

THE GREEN COUNTRY SUSTAINABILITY FORUM

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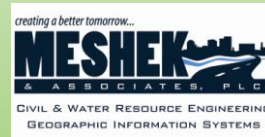


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Green Country Sustainability Forum



*LID Design
Competition
Kick – Off
& Q & A*

November 14, 2013



Today's Agenda

Introductions

Keynote Address

Competition Background and Overview

Project Design Challenge Overviews

Mixed Use Development

Commercial Green Street

Urban Residential Redevelopment

Questions

Team Networking

Current Sponsors

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Oklahoma Ready Mixed Concrete Assn.
City of Tulsa
OSU Ecologically Progressive
Infrastructure Center

LID Hero Sponsors

Oklahoma Blue Thumb
City of Broken Arrow
Oklahoma DEQ
Ideal Homes

Property Providers

Lindsay Perkins Development, LLC

City of Tulsa

Phil Marshall Properties, Inc.

Kick-off Event Contributors

Facility Sponsor:

CH₂M Hill

Food Discount:

Elote Café and Catering

Introductions

- * Design Competition Subcommittee
 - * Scott Grant-Tulsa County Conservation District
 - * Jeff Bigby-City of Broken Arrow
 - * Steve Carr-City of Tulsa
 - * Michele Dolan-ODOT
 - * Tim Doyle-City of Owasso
 - * Bill Robison-City of Tulsa
 - * Richard Smith-INCOG
 - * Don Thieman-ASP Enterprises

Introductions

Keynote Speaker:

**Richard
McKown**

Ideal Homes
Norman, OK



Competition Background and Overview

* Jason Vogel, Ph.D., P.E.

Executive Director, Green Country Sustainability Forum



Competition Background

- * Green Country Sustainability Forum founded July 2, 2013
 - * Collaborative effort to educate and drive adoption of sustainable LID practices.
- * The Green Country Sustainability Forum mission:

*Promote Low Impact Development (LID) in Green Country and to help establish LID principles as **mainstream** development design by **proving the cost-effectiveness** of practices that improve the overall quality of life in our region*

Competition Objectives

- * **Provide a hands-on learning experience** through which design, construction and development professionals in the Green Country area will gain meaningful experience in working with Low Impact Development methodologies that can be applied to their everyday practices.



Competition Objectives

- * **Demonstrate** to local design professionals, real estate developers, civic groups, and the general public the **economic, environmental and marketing benefits** that are available to entities that adopt and innovate with respect to sustainable site development.



Competition Objectives

- * **Identify and attempt to remove potential barriers to the implementation of low impact development techniques in the area, while illustrating practicality by showing what is feasible.**



Competition Objectives

- * **Encourage** through the body of work represented by the entries submitted, **greater use of these beneficial techniques for sustainable development** in our area and highlight local incentives where applicable.



Competition Objectives

- * Recognize the participants and finalist design teams for their creativity, innovation and application of sustainable site design.



Competition Objectives

- * **Prepare participants for potential upcoming regulations requiring low impact development techniques by giving them an open forum to explore ideas and design methods that strive to accelerate the implementation of innovative low impact development technologies.**



Guide to Low Impact Development

Green Country Low Impact Development Design Competition



What is Stormwater Runoff and how does it affect me?

Stormwater runoff is rainfall or snowmelt that runs off the land and into rivers and lakes, often through storm drains in the street. Excessive stormwater runoff can lead to numerous problems:

- Impaired water quality
- Increased flooding
- Decreased recreational opportunities
- Loss of fisheries and natural habitat
- Less groundwater recharge

What is Low Impact Development (LID)?

Impervious surfaces, such as pavement and roofs, cause stormwater to flow more quickly to rivers and lakes while eroding the land and picking up pollutants along the way. Low Impact Development (LID) is a design approach that helps protect water resources by using techniques that absorb and filter stormwater. Improved water resources are an asset to communities and benefit everyone downstream. There are numerous benefits to developers, municipalities, and the environment when LID is incorporated into existing and future developments.

What can I do?

Homeowners, developers, and municipalities can lead the way by encouraging and demonstrating LID techniques at their home, development, and within their municipal codes. Steps to take may include:

- Communicate with neighbors, community organizations, and local leaders about water quality protection and the benefits of LID.
- Evaluate the potential of implementing LID techniques at your business, home, or development property.
- Get involved in the Green Country LID Design Competition and get excited about the possibilities!

Bixby's Bentley Park Roundabout



Bioretention at Guthrie Green, Downtown Tulsa



Rain Barrel



Low Impact Development! Because every drop counts!

Guide to Low Impact Development

Green Country Low Impact Development Design Competition



Examples of LID Techniques

LID can be used on a residential scale or larger development. Some of the LID techniques that can be incorporated into new or existing developments include: rain barrels or cisterns, disconnecting downspouts and reusing rainwater, permeable pavement, bioswales or bioretention, green roofs, use of soil amendments, and conservation of existing plant material.

Trench Drain and Bioswale



Disconnected Downspout



Permeable Pavement



Green Roof at TriArch Office, Tulsa



What is the Green Country LID Competition?

