

Scope of Self-Help Project for BVHS “Field of Dreams”

Overview

The current self help proposal is to improve the safety, appearance and availability of playing fields that are currently in poor condition at Bella Vista High School (BVHS). Currently, no playing fields exist on-site for the girls’ softball team; to practice or play, this team walks one mile along Madison Avenue to their field. The varsity soccer, field hockey, and lacrosse fields are all poorly drained, leading to soft ground and poor traction. Conflicting band and football practice schedules overburden the stadium, leading to poor turf health. This Self-Help Project is designed to remedy these concerns.

While smaller in scope than previous phases of improvement at this site, these renovated fields will support an improved diversity of safe and accessible sports options for both boys and girls teams, as well as an expanded resource for community athletic activity.

Description of Work

The work to be performed under this self help proposal will result in:

1. A properly graded 75yd x 115yd varsity soccer field, N-S orientation
2. A re-graded 60yd x 110yd field hockey/lacrosse field
3. A 60yd long, full-width varsity football practice field/230ft discuss throw sector
4. A 60yd x 55yd band practice field

Completion of this project will create a much improved varsity soccer field and allow the conversion of current irrigated turf areas into Girls’ Varsity and JV softball and JV baseball fields. Modification of existing irrigation and drainage systems will allow for improved turf maintenance and field safety. Without this self-help project for soccer, field hockey, lacrosse and football/band practice, these new fields for softball and JV baseball could not be realized.

Current Conditions

The area for the new soccer and football practice fields is currently unused, and has no formal irrigation or drainage system. This area is dominated by large piles of soil, rubble, and uncontrolled vegetation. Current conditions are shown in this recent photograph, taken in the northeastern corner of the site. The site is bordered to the north and east by the Gum Ranch, the last large farm in Fair Oaks.



The area for the field hockey/lacrosse and band practice fields is north and west of Bronco Hill, and is currently occupied by the existing field hockey field and an unused area on the western slope of Bronco Hill. The layout of these proposed athletic fields is shown on the enclosed plan, “Phase 1 Grading and Drainage Plan”, Sheet GS-02, July 31, 2006 (Attachment A).

Project Elements

Planning and Site Preparation

- Site and field planning has been performed through in-kind services by California Design-West Architects. Though as much as 12,000cy of soil needs to be relocated and leveled, grading has been planned to require no import or export of soil; as much as 1200cy of organic compost will be imported to improve water retention and turf quality; field drainage has been stipulated at a minimum of 1.5% and more on athletic fields, to lead to swales and storm drain inlets serving new drainage pipes of 8 or 12 inch diameter. Planted slopes are at 4:1 in filled soil, and may be cut in competent formations in small slopes of up to 1:1 (for oak protection – see below). The primary features are presented in the “Phase 1 Grading and Drainage Plan” (Attachment A).
- Site Access for heavy equipment has been agreed to between BVHS Principal Marlyn Pino-Jones and Irving Gum, the owner of the surrounding property, on an asphalted road used for access into that property, entering in at the northwest end of the soccer field where the elevations on the property line are equal. This access has been arranged to assure equipment access by a route other than over the recently restored BVHS parking lot. Documentation of this agreement is included as Attachment B.
- Storm Water Pollution Prevention Planning (SWPPP) has been prepared on supplemental sheets (“Erosion Control Plan”, Sheet GS-03; “Erosion Control Plan – Notes and Details”, Sheet GS-04) to the grading plan (Attachment C). The elements of this plan include silt fences, bales of hay protection for storm drain inlets, and other runoff protection. These features are planned as a contingency to be installed before October 15, in the event that hydroseeding does not occur as scheduled, and so, is not in place in time to prevent erosion during the rainy season.
- Heritage oak preservation has been addressed with the Landscape & Tree Section of the Sacramento County Department of Transportation (Mr. Stephen Fellows, Attachment D). Per this contact, we are preserving two main areas where healthy stands of oaks are present. These areas have been fenced off and will be accommodated next to the soccer field, in the northeast and southwest corners. If some steepened slopes are needed to prevent cutting or filling into these areas, small (<2ft high) step walls, probably of a railroad tie landscape nature, are planned to provide seating and slope reinforcement.
- CEQA compliance has been addressed by SJUSD staff through the filing of a Categorical Exemption for this Self-Help project. Documentation of this in Attachment E.
- Site preparation has been executed under an authorized Self-Help project by 70 volunteers on two recent weekends through tree and vegetation removal, bleacher/goal post transport, and setting up protective fencing around oak trees near future grading areas. Removed vegetation has been chipped and placed on the southwest side of Bronco Hill, out of the future work area. It will be used for cover.
- Utility screening will be performed by Precision Locating.
- The CSD-1 Manhole near the west end of the current field hockey field has been identified; plans have been made to raise the manhole after the rough grading is completed, and to finish the surface in a manner that is accessible and safe for athletes. This work will be coordinated with Gayleen Hart, P.E. of County Sanitation District 1 (Attachment F).

