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The October 15, 2015 Development Review Board Meeting Agenda and Minutes can be found at

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DEVELOPMENT REVIEW BOARD REPORT

Meeting Date: October 15, 2015 Item No. 6
General Plan Element: *Character and Design*
General Plan Goal: *Foster quality design that enhances Scottsdale as a unique southwestern desert community.*

ACTION

SkySong Restaurant
24-DR-2015

Location: 1375 N. Scottsdale Road

Request: Request approval of the site plan, landscape plan, and building elevations for a new multi-tenant restaurant building with approximately 12,000 square feet of building area, 7,500 square feet of outdoor dining area, and a 3,000 square feet edible garden area, on a 1.36-acre site with Planned Community (PC) District zoning.

OWNER

City of Scottsdale

ARCHITECT/DESIGNER

Michael Rumpeltin
Brick & West Design
17 W. North Lane
Phoenix, AZ 85021

ENGINEER

Bury
7047 E. Greenway Pkwy
Scottsdale AZ, 85254
Aaron Parencia

APPLICANT CONTACT

David Wetta
Wetta Ventures LLC
602-478-3538

BACKGROUND

Zoning

This site is zoned Planned Community (PC) District. Parcels with PC zoning typically occupy large tracts of land and utilize a combination of zoning districts as a basis for development. The comparable zoning districts that were approved with the original zoning case include Commercial

Office District (C-O), Planned Regional Center District (PRC), and Industrial Park District (I-1) for allowed uses, and amended PRC development standards.

Context

SkySong is located at the southeast corner of N. Scottsdale Road and E. McDowell Road. The site is located within the Skysong Development, adjacent to N. Scottsdale Road, north of E. Skysong Boulevard. Currently, SkySong consists of three (3) commercial office/retail buildings, a decorative tensile structure, a parking garage, and a multi-family residential building with 325 units. There is a fourth office building soon to begin construction adjacent to N. Scottsdale Road, on the south side of E. Skysong Boulevard. To the east of the restaurant site is a commercial retail shopping center, all other sides are interior to the SkySong development.

Adjacent Uses and Zoning

- North Vacant, zoned Planned Community (PC) District
- South Office, zoned Planned Community (PC) District
- East Vacant, zoned Planned Community (PC) District
- West Mixed-Use commercial, zoned Highway Commercial (C-3) District

Key Items for Consideration

- West elevation, although containing varying color and textures, is activated only by service entrances
- Consistency with the SkySong Design Guidelines and Development Plan
- Revitalization of the McDowell Corridor
- No public comment received, as of date of this report

DEVELOPMENT PROPOSAL

Goal/Purpose of Request

The applicant is requesting approval of the site plan, landscape plan, and building elevations for a new restaurant building as part of the SkySong development. The proposed multi-tenant building contains approximately 12,000 square feet of interior floor area and a large open space and patio area east and south of the building. This will be the first building constructed within the northwest quadrant of SkySong.

Neighborhood Communication

Property owners within 750 feet of the site have been notified by mail of the proposal, and the site has been posted with the required public notice. As of the date of this report, staff has not received any public comment on the proposal.

DEVELOPMENT REVIEW BOARD CRITERIA ANALYSIS

This proposal is consistent with the Zoning Ordinance as well as the Character and Design element of the General Plan, and the SkySong Design Guidelines Supplement that was approved as part of the Development Plan with the recent zoning case (26-ZN-2004#2), which emphasize quality open space, architectural character, walkability, and place making.