A multidisciplinary team competition to design potential development sites using Low Impact Development (LID) techniques. The objective of the competition is to:

- Demonstrate the use of LID and provide data to support the economic benefits and quality of life benefits for Green Country.
- Educate the community and promote good development and infrastructure practices that protect our land and water resources.
- Encourage the adoption of best management practices by public agencies and to promote positive change.

For more information and to enter the competition, visit us at our website:

LIDCompetition.okstate.edu



Low Impact Development! Because every drop counts!

Why Participate in the LID Competition?

- * Real Projects
 - * *Something* will be built
 - * Actual property data is available
 - * ‘Owners’ *want* to build with sustainable development practices
 - * Will category *winners* get the actual work?
- * Expert Judges
 - * Leaders in their fields
 - * What is impressing one or two or more of them worth?
- * Jury Panel
 - * Leading developers and the politically influential
 - * What is the opportunity to present to them worth?

Why Participate in the LID Competition?

Past Expert Judges and Jurors in other Design Competitions

EPA Experts

DOT Experts

Water Resource Professionals

Design Community Experts

Municipal Decision Makers

National LID Experts

Rules

*Scott Grant- Tulsa County Conservation District

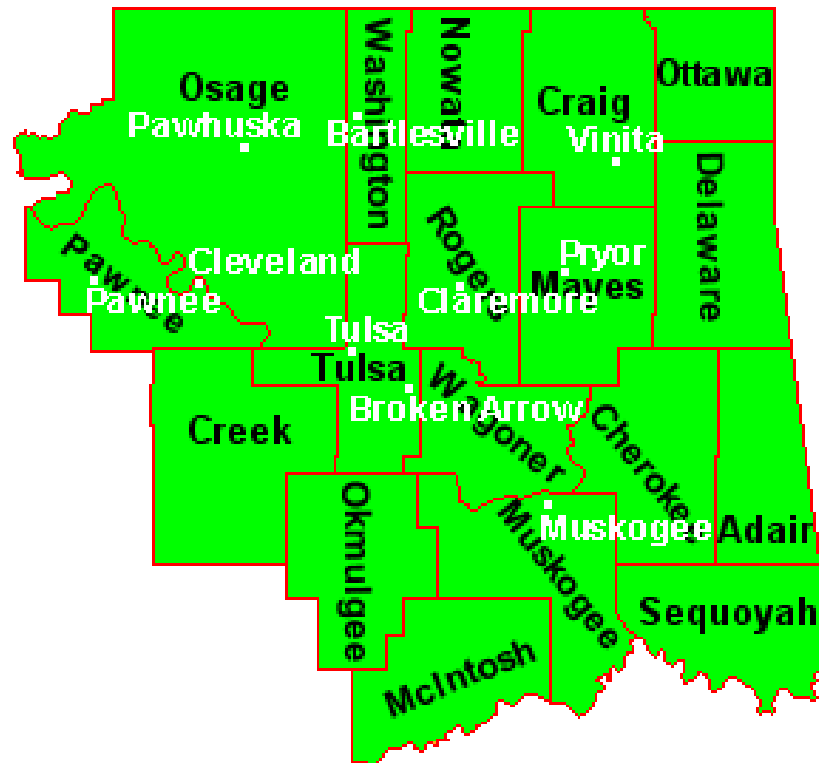
Eligibility

- * Integrated design teams must include at least
 - * one Engineer practicing in field of civil engineering
 - * one Architect
 - * one Landscape Architect
- * Inclusion of additional team members encouraged:
 - * land planning
 - * development and construction disciplines
 - * students
 - * artists
 - * others!

Eligibility

- * Individuals may not participate on more than one team competing in the same Design Challenge Category. There are no limits on the number of individuals from a single firm that may participate in the competition as members of teams.
- * Teams with members who are based outside the [Green Country](#) area are welcome, but at least one member of each team must be verifiably based in the region. A Green Country-based member must be one of the key design professionals.

Green Country



Competition Calendar

- * November 14, 2013 Registration opens & competition begins.
- * February 14, 2014 Registration closes at midnight
- * February 28, 2014 Entry submittals must be received by 4:00 PM. Competition ends.
- * March 14, 2014 Finalists announced
- * April 3rd, 2014 Finals Event and Awards Gala at Hard Rock Conference Center

Registration

- * A Registration fee of \$250 must accompany the completed Registration Form.
- * In the event that all team members are not identified on the original Registration Form, entry submissions must include a revised Registration Form which includes any individuals who were not originally listed on the original Registration Form and must include all team member information requested, including signatures.

Design Goals

- * Conserve natural resources that provide natural functions associated with controlling and filtering storm water.
- * Use decentralized, small-scale landscape features and LID Integrated Management Practices (IMP) to work as a system to:
 - * Reduce the amount of runoff by mimicking the natural hydrologic function of the site and matching pre-development hydrology.
 - * Minimize the use of and/or reduce the size of pipe and other centralized control and treatment infrastructure.
 - * Lower the total cost of development when compared to traditional infrastructure design.