Construction

- Mass Grading will be performed by Granite Construction, over approximately 6 acres of field. As much as 12,000cy of soil are expected to be moved, with little excess soil. SJUSD Specifications 02200 are incorporated by reference (Attachment G). A water truck and sheep's foot compactor will be used to compact the soil to at least 90%; the actual compaction achieved will be measured by a soils technician from Blackburn Consulting. This work will take about one week from site walk. We currently plan this work to begin August 14.
- Storm Drain Installation will be performed by a licensed contractor, under terms to be negotiated. SJUSD Specifications 02222 are incorporated by reference (Attachment G). This work will proceed when authorized by the SJUSD Construction Department.
- Irrigation System Installation will be by overseen by Gary Vollspedt (License #343434), with the bulk of the labor by volunteer services. SJUSD Specifications 02810 (Attachment G) are incorporated by reference. Mr. Vollspedt has over 30 years experience in field irrigation systems, including main line retrofits and soccer fields. He was referred to this project by Sprinkler Service & Supply, the proposed supplier of the irrigation system materials. This work is anticipated to take approximately 6 working days, expected to be on several successive weekends in September.
- Soil Amendments will be added per SJUSD Specifications 2900, parts 2.01-.03, and placed per parts 3.01-.03 (Attachment G). We envision as much as 1200 cy of compost and other amendments to be brought in and added to the soil of the playing fields, at least. This will likely occur over about three weekends after the storm drains are installed.
- Hydroseeding will be placed at a seed mixture equivalent to SJUSD Specifications 02900, part 2.06, with a Turf Establishment Period consistent with part 1.08 (Attachment G). We are targeting October 1 as the optimum date for hydroseeding, to avoid the hottest days of summer but still allow several weeks of growing season before the winter rains.

Expenses and Funding

Estimated Cost

This project is estimated to require up to \$200,900 to complete, less any additional community or in-kind donations received for drainage, irrigation and seeding. The itemized estimate is presented as Attachment H. In this attachment:

- the total retail value of the services and materials to be provided, if no donations of time or materials were to be received, are estimated at almost \$450,000
- the actual amount spent or negotiated is shown in regular font.
- the budgeted amount, currently under negotiation for further donations, is italicized.

The total budget to complete, at this time, is \$200,900, and consists of amounts we are confident are needed to be spent and other amounts that may need to be spent. These budgetary amounts are indicated in italics, and negotiations to reduce their cost are the active focus of our organizing team in delivering this project at the best value for SJUSD.

Funding

Funding will be secured according to the attached table (Attachment I), through Booster Club, athletic Affiliate Club, and San Juan School District Measure J Bond funds. In the event of funding shortfalls, contingency funding of an additional 87% over the target funding level has been identified. This exceptional financial security is due to sustained, active Booster fundraising, and these funds are currently aligned with improvements not essential to this project but desirable (e.g., future walkways, drinking fountains, benches and bleachers, etc) and other future needs. To promote project completion this season, if a significant funding shortfall were to occur we would pursue a short-term loan; we have already contacted two financial institutions for this eventuality, with favorable indications. For any such obligation we are confident repayment would be made within two years.

This contingency plan (short-term loan) is similar to the method used in 2003 by the BVHS Athletic Booster Club for the completion of the Snack Bar Plaza and Restroom complex. This improvement was completed during a previous phase of the BVHS Field of Dreams, which this Self-Help Project continues with its athletic field improvements. Many of the principal volunteers involved in that phase of Field of Dreams are continuing their involvement with this phase, so this short-term financing contingency is a familiar and proven project tool to the current volunteer team.