The site plan proposes a single-story restaurant building oriented east toward the center of the

SkySong development, with a substantial outdoor open space and patio area on this side of the building. In addition to the open space and patio area east of the building, the site will include a working garden and a 15-foot-wide sidewalk adjacent to the south side of the building which may accommodate additional patio area in the future. These spaces in combination, create an area consistent with the vision described in the SkySong Development Plan as "The Plaza". This is an active, energetic gathering place for restaurant patrons, area workforce, residents, and passersby alike. Main vehicular access to the site is through a single driveway off E. SkySong Boulevard, which is the east-west main street internal to SkySong. With the buildout of the remaining SkySong phases, access will be added from the north and the east, internal to the development. Strong pedestrian connections are provided from the site in to the SkySong development along both sides of E. SkySong Boulevard and also around all four sides of the building and connecting to N. Scottsdale Road. The strong orientation of the open space and building front to the east and interior to the development, accentuates the west elevation, along Scottsdale Road, as the back of the building.

The proposed building has a contemporary design character, drawing inspiration from architectural elements found in other buildings within the development, while establishing its own expression. The 45-foot cantilever on the east side covers approximately 7,500 square feet of outdoor area and references the iconic "SkySong" structure in the center of the campus through the use of polycarbonate cladding that will have the appearance of a soft glow through transmittance of ambient light. The rust colored perforated steel used in the shade trellis on the south side of the building ties in with the vertical steel elements used on the office building to the southeast, across E. SkySong Boulevard. The east, south and north sides of the building consist of glass storefront systems and painted steel panels. The west building elevation, facing N. Scottsdale Road, is made up of multiple site-cast integrally colored concrete panels, each containing a unique color and texture variation. The colors and patterns as well as the words and numbers that are blasted into the southernmost section are intended to tie back to the historical relevance of the site. Please refer to the applicant's narrative (Attachment 1) for a detailed description of the design inspiration for the west building elevation. Although the west elevation contains varying color and textures, the only function and activation for this Scottsdale Road frontage are the service entrances.

The landscape theme that currently exists for SkySong will be continued on this site. There is already a strong streetscape on both E. SkySong Blvd. and N. Scottsdale Road that includes street trees and widened sidewalks that are detached from the street curb. All trees along the street frontages will remain in place, while some existing trees that are on-site will be relocated to the street frontages and plaza areas for further enhancement. Internal landscaping will consist of a mix of trees including Swan Hill Olive and Ironwood, along with a variety of low-water use shrubs and groundcover.

Development Information

- Existing Use: Vacant
- Proposed Use: Restaurant
- Site Size: 1.36 acres
- Building / Commercial space: 12,000 square feet

- Floor Area Ratio Allowed: * 0.8
- Floor Area Ratio Proposed: * Cumulative
- Building Height Allowed: 90 feet excluding rooftop appurtenances
- Building Height Proposed: 28 feet including rooftop appurtenances
- Parking Required: 40 spaces (restaurant only)
- Parking Provided: 48 spaces (restaurant only)
- Open Space Required: * 20% of net lot area
- Open Space Provided: * Cumulative

* Floor Area Ratio and Open Space are based on overall project size (approximately 42 acres). A Development Standards Matrix is being maintained by Current Planning staff and is updated as each phase of development is processed. Overall Floor Area Ratio and Open Space are being tracked and will be in compliance with the amended development standards for SkySong at build-out.

STAFF RECOMMENDATION

Recommended Approach:

Staff recommends that the Development Review Board approve Skysong Restaurant per the attached stipulations, finding that the provisions of the General Plan policies and goals, master plans and the Development Review Criteria have been met.

RESPONSIBLE DEPARTMENT

Planning and Development Services
Current Planning Services

STAFF CONTACT

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APPROVED BY

Bryan Cluff, Senior Planner
Report Author

9/30/15
Date

FOR

Steve Venker, Development Review Board Coordinator
Phone: 480-312-2831 E-mail: svenker@ScottsdaleAZ.gov

9/30/2015
Date

Randy Grant, Director
Planning and Development Services
480-312-2664, rgrant@scottsdaleaz.gov

10/2/15
Date

ATTACHMENTS

A. Stipulations
1. Applicant's Narrative
2. Context Aerial
2A. Close-Up Aerial
3. Zoning Map
4. Site Plan
5. Building Elevations
6. Perspective
7. Streetscape Elevations
8. Material and Color Board
9. Landscape Plans
10. Electrical Site Plan
11. Exterior Lighting Cutsheets

Stipulations for the Development Review Board Application: SkySong Restaurant Case Number: 24-DR-2015

These stipulations are intended to protect the public health, safety, welfare, and the City of Scottsdale.

