolation/shut off valves:
a. Category Approved Products:
1) Sch. 80 ball valve (line size).
2) Equal as approved by Landscape Architect before bidding.
4. Pressure Reducer: Not required for this project unless the static pressure exceeds 100 psi.
5. Quick Coupling Valves and Keys:
a. Category Approved Products.
1) Rainbird: 44LRC per plans and details with SH-1 Swivel, (2) 44K Valve Keys and (2) 2049 Cover Keys.
2) Equal as approved by Landscape Architect before bidding.
I. Valve Accessories:
1. Valve manifolds:
a. Pre-manufactured manifolds are not acceptable. Manifolds shall be custom built with schedule 80 toe nipples, couplers, pipe and misc. fittings as necessary.
2. Plastic Valve Boxes And Extensions:
a. Acceptable Products:
1) Rainbird.
2) Carson-Brookes.
3) Plymouth Products, Div Ametek.
4) Equal as approved by Architect before bidding.
3. Valve ID tags:
a. Acceptable Products:
1) Christy. Tags must be pre-printed. Consult with Landscape Architect for more information prior to ordering tags.
2) Equal as approved by Landscape Architect before bidding.
4. Valve Box Supports: Standard size fired clay paving bricks without holes. If Rainbird valve boxes are used, clay bricks are not required.
J. Thrust Blocks (not required for this project).
1. Thrust blocks for fittings on mainline pipe 3 and larger diameter.
2. Use 3,000 PSI concrete.
3. Use 2 mil plastic.
4. Use no. 4 Rebar wrapped or painted with asphalt tar based mastic coating.
K. Joint Restraint Harness (Only required for 3 and larger mainline piping):
1. Use a Leemco joint restraint harness wherever joints are not positively restrained by flanged fittings or threaded fittings.
2. Thrust blocks must be on native undisturbed soil.
3. Use a joint restraint harness with transition fittings between metal and PVC pipe, where weak trench banks do not allow the use of thrust blocks or where extra support is required to retain a fitting or joint (such as near a sleeve).
4. Use bolts, nuts, retaining clamps, all-thread, or other joint restraint harness materials which are zinc plated or galvanized.
5. Use on mainline pipe 3 inch and greater or any diameter rubber gasketed pipe. Install Leemco fittings with LH Series pipe to fitting joint restraint per manufacturers specs.
L. Drip System
a. Rainbird: XFD dripline per legend and plans (including all fittings, flush valves, air relief valves, etc.)
b. XCV-100 PRB-COM (flow kits w/ filters).
c. GPH drip emitters, tubing, etc. per plans and details.
d. Install drip stakes and other components as per details.
e. Equal as approved by Landscape Architect before bidding.
M. Other Components:
1. Provide all other components necessary to complete irrigation system and make it operational.

2.3 MANUFACTURERS
A. Contact Information:
1. Carson Industries LLC, Glendora, CA www.carsonind.com.
2. Hunter Industries, San Marcos, CA www.hunterindustries.com.
3. King Safety Products, St Charles, MO www.kingsafety.com.
4. Nibco Inc, Elkhart, IN www.nibco.com.
5. Orbit Irrigation Products, Bountiful, UT www.orbitonline.com.
6. Plymouth Products, Div Ametek, Sheboygan, MI www.plymouthwater.com.
7. Rain Bird Sprinkler Manufacturing Corp, Glendora, CA www.rainbird.com.
8. 3M, Austin, TX www.3m.com/elpd.
9. Equal as approved by Landscape Architect before bidding.

PART 3 - EXECUTION

3.1 INSTALLERS
A. To be pre-approved by Owner before bidding.

3.2 EXAMINATION
A. Site Verification of Conditions: Perform pressure test at stub-out on main water line provided for irrigation system at new mainline point of connection. Notify Landscape Architect of existing pressures to determine if some re-design of system is necessary before beginning work on system.
B. Contractor shall field verify all existing and proposed utilities, trees, plants, buildings, structures, roads, curb and gutter, sidewalks, irrigation system, utilities, easements, setbacks, Right-of-ways, etc. to make sure no conflicts exist between existing conditions and proposed plans. Contractor shall be responsible to make on-site field adjustments as may be required due to discrepancies found during construction. Contractor and Owner agrees to hold In-Site Design Group harmless for any and all such discrepancies including costs associated with such discrepancies including repair, replacement or anything related to such discrepancies.