An important component of our funding would also come from support of the SJUSD. Measure J was passed by the District voters in 2002, and according to SJUSD Board Resolution (No. 2247, June 25, 2002) and other SJUSD communications, “playfield improvements” and “field improvements” are specifically identified as among the purposes of this bond funding. Records relating to this understanding of the intent for Measure J funding are presented as Attachment J.

This Self-Help project converts the layout originally conceived in 1959, allowing then for football and baseball exclusively, to a modern, drained, and intrinsically safer layout accommodating diverse girls’ and boys’ athletics and band activities. Elements of the work relating to materials specifically for field improvement and modernization are identified in Gold in Attachment H (totaling \$100,400); in Attachment I, this amount is presented as a funding source representing the difference between known Booster Club and Affiliate Club financing and the total estimated project cost (\$100,400).

Project Sequencing & Contingencies

This project is proceeding as resources become available; we understand a concern of the SJUSD is that a phase of this project might be started and left unfinished, resulting in an undesirable maintenance burden falling on the District to remedy. The sponsors and principals of this self-help project would like to reassure the District that this concern is prudent, but not compelling, given the level of support and momentum this project is already experiencing. Nevertheless, out of respect for the District, we have prepared this section to describe two possible future states of interim completion of this project, as could plausibly result from constraints of resources or support. In each case an assessment is made of the consequences that would result from these intermediate states, and contingencies are identified that would be implemented in response.

Interim Completion State #1 – Status Quo

Under this scenario no progress would be made on the project, and no changes to the current field configuration would be made. This scenario could occur if authorizations are withheld (e.g., by SJUSD or other entities). This scenario is not dependent on funding, as the funding to proceed is already in place. Under this scenario, our efforts would be focused on documentation as needed to secure approvals to proceed, and the schedule to shift athletic field usage from the current to the future layout would be delayed.

Interim Completion State #2 – Mass Grading and Storm Drains only

Under this scenario the shape of the land would be changed, and the storm drains installed, but no improvements necessary to plant and sustain athletic turf would be in place. Under this scenario, silt fences and other erosion control features would be installed prior to October 15. This scenario could occur if funding or in-kind donations are not realized for the irrigation system, soil amendment, and hydroseed elements (approximately \$115,000 on a retail basis). No approval constraints are known that could cause this scenario.

Under this scenario, the finish graded earth may allow casual growth of weeds, but not to the degree currently plaguing the site. The land would be configured to allow volunteer labor to continue working on a variety of constructive tasks (e.g., weeding, irrigation trenching, rock removal, soil amendment tilling, etc), and to allow planning to proceed on adjacent fields (i.e., softball). Because contingency storm water protection measures are planned and would be in place around all inlets, no sediment discharge is believed likely.

If - in spite of the Booster Club's reserves - no more progress toward the planned athletic fields were possible, the resulting condition of the area would still be an improvement over the current conditions. With either natural weeds or a non-irrigated seed mix (e.g. CalTrans type) stabilizing the land, the land would be cleared and level (in contrast to its current condition). While not a playable surface, the land would be much closer to the irrigated, well-turfed athletic fields planned in this Self-Help Project, which would then be readily achievable when adequate resources became available.

Summary

This Self-Help Project provides a means by which Bella Vista High School can provide safe, diverse and on-campus athletic facilities for sports that until now have not been accommodated. The project is forecast to be delivered at a cost of about 45% of the estimated total cost of \$450,000. The balance of the expense has been and continues to be donated, and is a demonstration of the strength of community support for this project.

We invite the SJUSD to support this project, and we welcome your input and questions.

ATTACHMENT A - Phase 1 Grading & Drainage Plan (D-size Sheet)

ATTACHMENT B – Approval of Gum Ranch Access

ATTACHMENT C –

Erosion Control Plan, Erosion Control Notes & Details (D-size sheets)

ATTACHMENT D – Oak Protection Contact w/ Sacramento County

From: "Fellows. Steve \ (MSA\)" <fellowss@SacCounty.NET>
Date: June 20, 2006 10:04:43 AM PDT
To: "Larry Masuoka" <masuoka@pacbell.net>
Cc: "Schubert. James \ (MSA\)" <schubertj@SacCounty.NET>
Subject: **RE: Bella Vista High School playing fields**

Hi Larry,

Per our phone conversation and your statement below, you are correct:

Because the school/school district is a state facility that is subject to state jurisdiction, then the county local ordinance does not apply.