APPLICABLE DOCUMENTS AND PLANS:

1. Except as required by the Scottsdale Revised Code, the Design Standards and Policies Manual (DSPM), and the other stipulations herein, the site design and construction shall substantially conform to the following documents:
   a. Architectural elements, including dimensions, materials, form, color, and texture, shall be constructed to be consistent with the building elevations submitted by Brick and West Design, with a city staff date of 7/27/15.
   b. The location and configuration of all site improvements shall be consistent with the site plan submitted by Brick and West Design, with a city staff date of 8/27/15.
   c. Landscape improvements, including quantity, size, and location shall be installed to be consistent with the preliminary landscape plan submitted by The Design Element, with a city staff date of 8/27/15.
   d. The case drainage report submitted by Bury Inc. and accepted in concept by the Stormwater Management Department of the Planning and Development Services.

RELEVANT CASES:

Ordinance

A. At the time of review, the applicable Zoning case for the subject site was: 26-ZN-2004#2

ARCHITECTURAL DESIGN:

DRB Stipulations

2. All exterior window glazing shall be recessed a minimum of fifty (50) percent of the wall depth, including glass windows within any tower/clerestory elements. The amount or recess shall be measured from the face of the exterior wall to the face of the glazing, exclusive of external detailing. With the final plan submittal the developer shall provide head, jamb and sill details clearly showing the amount of recess for all window types.

3. All exterior doors shall be recessed a minimum of thirty (30) percent of the wall depth, the amount of recess shall be measured from the face of the exterior wall to the face of the glazing, exclusive of external detailing. With the final plan submittal the developer shall provide head, jamb and sill details clearly showing the amount of recess for all door types.
4. Roof drainage systems shall be interior to the building, except that overflow scuppers are permitted. If overflow scuppers are provided, they shall be integrated with the architectural design. Areas that are rooftop drainage shall be designed and constructed to minimize erosion or staining of nearby building walls and directs water away from the building foundations.
5. With the final plans submittal, the applicant shall clearly show the location of the roof access to be internal to the building, with no access ladder visible from outside the building.
6. The design of the proposed shade canopy on the south side of the building shall be modified to utilize tube steel for the vertical columns and horizontal channels in lieu of the proposed angle iron/"C" channel structure.
7. With the final plan submittal, the applicant shall clearly demonstrate that the proposed mesh screen material over the shade canopy on the south side of the building has a density of 75% or greater, to maximize the effectiveness of the shade device.

SITE DESIGN:

DRB Stipulations

8. All drive aisles that are fire lanes shall have a width of twenty-four (24) feet.
9. With the final plan submittal, the site plan shall be revised as necessary to demonstrate compliance with the commercial turning radii (49' & 55') in all designated fire lanes as determined by City of Scottsdale Fire plan review staff. The main fire lane drive shall be the drive which is located directly adjacent to the main entrance of the proposed restaurant building.

LANDSCAPE DESIGN:

DRB Stipulations

10. Prior to the issuance of a building permit, the owner shall submit landscape improvement plans that require the utilization of the City of Scottsdale's Supplement to MAG Standard Specifications for the landscape and irrigation improvements within the public right-of-way median(s).
11. Landscape pots and/or raised landscape planters, with a minimum of 36 inches in diameter, a sufficient depth to support the root system of the plants located in the pots/planters, and an automatic irrigation system, shall be provided in the plaza area and pedestrian nodes that are shown on the site plan.