3.3 PREPARATION
A. Protection:
1. Repair or replace work of this Section damaged during course of the Work at no additional cost to Owner. If damaged work is new, installer of original work shall perform repair or replacement.
2. Do not cut existing tree roots measuring over 1-1/2 inches in diameter in order to install irrigation lines. Route main and lateral lines around existing trees and other obstacles as necessary. Trenching is not allowed within the dripline of the existing Cedar. Consult with Eagle Mountain City for irrigation guidelines for irrigation components to be installed under this existing tree.
3. All utilities shall be blue staked before digging. Any damage to utilities shall be repaired at expense of the contractor with no additional cost to the owner.\PB. Layout of Irrigation Heads:
1. Location of heads and piping shown on Drawings is approximate. Actual placement may vary slightly as is required to achieve full, even coverage without spraying onto buildings, sidewalks, fences, etc. Contractor shall install additional pipe as necessary for complete and proper installation of system.
2. During layout, consult with Landscape Architect to verify proper placement and make recommendations, where revisions are advisable.
3. Minor adjustments in system layout will be permitted to avoid existing fixed obstructions.
4. Make certain changes from Contract Documents are shown on record drawings.

3.4 INSTALLATION
A. Trenching And Backfilling:
1. Pulling of pipe is not permitted.
2. Excavate trenches to specified depth. Remove rocks larger than 1-1/2 inch in any direction from bottom of trench. Separate out rocks larger than 1-1/2 inch in any direction uncovered in trenching operation from excavated material and remove from areas to receive landscaping and then remove from site at no additional cost to the Owner. All extra excavated material from irrigation installation shall be hauled off-site at no additional cost to the Owner.
3. Cover main line pipe with 2 of sand on top, bottom and sides of pipe as noted in Contract Documents. If excavated soil is acceptable to Landscape Architect, the sand will not need to be installed and a credit shall be issued to the Owner. Contractor shall bid a separate line item for sand bedding all irrigation mainline piping. Remainder of backfill to within 4 inches in lawn areas and 12 inches in planter areas shall be rock-free soil as specified under PART 2 PRODUCTS. Top 4 inches of backfill in lawn areas and top 12 inches of backfill in planter areas shall be screened and amended or imported topsoil as specified in Section 329113.
4. Do not cover pressure main, irrigation pipe, or fittings until Landscape Architect has inspected and approved system.
5. No trenching is allowed for all areas within the dripline of the existing Cedar tree.
B. Sleeving:
1. Sleeve water lines and control wires under walks and paving. Extend sleeves 18 inches minimum beyond walk or pavement edge. Cover sleeve ends until pipes and wires are installed to keep sleeve clean and free of dirt and debris.
2. Position sleeves with respect to buildings and other obstructions so pipe can be easily removed.
3. Patch and repair asphalt and concrete damaged during sleeving installation including excavation, backfill, compaction, road base or gravel, concrete, asphalt, cutting and/or boring, etc. These costs shall be part of the base bid.
C. Grades And Draining:
1. Winterization is required for this project. The irrigation system has been designed to be blown out with an air compressor through the RPZ or quick couplers); however, manual drains shall be installed at isolation/gate valve locations and other areas as directed by the Owner. Perform the following:
a. Slope pipe to drain to isolation valve locations.
b. At these locations install manual drain per detail and the following:
1) 1 bronze or brass ball valve (Ford Curb Stop) for manual drain. Do not use automatic drain valves.
2) Install 2 inch Class 200 PVC pipe over top of drain and cut at finish grade.
3) Provide rubber valve cap marker.
4) Provide two cubic foot pea gravel sump at outlet of each drain.
c. Slope pipes under parking areas or driveways to drain outside these areas.
d. Provide and install quick-coupling valves per plan for easy blowout of entire system.
D. Installation of Pipe:
1. Install pipe in manner to provide for expansion and contraction as recommended by Manufacturer.
2. Ensure that mainline and lateral lines don't conflict with proposed utilities, fire hydrants, light poles, underground sumps or storm drain and downspout piping or other utilities. Refer to civil and electrical plans for locations of these utilities. Re-route mainline and lateral lines as necessary to avoid these and all other utilities as may be required or requested by Owner, Architect, Civil Engineer, Electrical Engineer or Landscape Architect.
3. Unless otherwise indicated on Drawings, install main lines with minimum of 18 inches of cover based on finished grade. All other lateral lines connecting pop-up rotor and popup sprays with minimum of 12 inches of cover based on finish grade.
4. Install pipe and wires under driveways or parking areas in specified sleeves 24 below finish grade or as shown on Drawings.
5. Locate no sprinkler head closer than 6 inches from building foundation. Heads immediately adjacent to mow strips, walks, or curbs shall be one inch below top of mow strip, walk, or curb and have 4 inches clearance between head and mow strip, walk, or curb.