So, even though they are not required to save native oaks I recommend following all tree preservation guidelines for any native oaks where construction activities occur in the vicinity of trees to preserve viable native oaks.

In the course of these construction activities if you should have any other questions or concerns please let us know.

Thanks for your interest in preserving native oaks,

Stephen Fellows
Assistant Landscape Architect
Dept. of Transportation
Landscape & Tree Section
(916) 874-7624, counter (916) 874-5278
Email: fellowss@saccounty.net

ATTACHMENT E – CEQA Compliance

ATTACHMENT F – Sewer Manhole Contact w/ Sacramento CSD-1

From: Hart, Gayleen (MSA) [mailto:hartg@SacCounty.NET]
Sent: Thursday, July 06, 2006 8:29 AM
To: Hartley, Jim/SAC
Subject: RE: BVHS Field of Dreams: Understanding of CSD-1 Manhole 249-002-002 Requirements

Jim,

Thank you for the summary below. Upon further consideration, a plan and profile drawing is not necessary to perform this work. I will need to have a letter with your intentions of how you will adjust the manhole (MH) to the proposed grade at least 2 weeks before the work will be performed. Our expectation is that the adjustment will be per the County and CSD-1 standards. I appreciate you passing my contact information onto the contractor.

I had the opportunity to speak with our Maintenance Supervisor yesterday afternoon. He strongly suggests that the MH be brought to the proposed grade. This is so we have quick access to the MH in case of an emergency overflow. As you further define the location and elevation of the MH relative to the proposed improvements, we can discuss further options to deal with the MH.

Gayleen Hart, P.E.
County Sanitation District 1
Business Strategies - Pipelines
(916) 875-6425

From: Jim.Hartley@CH2M.com [mailto:Jim.Hartley@CH2M.com]
Sent: July 03, 2006 11:34 AM
To: Hart, Gayleen (MSA)
Cc: masuoka@pacbell.net; Ksw3@cs.com; mmcullister@ca-dw.com; bmann@sanjuan.edu; jhartley57@sbcglobal.net; Mends, Evans (MSA)
Subject: BVHS Field of Dreams: Understanding of CSD-1 Manhole 249-002-002 Requirements

Gayleen, thank you very much for your time and help this morning. I am sending this to communicate to colleagues in our project and to confirm with you that we have correctly understood your manhole modification requirements.

Based on a review of the plans and the likely actual location of the manhole, it appears the future grade will be 2 to 3 feet above the current grade at the manhole location. We understand that a 24-inch collar may be placed over the current barrel to raise the lid to near the future grade. Before this work is done you would like to receive a plan and profile view of the proposed extension, and have asked us to provide this to you at least one week before the work would be done.

We also understand that CSD-1 maintains a flow meter in this manhole, and so you have requested that CSD-1 personnel be on-site to remove this flow meter and to reattach it when the manhole extension work is performed. You have asked that 2 weeks' notice be given before the schedule of the first work on the manhole extension.

As we discussed, the location and elevation of the current manhole is not precisely marked on our maps, so we are not certain of the final elevation of it, with a 24-inch extension, vis-à-vis the finished field grade. We suspect the actual location is near the end of, but still in, the field of play for the field hockey and lacrosse games. It is possible that the elevation will end up as much as 12 inches below the turf of the field, or that it may be shallower. We believe it should be paramount that the manhole lid be configured to provide for a safe athletic environment, at the same time that it should continue to be accessible for CSD-1; so we believe the lid should be under a small amount of soil to provide the optimum balance of these two needs.

At this time we ask that you verify that a buried manhole lid is acceptable to you, beneath an irrigated playing field, and that you inform us of any additional requirements we would need to consider.

Our approximate schedule for this work is between the end of July and the end of August. When this schedule is certain, our contractor will be in direct contact with you to coordinate field activities.