EXTERIOR LIGHTING:

Ordinance

B. All exterior luminaires mounted eight (8) feet or higher shall be directed downward.

C. Any exterior luminaire with a total initial lumen output of greater than 1600 shall have an integral lighting shield.

D. Any exterior luminaire with a total initial lumen output of greater than 3050 shall be directed downward and comply with the Illuminating Engineering Society of North America (IES) requirements for full cutoff.

DRB Stipulations

12. Incorporate the following parking lot and site lighting into the project's design:

Parking Lot and Site Lighting:

a. The maintained average horizontal luminance level, at grade on the site, shall not exceed 2.0 foot-candles. All exterior luminaires shall be included in this calculation.

b. The maintained maximum horizontal luminance level, at grade on the site, shall not exceed 6.0 foot-candles. All exterior luminaires shall be included in this calculation.

STREETS, IMPROVEMENTS AND RELATED DEDICATIONS:

DRB Stipulations

13. The owner shall identify clearly on the final improvement plans, the location of the refuse storage area and the circulation path for refuse truck to access the refuse storage area for pick up and leaving the site.

EASEMENTS DEDICATIONS AND RELATED IMPROVEMENTS:

Ordinance

E. Before any building permit is issued for the site, the owner shall dedicate a sight distance easement over sight distance triangle(s) in conformance with figures 5.3-26 and 5.3-27 of Section 5.3 of the DSPM.

WATER AND WASTEWATER STIPULATIONS:

DRB Stipulations

14. Existing water and sewer service lines to this site shall be utilized, or shall be disconnected at the main pursuant to the Water Resources Services Department requirements.

15. Reduced pressure backflow preventers shall be installed at all water meters.

PROJECT NARRATIVE

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PROJECT NARRATIVE

I. INTRODUCTION

A. Project Overview

Wetta Ventures, LLC ("Wetta Ventures") respectfully submits this Development Review Board application for approval of architecture, site plan and landscaping for the SkySong Restaurants Building ("Restaurants Building or the Building"), Case No. 24-DR-2015. The Restaurants Building will occupy a 1.36 acre site at the northeast corner of Scottsdale Road and SkySong Boulevard at the major entrance to SkySong.

The proposed Restaurants Building will be one story in height, 12,000 square-feet in size and will accommodate multiple restaurant tenants. In addition to indoor restaurant space, a substantial portion of the site will be dedicated to outdoor uses. The Restaurants Building contains over 10,500 square feet of outdoor pedestrian-oriented spaces. The pedestrian-oriented open space includes 7,500 square feet of outdoor restaurant patio and public plaza space and a 3,000 square foot edible garden.

The entire east facade and a portion of the south façade of the building are comprised of 14-foot high operable glazing that will visually and physically connect the Restaurant Buildings indoor and outdoor spaces virtually eliminating any physical barrier between the outdoor and indoor space. The intent is for the public plaza, the restaurant patios and the indoor dining spaces to flow into one another to create an open, inviting environment.

The Building's primary outdoor patios and plaza are east-facing and located under a cantilevered overhang, approximately 45 feet in length. The Building is oriented to take advantage of the site's most desirable solar aspects. Careful consideration was given to orienting the outdoor space and operable glass façade so they harness the warmth of morning sun in cooler months while creating shade during the summer.

B. Wetta Ventures – creating unique restaurant experiences

Wetta Ventures focuses on discovering small-scale infill opportunities and creating unique experiences with local, regional and national tenants. Recently completed Wetta Ventures projects include Old School O7 and The Annex. Located in midtown Phoenix, Old School is an adaptive reuse project which was the home of the United Methodist Church for more than 125 years. Specifically, Old School consists of a 4,100-square foot church repurposed for Taco Guild, a 3,500-square foot school building converted for Buffalo Exchange, and a 1,700-square foot freestanding Starbucks with a drive-through. Located on the ASU Tempe campus, The Annex is an adaptive reuse of a 1950's vintage school building which now is a two-tenant restaurant building currently occupied by Postino Winecafe and Snooze, an AM Eatery.