Design Goals

- * Minimize and disconnect impervious surfaces, lengthen time of concentration and promote bio-filtration of runoff to improve the quality of storm water leaving the site.
- * Minimize or eliminate the use of potable water resources needed for irrigation and where practical provide for the reuse of rain water.
- * Use enhanced quality of life values and reduced maintenance costs inherent in LID practices to increase marketability of the development and long term property values.

Design Goals

- * Identify current codes that prohibit the construction or implementation of your prescribed LID techniques.
- * Attempt to reduce materials use, source materials locally or regionally, reuse and recycle materials where possible, and purchase from environmentally recognized manufacturers.
- * Develop innovative yet practical designs that incorporate low impact development and/or green infrastructure.

Submissions

- * All entry submissions must be received no later than 4:00 PM, February 28th, 2014.
- * Each entry must include:
 - * At least one, but no more than two, foam core presentation boards
 - * Selected boards will be displayed, with identifying team information, at the Finals Event and Awards Program, and may be used in a traveling exhibit, following the competition.
 - * An explanation of project costs and an economic comparison with the same project if developed using traditional methods.
 - * Submission plan sets must include at a minimum: Site Plan, Drainage Plan, Landscape and Irrigation Plan, Elevations, Details.

Submissions

- * An explanation of project costs and an economic comparison with the same project if developed using traditional methods.
- * Submission plan sets must include at a minimum: Site Plan, Drainage Plan, Landscape and Irrigation Plan, Elevations, Details.
- * Specific submission details available at lidcompetition.okstate.edu
- * Submissions must include no identifying features or marks which might reveal the identity of any member of the design team or any organization that may be represented by members of the team.

Submissions

- * Submissions must include a Registration Form for team members not originally identified.
 - * This Form must be submitted in a sealed envelope and marked on the outside with the team's identifying number.
- * Submissions must also include an identification card (8.5"x11") containing team, and team member identification for display with the team's presentation boards at the Finals Event and Awards Program.
 - * These cards must also be submitted in the sealed envelope on which the team's Identifying Number is prominently displayed.

Stage One – Expert Judges

- * The first round of judging for each Project Design Challenge will be conducted by a panel of experts in fields such as those listed below:
 - * Civil Engineering
 - * Landscape Architecture
 - * Low Impact Development
 - * Architecture
 - * Hydrology.

Stage One – Expert Judges

- * Finalists will be determined by the scoring of the Expert Judges.
- * There will be three finalists for each category unless the LID Design Subcommittee and Judges decide unanimously otherwise
- * For Finalists, the Expert Judges' scores will represent 80% of their total final score.

Stage 2 – Finals Event

- * Thursday, April 3, 2014, at the Hard Rock Convention Center
- * In conjunction with the Great Plains LID Research and Innovation Symposium
- * The Final Event consists of
 - * A networking reception featuring finalist teams and their project display boards
 - * Dinner
 - * Finalist presentations and Local Jury Panel judging
 - * Award ceremony



Stage 2 – Finals Event

- * Finalists will present their entries via Power Point to the audience and a local Jury Panel made up of interested and influential development, civic and government leaders.
- * Tickets will be available to the public for the Finals Event.
- * The Finals Event is designed with networking in mind.
 - * The Pearl Stable will open early to allow viewing of presentation boards
 - * An intermission while tabulations are made will provide time for networking, viewing of the presentation boards submitted by entrants, and conversation.

LID Resources

- * Low Impact Development Center
- * Green Country Sustainability Forum
- * EPA LID Website
- * Managing Wet Weather With Green Infrastructure, EPA
- * Oklahoma Low Impact Development - Oklahoma State University- lid.okstate.edu/

Questions?

For updated information, Q&A feedback
and partnering opportunities, register
at:

GCLID@outlook.com

Today's presentations will be posted on
the Green Country Sustainability Forum
website