Jim Hartley, PE
Vice President
CH2M HILL

(916) 286-0271 w
(916) 614-3471 f
(916) 806-7379 m

ATTACHMENT G – SJUSD Specifications

ATTACHMENT H – Estimate of Project Cost

Total Expenses - FB Practice, Soccer, Field Hockey/Lacrosse, Band Practice							
Proj Phase	Activity	Qty	Units	Unit Price	Total	Highest Possible or Actual Cost	Actual or Identified Resource
Planning	Landscape Plan Prep/Mod	360	hrs	85	\$30,600	\$0	In-Kind: CA Design-West
	Fund Raising	120	hrs	100	\$12,000	\$0	Volunteer: Booster Team
	Project Management	500	hrs	125	\$62,500	\$0	Volunteer: Booster Team
	Subtotal Planning				\$105,100	\$0	
Prep	Vegetative Removal	240	hrs	10	\$2,400	\$0	Volunteer: Booster Team
	Green Waste Chipping	1	lump	2000	\$2,000	\$500	In-Kind: Bell Tree Service
	Boundary Survey	0.5	day	1000	\$500	\$0	In-Kind: KASL Engineering
	SWPPP Plan Details	32	hrs	65	\$2,080	\$0	In-Kind: CA Design-West
	Misc Fencing	100	ft	15	\$1,500	\$1,500	to be determined
	Utility Survey	1	lump	500	\$500	\$500	Precision Locating
	Tree Fencing	200	ft	2.5	\$500	\$0	Volunteer: Booster Team
	Subtotal Prep				\$9,480	\$2,500	
Grading	Mass Grading	12000	cy	12	\$144,000	\$27,000	In-Kind: Granite Construction
	Soil Testing	3	days	750	\$2,250	\$0	In-Kind: Blackburn Consulting
	Retaining Structure (RR Ties)	100	each	12	\$1,200	\$1,200	to be determined
	Slope Structure Building	60	hrs	10	\$600	\$0	Volunteer: Booster Team
	Rock Removal/Soil Sifting	160	hrs	10	\$1,600	\$0	Volunteer: Booster Team
	Soil Compost	1200	cy	7	\$8,400	\$8,400	to be determined
	Soil Compost Delivery	1200	cy	5	\$6,000	\$6,000	to be determined
	Add'l Soil Amendments	300	cf	10	\$3,000	\$3,000	to be determined
	Soil Discing, Mixing	2	days	600	\$1,200	\$1,200	to be determined
	Subtotal Grading				\$168,250	\$46,800	
Drainage	Storm Drain Materials/Install	1200	ft	32	\$38,400	\$38,400	to be determined
	CSD-1 Manhole Extension	1	unit	3000	\$3,000	\$3,000	to be determined
	Subtotal Drainage				\$41,400	\$41,400	
Irrigation	Irrigation System Design	1	lump	3,000	\$3,000	\$0	Sprinkler Service & Supply
	Irrigation Materials	1	bid	29,000	\$29,000	\$29,000	Sprinkler Service & Supply
	Insallation - supervision	8	days	750	\$6,000	\$6,000	Gary Vollspedt
	Installation - trenching/backfill	6500	ft	0.50	\$3,250	\$1,000	Volunteer: Booster Team
	Misc. materials (glue, etc)	1	unit	250	\$250	\$250	Volunteer: Booster Team
	Installation - fitting & testing	6	days	2000	\$12,000	\$4,000	Volunteer: Booster Team
	Booster Pump upgrade	1	unit	12,600	\$12,600	\$12,600	Custom Pump & Power
Subtotal Irrigation				\$63,100	\$52,850		
Seeding	Final discing to prep soil	3	days	600	\$1,800	\$1,800	to be determined
	Hydroseed Materials	6	acre	6500	\$39,000	\$39,000	Adland Landscaping
	Hydroseeding Install, Maintain	6	acre	1500	\$9,000	\$9,000	Adland Landscaping
	Supplemental Maintenance	200	hrs	10	\$2,000	\$500	Coaches
	Fencing to isolate area	1500	ft	1.5	\$2,250	\$2,250	to be determined
	Barrier fencing for protection	600	ft	8	\$4,800	\$4,800	to be determined
	Subtotal Seeding				\$58,850	\$57,350	
Grand Total					\$446,180	\$200,900	
Project materials consistent with Measure J Bond intent						\$100,400	