C. Building Context

1. Surrounding Development

The Restaurants Building site is in the Southern Scottsdale Character Area Plan's designated SkySong Regional Center, within an area of older retail, office and residential uses, many dating to the 1960s. Revitalization of Southern Scottsdale is among City Council's highest priorities. This is an area in transition. Over time, as the area is revitalized, existing low-scale commercial uses, car dealerships and strip commercial centers are likely to be redeveloped. The nearest residential uses on Bellevue Street, south of the site and the multi-family residential on the SkySong campus. The development pattern at SkySong set a high bar for others to follow, in terms of design, walkability and environmentally sensitivity.

2. The SkySong Campus

At present, the Restaurants Building site has vacant land on all sides within the SkySong campus. SkySong 3, a four-story office building has recently been completed immediately southeast of the site and is its closest neighbor. SkySong's Amended Development Plan (Case 26-ZN-2004 #2), as approved by City Council in 2014, shows new office and R&D facilities to be built adjacent to the site on the south, east and north sides.

3. Creating variety in building height and massing along Scottsdale Road

When people see SkySong, they think of the existing four-story office buildings and, of course, the signature "SkySong" shade structure. The Restaurants Building, at one story, will provide variety in building mass and height along Scottsdale Road and will be a distinctive, people-scale building at the main campus entrance. Combined with its attached shade canopy, a public plaza and edible garden, it will make a strong statement about SkySong's ethos and development intent.

Future buildings nearby, north of SkySong Boulevard, may vary in height up to a maximum of 90 feet through application of an incentive formula approved as part of the 2014 Amended Development Plan. SkySong's maximum development square footage cannot exceed the total stipulated with the original, 2005 Council approval, but within that total, greater design flexibility is possible. If the Restaurants Building is built at one story in height, it frees up square footage to be added to new, taller buildings.

The SkySong Development Plan shows the Restaurants Building site as a key component in campus open space and pedestrian circulation systems. It is part of a west open space "anchor" (The Plaza) on the campus main street – SkySong Boulevard. Planned pedestrian pathways and related open spaces lead to the site, making it an attractive destination, part of normal pedestrian traffic flow.

SkySong is becoming a catalyst for new investment in Southern Scottsdale. The Restaurants Building creates a precedent for bringing other unique, site-specific small-scale dining experiences to the area. The building is purposely designed differently from the vintage

strip commercial and generic architecture associated with fast-food restaurants and chain stores built in the vicinity over the past fifty years. Revitalization is a long series of baby steps. Each small DRB or City Council decision can move Southern Scottsdale closer to the vision expressed in its Character Area Plan. Approval of Case 24-DR-2015 will be a positive step in the right direction.

4. Expanding the variety of uses at SkySong

A walk through SkySong at lunch time finds the central "SkySong" plaza under the shade pavilion abuzz with people and activity. People are talking, working, meeting in groups, eating, drinking and cozied up with laptops in the outdoor living room. However, there is no open gathering space with dining options. The deli at SkySong is the only on-campus source of food and beverages to date. The desire for expanded dining options has been expressed for years by SkySong residents, students, workers and people in surrounding neighborhoods – a place to get a real meal, to go for Happy Hour or breakfast. Wetta Ventures' application will provide multiple new dining options on the campus next to a new outdoor plaza and garden that will become popular destinations for SkySong and the surrounding neighborhoods

II. ARCHITECTURE AND DESIGN THEME

A. Architectural Character of the Restaurants Building – Compatibility within the SkySong Campus

The Restaurants Building is contemporary in design character, drawing inspiration from architectural elements found in other campus buildings and from the desert environment. It fits well within the SkySong campus, but also establishes its own unique persona, appropriate to its function and position at the Scottsdale Road campus entrance.