<http://lidcompetition.okstate.edu/>

Project Design Challenge Categories

Mixed-Use Development

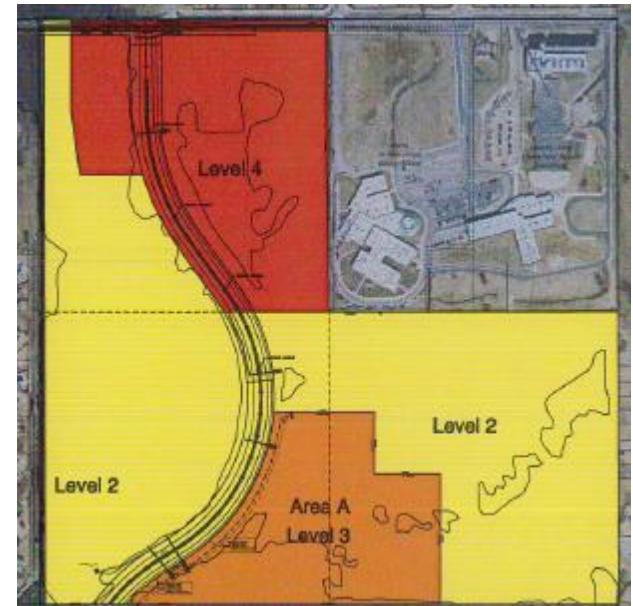
Commercial Green Street

Urban Residential Redevelopment

Mixed-Use Development: Elm Ridge Site

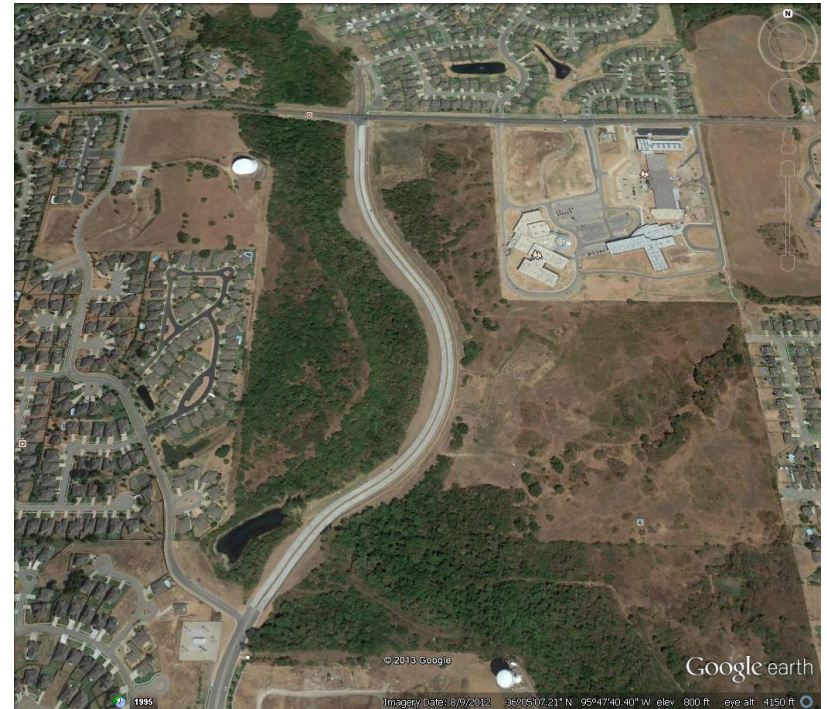
Project Details

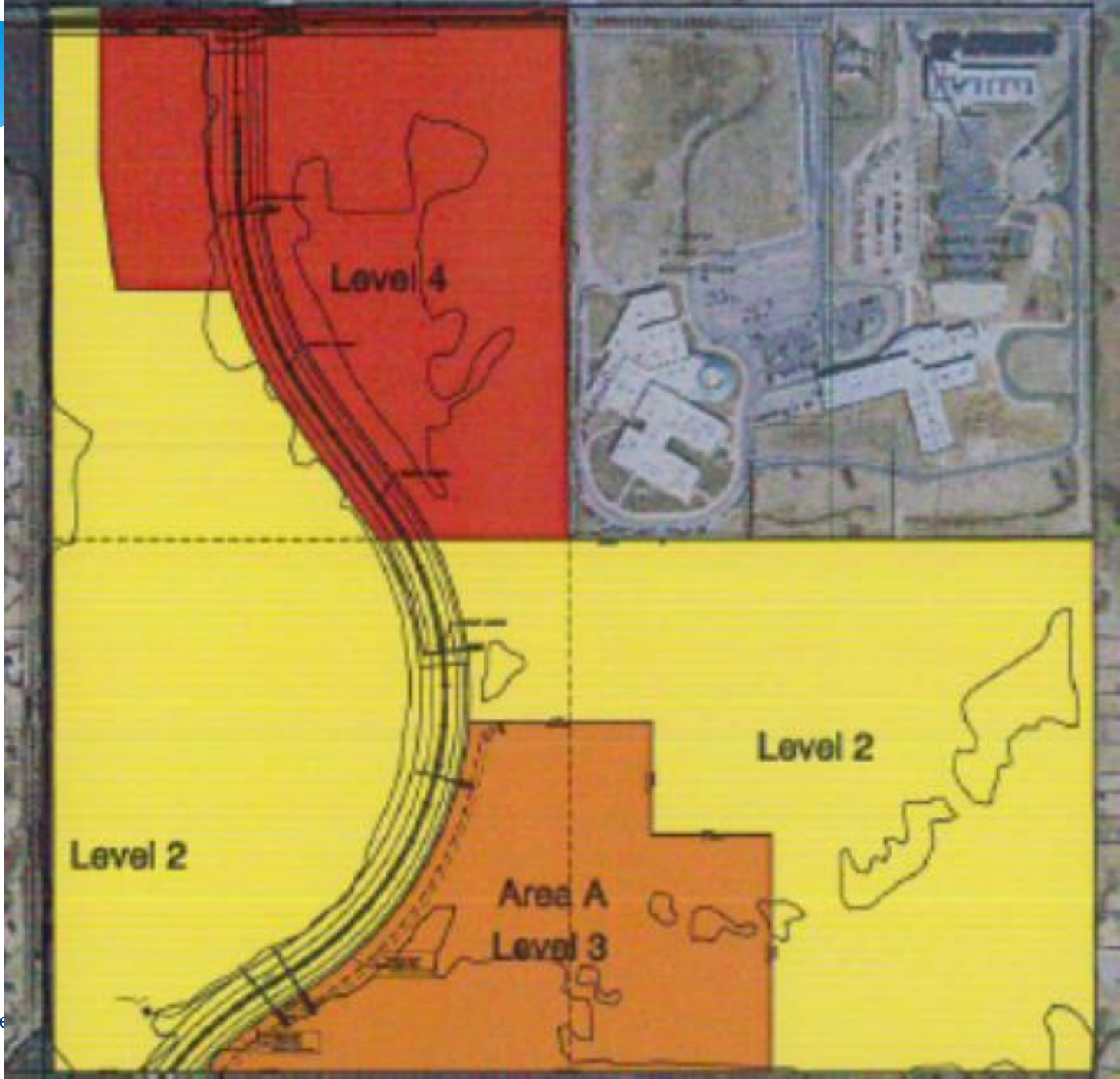
- * Adams Creek and Haikey Creek watersheds within the City of Broken Arrow
- * 92-acre proposed mixed-use development owned by Brown and Perkins, LLC.
- * Challenge: Effectively utilize the mixture of property uses available while maintaining the hydrologic functions of the property