ATTACHMENT I – Funding Plan

BVHS FOD Funding Plan			
	Funds	Expenses	Balance
Maximum Project Cost		\$200,900	(\$200,900)
BVHS Athletic Booster Club Commitment	\$45,000		(\$155,900)
BVHS Affiliate Clubs Contributions	\$55,500		(\$100,400)
Requested Measure J Bond Funding	\$100,400		\$0
Total Funding	\$200,900		
Contingency Funding/Security Level	187%		
Fair Oaks Community Contributions	\$25,000		
BVHS Alumni Donations	\$25,000		
On-going revenues from Athletic Booster Club (1 yr)	\$50,000		
Short-term loan, to be paid by Booster Club funds	\$75,000		

ATTACHMENT J – Records of Understanding of Measure J Intent

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Measure J

Scope of Planned Projects - High/Adult Schools

Bella Vista High School

- Replace/renovate deteriorated portable classrooms
- New security system
- New intercom & clock system
- Restroom renovation
- Parking lot paving & expansion
- New bus drop-off area
- Playfield improvements
- Furniture & equipment allowance

-----Original Message-----

From: Doug Grush

Sent: Wednesday, March 03, 2004 10:12 AM

To: Don Haase

Subject: Measure J

Don,

I'm a teacher and coach at Bella Vista as well as a Fair Oaks resident with a child starting at Twin Lakes next fall.

I'm trying to find out how much money each school, in particular Bella Vista, is getting for field improvements with this money. I know that 57.1 million dollars were supposed to be earmarked for parking lots and field improvements. My question is, how much will actually go to BV? Also, does the school have any choices with these funds?

Thanks,

Doug Grush

Doug,

The two bond line items that you are referring to are: Paving - \$30,289,893; and Landscape & Irrigation - \$11,364,285. BV has nominally \$2.9 million reserved for paving and \$314,000 for landscape. The paving budget will be used entirely for paving completely around the school and that scope of work is already defined. The landscape and irrigation money is an allowance, meaning that there is currently no defined scope. That money typically will be used to enhance the curb appeal of the school while reducing maintenance and operational costs associated with M&O maintaining landscaping. We always work closely with the principals at each school so if you had further questions or recommendations on a specific scope of work you should address that with Marlyn.

I hope this properly answers the questions that you have.

Don Haase
Director of Engineering

ATTACHMENT K - Field of Dreams Project Volunteer Leadership

Project Sponsors:

Bella Vista HS: **Marlyn Pino-Jones**, Principal
Bryan Baker, Vice Principal
Becky Mann, Athletic Director

Bella Vista HS Booster Club: **Tom Putnam**, President
Gayle Hensler, Vice President

Project Team Leadership:

Project Manager: Jim Hartley, PE

Jim is a registered Civil Engineer and a Program Manager for CH2M HILL. He has 24 years of experience, and until recently managed CH2M HILL's local office (250 staff). Jim has been named a Fellow of the American Society of Civil Engineers in recognition of his accomplishments. He is a dedicated community and school volunteer. He is a 16-yr resident of Fair Oaks, and his children will graduate from BVHS in '07 and '10.

Project Development Director: Dr. Larry Masuoka

Larry currently serves as the SJUSD Citizens Oversight Committee Measure S and J Co-chair (since 2001); and has also been Chair and a member of other community planning boards. In these capacities Larry was centrally involved in the BVHS all-weather track, and played a personal role in establishing a cell tower to help fund maintenance and repair of the track facilities. He is a 19-yr resident of Fair Oaks, and his daughters will graduate from BVHS in '08, '10, '13 and '15.

Project Architect: Mitch McAllister, AIA

Mitch is the President of California Design-West Architects, and the father of five BVHS graduates or graduates-to-be, all involved in athletics. His firm specializes in school athletic field development, including the Track & Field Complex at Sacramento State University. He has been personally involved in the Field of Dreams project since 2002.

Project Advisor: Clay Taft

Clay served as the BVHS Athletic Booster Club President in 1998-03 and was the Booster Club's Project Manager in 2000-02 for the all-weather track development, an improvement valued at over \$600,000 delivered through matched community donations. He is an 18-yr resident of Fair Oaks, and his children graduated from BVHS in '98 and '02. He continues to support BVHS as the Pole Vault Coach for the Track & Field Team.

Key Project Partners (to date)

CA Design-West Architects (playing field layout, planning, design) www.ca-dw.com
KASL Engineers (aerial and ground-based surveying)
Granite Construction (mass grading) www.graniteconstruction.com
Blackburn Consulting (geotechnical)
Sprinkler Service & Supply, Inc. (irrigation system design and materials)