- The 7,500 square foot shade canopy covering restaurant patios and the east plaza references the iconic "SkySong" fabric structure in the center of campus.
- The perforated rust-colored steel used in the south shade trellis of the Restaurants Building draws from vertical steel elements used at SkySong 3, immediately to the south.
- Paving details, lighting and hardscape materials are continuations of established SkySong designs.

B. Restaurants Building Architecture and Design that Evolve from the Site's History and Celebrate the Significance of Agriculture in the Valley

The Restaurants Building and site features are designed with a unique and site-specific theme. The property where the Building sits has historically been used for agriculture. From the Hohokam to modern times, the growing, nurturing and harvesting of crops have stimulated the Valley's growth and economy. This specific site was in agricultural use as recently as the late 1950s. The site was part of the historic croplands extending north and south along the Salt River.

The Restaurants Building celebrates this heritage. The first restaurant will be one-of-a-kind, locally owned and committed to strengthening the importance of local farming and food sourcing. Food may be grown on-site in an edible garden located where diners and people using the public plaza can observe its activity. The produce could then be carried directly into the restaurant where cleaning and preparation m be observed through large windows shaded by a trellised walkway and then enjoyed at the table.

Architectural elements and paving features chronicle the history of crops grown on the site. Crops have been grown on site as far back as 600AD through the centuries until today where crops may again be grown on site, harvested, and used in preparation of the menu items in the building's new restaurants. The agricultural narrative continues along the pedestrian walkway by the garden, where the names of the stewards of the site, milestones in its agricultural history and other information may be etched into the paving under the shade trellis. The names chronicle keepers of the site over time and reinforce the importance of bringing agriculture back to this site.

Researching the site's agricultural heritage provides a revealing look at the significant role agriculture played in the Valley's settling and sustenance over time. Accounts are enthusiastic about the richness and variety of crops from fruit to sugar cane and vegetables grown here. Following is a summary of the site's agricultural heritage

ALL AROUND THE PRESENT-DAY SKYSONG – FIELDS, FERTILITY AND ABUNDANCE

The Hohokam Era

Archaeologists believe the Hohokam Indians were peaceful farmers who inhabited the Salt River Valley for about a thousand years, from A.D. 300 to 1450. The Hohokam built a society around irrigated agriculture that was watered by elaborate canal systems they created. The Hohokam were Arizona's first farmers in their time, the Hohokam were the only culture in North America that relied on irrigation canals to water their crops.

The canal systems allowed the Hohokam to farm corn, cotton, beans, tobacco and squash. They were skilled farmers and would manage the soil to replace lost nutrients. The well-designed irrigation systems allowed the Hohokam to produce two harvests each year. While the Hohokam had other food sources that came from dry farming agave, the gathering of wild plants and hunting deer and other small animals. Life for them focused mainly on agriculture and the growing of their crops.

The Hohokam were the earliest cotton growers in the Southwest. They would weave their cotton into textiles which were often used as a trade items. They would trade with the Indian nations of California and also those in Mexico.

The Hohokam canal system traversed nearly 500 miles and may have served as many as 50,000 people at a time. The Indians lived here for more than 1,000 years, but left the Valley by about A.D. 1450.

The Agricultural Boom – 1860 through 1890

The adobe ruins of the Hohokam baked in the Arizona sun for some 400 years, until the 1860s. As the Valley was first being settled, the whole area went "canal crazy." Dozens of ditches were started. With renewal and expansion of the Hohokam canal system, in the mid- to late 1800s, the Valley became an agricultural "garden spot".