Existing Condition

- * Mostly Forested
- * Elevation Challenges
- * Current Zoning is a mixture of Apartments, Commercial and Single Family Residential





Gre

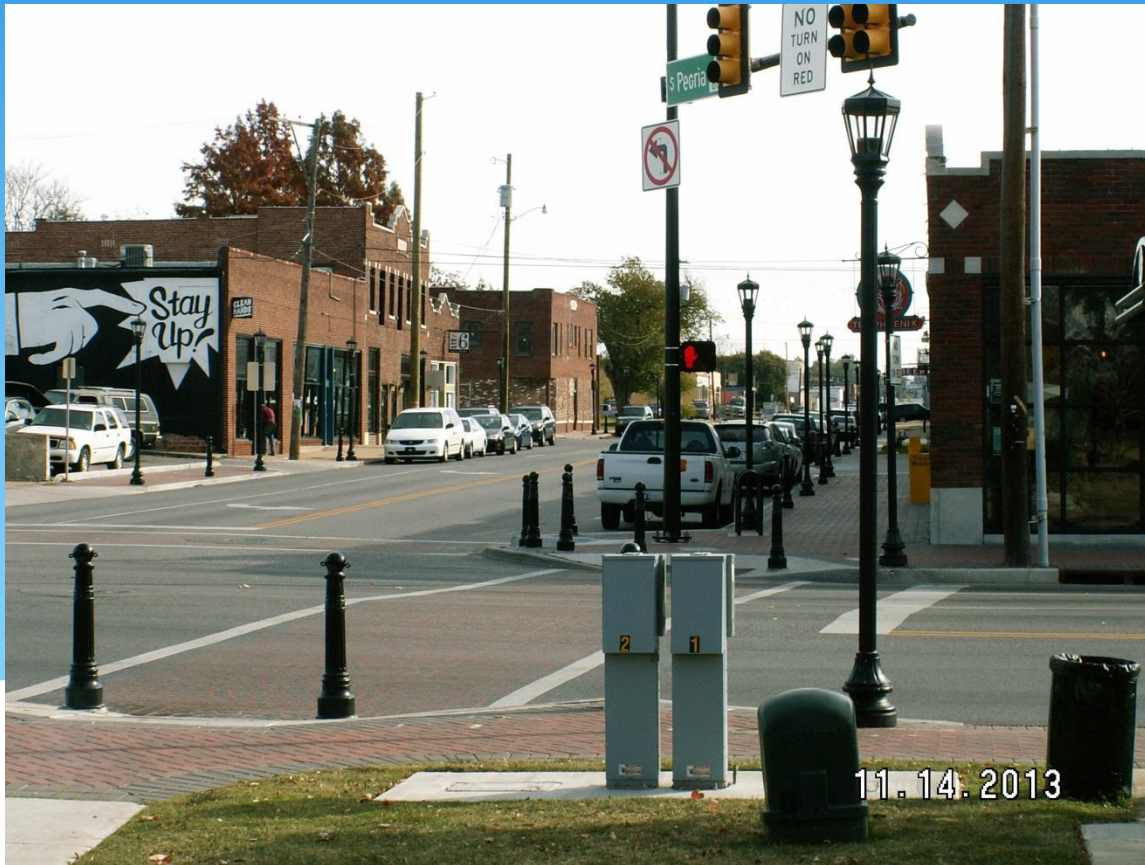
Design Criteria

- * Design in Accordance with Broken Arrow Code and Criteria
- * Post development hydrographs must indicate that peak stormwater flows are at or below the pre-development (forested and grassland) hydrographs for the 5-year, 10-year, 50-year, and 100-year storm events.
- * Submissions and presentations shall include a discussion on stormwater quality impacts of the proposed development systems on receiving stream