6. Insert a dielectric union wherever a copper-based metal (copper, brass, bronze) and an iron-based metal (iron, galvanized steel, stainless steel) are joined.
7. Cut plastic pipe square. Remove burrs at cut ends before installation so unobstructed flow will result.
8. Make solvent weld joints as follows:
a. Do not make solvent weld joints if ambient temperature is below 45 deg F.
b. Clean mating pipe and fitting with clean, dry cloth and apply one coat of P-70 primer to each.
c. Apply uniform coat of 711 solvent to outside of pipe.
d. Apply solvent to fitting in similar manner.
e. Give pipe or fitting a quarter turn to insure even distribution of solvent and make sure pipe is inserted to full depth of fitting socket.
f. Allow joints to set at least 24 hours before applying pressure to PVC pipe.
9. Tape threaded connections with teflon tape.
E. Thrust Blocks and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water-cementitious materials ratio.
1. Install thrust blocks on filter per details.
2. Use joint restraint for fittings on pressure pipe 3 inch diameter and larger.
3. Use a form to provide the appropriate amount and shape of concrete for the thrust block. Do not cover the fitting with concrete. The entire fitting must be serviceable when the thrust block is installed.
F. Joint Restraint Harness:
1. Install joint restraint harness in the manner recommended by the manufacturer, in accordance with the drawings these specifications and in accordance with accepted industry practices. The base bid for this project shall be to install joint restraints for all mainline pipe fittings 3 and larger.
G. Control Valves And Controller
1. Install valves in plastic boxes with reinforced heavy duty plastic covers. Locate valve boxes within 12 inches of sidewalks and shrub bed edges with tops at finish grade. Do not install more than two valves in single box.
2. Valve boxes placed in planter areas shall be brown or tan in color. Valve boxes placed in lawn areas shall be green in color. Valve boxes shall be capable of being bolted closed after installation.
3. Place 3 inches minimum of pea gravel below bricks supporting valve boxes to drain box. Set valve boxes over valve so all parts of valve can be reached for service. Set cover of valve box even with finish grade. Valve box cavity shall be reasonably free from dirt and debris.
4. Wiring:
a. Tape control wire every 10 feet and install beside and beneath the top of the mainline pipe. Where control wire leaves main or lateral line, enclose it in Sch. 80 electrical PVC conduit per specs.
b. Use waterproof wire connectors at splices and locate all splices within valve boxes.
c. Use wire as noted on contract documents or an approved equal.
d. Run one spare common wire (use a yellow wire) from panel continuously from valve to valve throughout system similar to common wire for use as a replacement if a wire fails. Run one extra hot wire (use blue wire) from panel continuously from valve to valve throughout system similar to common wire for use as a replacement if a wire fails. Mark spare control wires in control boxes as unconnected spare wires. Extend spare control wires 30 inches and leave coiled in each valve box.
5. Install controller per manufacturers specs.
H. Sprinkler Heads:
1. Before installation of sprinkler heads, open control valves and use full head of water to flush out system.
2. Set sprinkler heads and quick-coupling valves perpendicular to finish grade.
3. Do not install sprinklers using side inlets. Install using base inlets only, unless approved otherwise in writing by Landscape Architect.
4. Set sprinkler heads 4 away from existing walks, curbs, and other paved areas and to grade by using specified components or other method demonstrated in Pre-Construction Conference.
I. Drip Assembly:
1. Install pipe in manner to provide for expansion and contraction as recommended by Manufacturer.
2. Unless otherwise indicated on Drawings, install lateral lines connecting drip tubing with minimum of 12 inches of cover based on finish grade.
3. Locate drip emitter on uphill side of plant within rootball zone.
4. Rainbird drip tubing shall be set on top of soil and fabric but underneath cobble rock and colored wood mulch. AR tubing to be buried a minimum of 12" deep.
5. Rainbird XFD tubing shall be stapled to ground at 6 foot maximum intervals and within 12 inches of intersections (all directions).
6. Cut emitter tubing square. Remove burrs at cut ends before installation so unobstructed flow will result.
7. Assemble as per Drawings for number of emitters etc. per plant and per details.
8. Install per manufacturers specifications and per Drawing. Install additional piping as required. Piping layout on plan is schematic and additional pipe will need to be installed.
9. Flush system prior to attaching drip emitters. Install flush valve and 24 length of extra ½ or ¾ AR rubber tubing in 10 round valve box. Ensure that tubing does not get kinked in valve box.
10. Arrange valve stations to operate in an easy-to-view progressive sequence around project site. Tag valves with waterproof labels showing final sequence station assignments.

3.5 PIPE JOINT CONSTRUCTION
A. Basic pipe joint construction is specified in Division 33 Section "Common Work Results for Utilities." Where specific joint construction is not indicated, follow piping manufacturer's written instructions.
B. Join pressure piping according to the following:
1. Join PVC water-service piping according to ASTM D 2855 for solvent-cemented joints.
C. Join dissimilar pipe materials with pressure-type couplings.