Supporting Documents

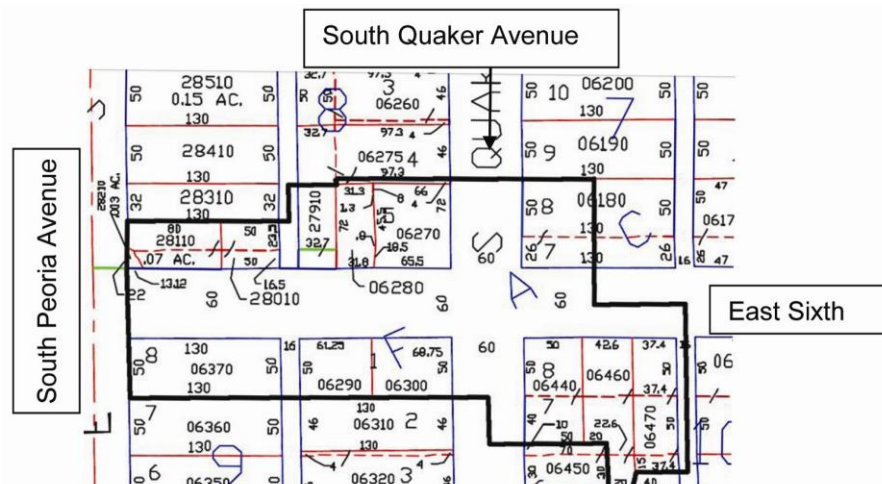
- * Project Boundary Map
- * Aerial Topography Data
- * Elm Place Extension 2009 Roadway As-builts
- * Adjacent Development Plans and Plats
- * Subject Site Broken Arrow Comprehensive Plan Change Data
- * Geotechnical Data
- * Developer Provided information showing zoning of the property

Commercial Green Street: 6th Street in the Pearl District



Project Details

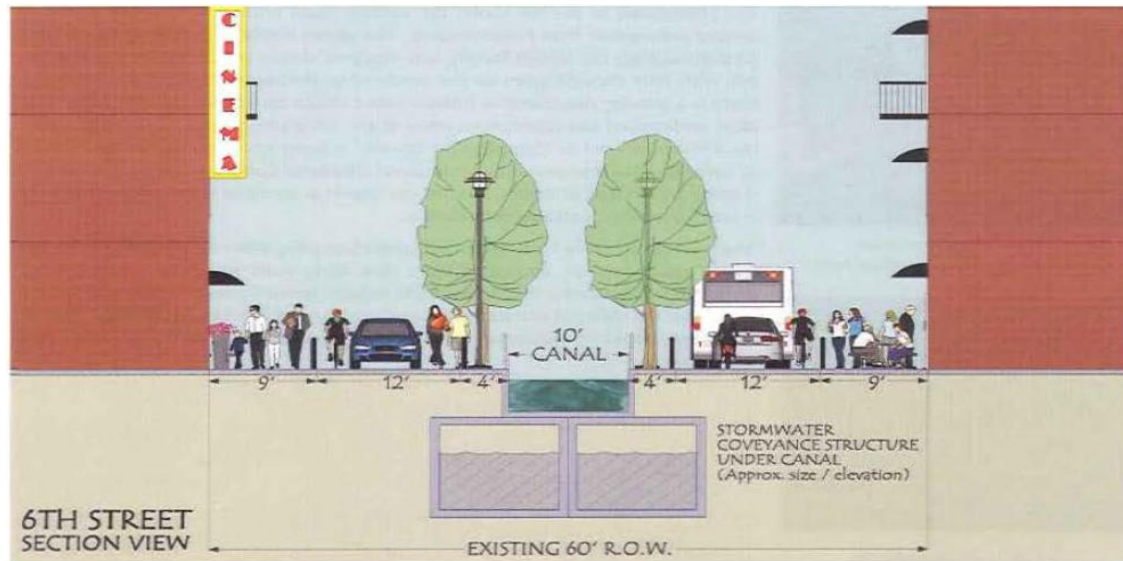
- * Project is part of the 6th Street Infill Plan which was adopted in 2006
- * Pearl District Assoc. has been actively involved in planning for the revitalization of their neighborhood.
- * The currently proposed flood control improvements, including the two new basins and urban waterway, represented an opportunity to create quality public spaces that could stimulate reinvestment.





Project Details

- * Current Project design consists of three components:
 - * a two cell 10' x 10' reinforced concrete box
 - * an open channel streetscape feature
 - * reconstruction of 6th Street between Peoria and Rockford Avenue and Rockford Avenue between 5th Street and 7th Street



Design Criteria

- * Design in accordance with all City of Tulsa code and criteria including the City of Tulsa Subdivision Code, Zoning Ordinance, Stormwater Design Criteria Manual, Standard Construction Specifications, and Stormwater Management Ordinance, Title 11-A.
- * Submissions and presentations shall include a discussion on percentage of reduced stormwater runoff volume, if any.
- * Submissions and presentations shall include a discussion on stormwater quality benefits of the proposed system on the Centennial Park Pond.

Supporting Documents

- * Elm Creek Master Drainage Plan
- * City of Tulsa Atlas Pages and Pertinent Record Drawings
- * City of Tulsa Aerial Photography and Contour Data
- * Geotechnical Data

ELM CREEK / 6TH STREET DRAINAGE, DETENTION AND CONVEYANCE PLAN



MARCH 2010

Urban Residential Redevelopment: Barnard Trace Site (Formerly Barnard Elementary School)

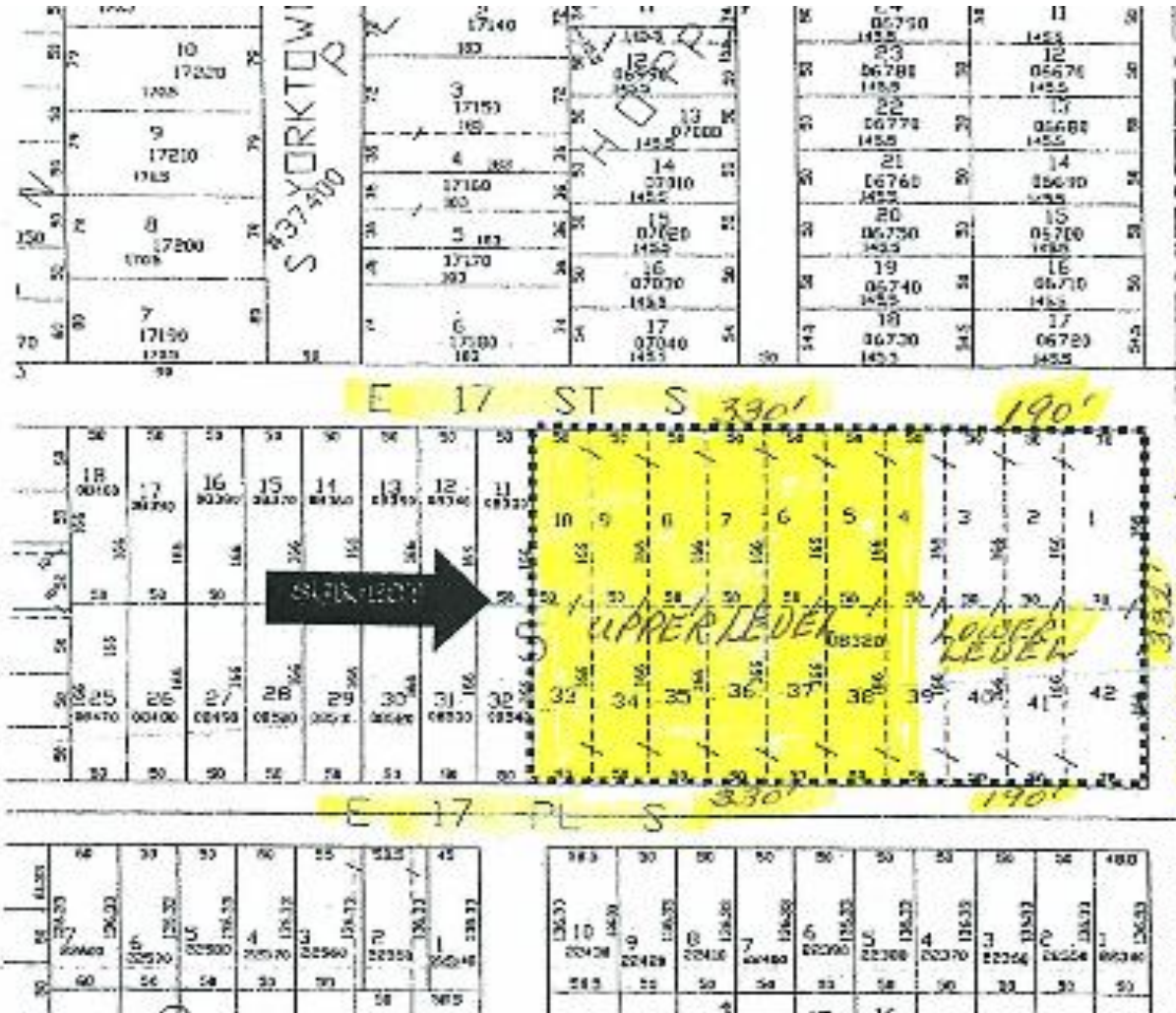


Project Details



- * Original Elementary School opened in 1925 but was destroyed by Fire in 2012
- * Private development planned for Residential neighborhood
- * Project Proposals were under High scrutiny from adjoining neighbors and this project was supported

Barnard Elementary School Plat





Project Details

- * Project needs at least 18 residential lots
- * Existing retaining walls were constructed by the WPA and their historical value must be considered in the design
- * Existing design has proposed through street
- * Imperative that the development maintain the feel of the surrounding neighborhood.