3.6 FIELD QUALITY CONTROL
A. Site Tests: Before backfilling main line, conduct piping tests before joints are covered, and after thrust blocks have sufficiently hardened (or mechanical joint restraints are in place). Fill pipeline with water 24-hrs prior to testing, and apply test pressure to stabilize system. Test pressure at 150 psi minimum for 2 hours minimum and make certain there are no leaks. Notify Landscape Architect 3 working days minimum before conducting test.
B. Operational Test:
1. Activate each remote control valve in sequence from controller using both the remote control device and the controller. The Construction Project Representative will visually observe operation, water application patterns, and leakage.
2. Replace defective remote control valve, solenoid, wiring, or appurtenances to correct operational deficiencies.
3. Replace, adjust, or move water emission devices to correct operational or coverage deficiencies.
4. Replace defective pipe, fitting, joint, valve, sprinkler, or appurtenance to correct leakage problems. Cement or caulking to seal leaks is prohibited.
5. Repeat test(s) until each lateral passes all tests. Repeat tests, replace components, and correct deficiencies at no additional cost to the Owner.
C. Inspections: A full audit may be required for new irrigation lawn spray zones at Owners request. Contractor shall pay for this water audit and any necessary repairs/modifications needed to the system based on the report. Contractor shall provide a price for this water audit as an alternate to their irrigation base bid. A DU of 70 for rotors and 65 for sprays shall be achieved. Contractor's base bid shall include any needed modifications to system based on comments from Water Audit.

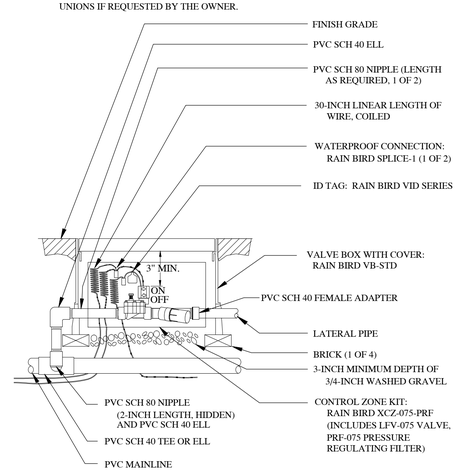
3.7 ADJUSTING
A. Adjust sprinkler heads to proper grade when turf is sufficiently established to allow walking on it without appreciable harm. Such lowering and raising of sprinkler heads shall be part of original contract with no additional cost to Owner.
B. Adjust sprinkler heads for proper distribution and trim so spray does not fall on buildings. Adjust sprinkler heads for proper distribution and trim so spray is minimized on sidewalks or parking areas. Install van nozzles where necessary.
C. Adjust watering time of valves to provide proper amounts of water to turf and plants.
D. Adjust drip irrigation (add or remove emitters as required for each plant so that over or under watering does not occur).

3.8 CLEANING
A. Upon completion of work, remove from the site all machinery, tools, excess materials, excess excavated soils, rock and other debris and rubbish at no additional cost to the Owner. In addition, contractor shall sweep, clean, power wash, etc. all areas of construction as may be required to leave the site clean.

3.9 FINAL INSPECTION
A. At the end of the 1 year guarantee period, when the lawn and landscaping have been approved, the Contractor shall call for a final inspection of the sprinkler irrigation system. There shall be five (5) days notice given, in writing, to the Owner and Landscape Architect, prior so that the appropriate people may attend.
B. Prior to that time, all heads shall have been adjusted to their proper pattern, radii, and height. The drip system shall be checked to make sure all emitters are working correctly. Additional tubing or emitters shall be installed or removed as necessary at this time to ensure that over or under watering does not occur. The system will have been flushed out, checked for operation, and any defects corrected. A final list of items found in need or correction (if any), will be made and the Contractor shall correct them. Upon acceptance of the system, the Owner shall assume all responsibility for the system.

END OF SECTION 328423

NOTE: MODIFY THIS DETAIL TO ADD UNIONS IF REQUESTED BY THE OWNER.



1 3/4" DRIP CONTROL ZONE KIT
SCALE: NTS

PRELIMINARY SUBMITTAL
NOT FOR CONSTRUCTION

IN-SITE DESIGN GROUP
Landscape Architecture and Land Planning
17 North 470 West, American Fork, Utah 84003
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CONSULTANTS:

STAMP

PROJECT:
OQUIRRH MOUNTAIN RANCH
PRELIMINARY PLATT SUMITTAL
EAGLE MOUNTAIN - UTAH - 84005

SHEET TITLE:
IRRIGATION LEGEND & SPECIFICATIONS

CALL BEFORE YOU DIG! IT'S THE LAW BLUE STAKES 1-800-662-4111

DRAWN BY:	SEW
CHECKED:	CBW
DATE:	12-12-2014
REVISIONS:	--
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JOB NO.	14-177

SHEET:
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