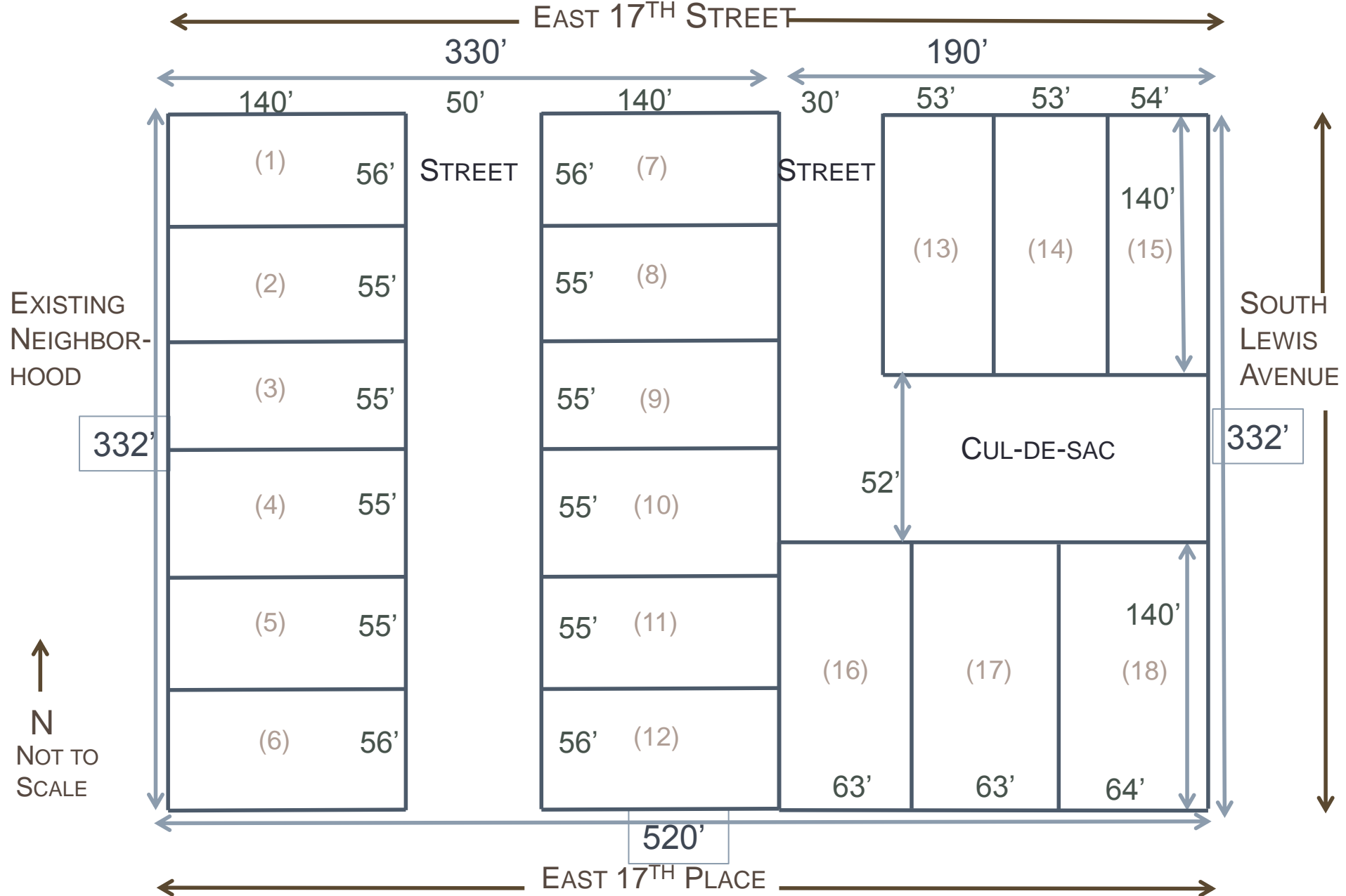


Barnard Trace-Current Layout

- * Upper Level – 330' X 332' (2.5 acres)
 - * 12 single-family residential lots
 - * Street from East 17th Street to East 17th Place
- * Lower Level – 190' X 332' (1.46 acres)
 - * 6 single-family residential lots
 - * Front of houses will face East 17th Street and East 17th Place with garages in rear
 - * Access entry to rear garages from 17th Street



18 Single-Family Residential Lots

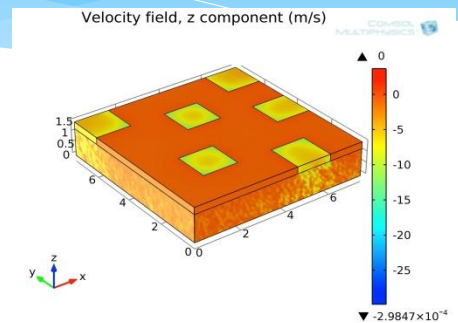


Supporting Documents

- * Sample Site Layout (included)
- * City of Tulsa Atlas Pages and Pertinent Record Drawings
- * City of Tulsa Aerial Photography and Contour Data
- * Geotechnical Data

Great Plains LID Research and Innovation Symposium

Hard Rock Hotel & Casino Catoosa, OK April 2-4th, 2014



Tracks include:

- * **Research**- laboratory and field work
- * **Applied**- practical and innovative applications
- * **Policy**- discussion of policy solutions to LID implementation

Great Plains LID Research and Innovation Symposium

Wednesday, April 2nd

- * Tours
- * Evening Poker Tournament

Thursday, April 3rd

- * 4 Technical Sessions
- * Vendor Exhibits and Student Poster Competition
- * Finals Event and Awards Presentation

Friday, April 4th – Golf Tournament with tee off at 8:00am

For more information, visit lidcompetition.okstate.edu/ and click on **2014 Great Plains LID Research and Innovation Symposium!**





Because Every Drop Counts



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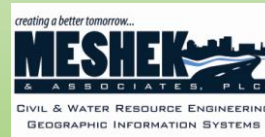
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Stormwater Quality

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