Excerpt from the 1881 publication by Patrick Hamilton

The Resources of Arizona - Its Mineral, Farming, and Grazing Lands, Towns, and Mining Camps; Its Rivers, Mountains, Plains, and Mesas; With a Brief Summary of Its Indian Tribes, Early History, Ancient Ruins, Climate, etc. etc.
A Manual of Reliable Information Concerning the Territory

Maricopa County

This county has been well named "the garden spot of the Territory." It has the finest body of land in Arizona, and its farms, orchards, and vineyards will not suffer by comparison with any portion of the Golden State. The first settlement was made in this valley a little over ten years ago. It was then a barren desert, covered with coarse grass, sage, and cactus; to-day it is one of the loveliest spots on the Pacific coast. Fields of golden grain and blossoming alfalfa; extensive vineyards and orchards; beautiful gardens, brilliant with their floral adornments nearly every month in the year; groves of cottonwoods and lines of the graceful Lombardy poplar diversify the landscape in every direction... In this beautiful and productive spot, wheat, barley, and alfalfa are the principal crops. Maricopa County produces the finest vegetables in the Territory. Pumpkins, squashes, onions, turnips, cabbages, watermelons, and everything in the vegetable line, are raised in large quantities, and are in market by the first of March.

The soil is peculiarly adapted to the raising of sugarcane, and some of the stalks attain a height of over twelve feet. It has been estimated that an acre of this cane will yield 200 gallons of syrup, of an excellent quality; it also makes a nutritious food for horses and stock. There are about 1,000 acres of this valuable plant now under cultivation, and the area is being steadily increased, many farmers finding it more profitable than the raising of grain. Figs, peaches, apricots and grapes do well in the Salt River valley, and in size and flavor are not excelled on the Pacific coast. Apples and strawberries are cultivated to some extent, and experiments with oranges, lemons, and other semi-tropical fruits, have shown that the valley is peculiarly adapted for their successful cultivation. In fact, there is no country west of the Rocky Mountains which seems so well fitted for the raising of fruits. Climate, soil, and situation, all seem to be favorable, and the valley promises to become one of the greatest fruit-raising regions of the Pacific coast.

The business of wine-making is being gone into extensively, and a very fine article is produced, which in body and flavor compares favorably with the best California. There are at present 500 acres in grapes, 150 acres in peaches, 50 acres in apricots, 25 acres in figs, besides a number of acres in apples, strawberries, oranges, lemons, etc. Of barley, it is estimated there are over 5,000 acres in cultivation; in wheat, 5,000 acres; corn, 500 acres; and alfalfa, 2,000 acres.

Everything is grown by irrigation. From three to five floodings are necessary to raise a crop of small grain. The water is conveyed over the land by large canals. There are at present something over 16,000 acres reclaimed from the desert; with a proper irrigating system.

The Severe Drought of the Late 1890s

The more successful canal projects or the 1800s were the work of private companies and associations. The private canal companies and associations existed for about 30 years, until a severe drought occurred in the late 1890s and the Salt River did not have enough water to meet the Valley's needs. Thousands of acres of agricultural land went out of production. Orchards withered. Hundreds of people moved away.

For those who remained, the obvious solution was to build a dam to capture spring runoff. Finally in 1902, the National Reclamation Act was passed into law, providing for government loans to 'reclaim' the West with irrigation projects. One of the Valley's first projects under the Act was construction of Theodore Roosevelt Dam, on the Salt River. The dam was originally built between 1905 and 1911.

While the major effort in Arizona was construction of Roosevelt Dam, engineers also saw possibilities for improving existing Valley canals and of unifying the canal system. The government purchased all of the private canals, one by one. In 1917, operation of the canal system was turned over to the Salt River Valley Water Users' Association, which still operates the canals for the federal government.

The Modern Era

In the early part of the 20th Century, land near what is now "SkySong" was still largely agricultural. Photos from 1937 show cultivated fields and scattered farmhouses. By 1959, subdivisions were starting to be built in the area. By 1969, urbanization had progressed and commercial development occurred at the intersection of Scottsdale and McDowell Roads. Los Arcos Mall was under construction. Agriculture - crops and fields - had been replaced by homes and other uses. In 2015, Los Arcos Mall is long gone and SkySong is being developed ahead of schedule.

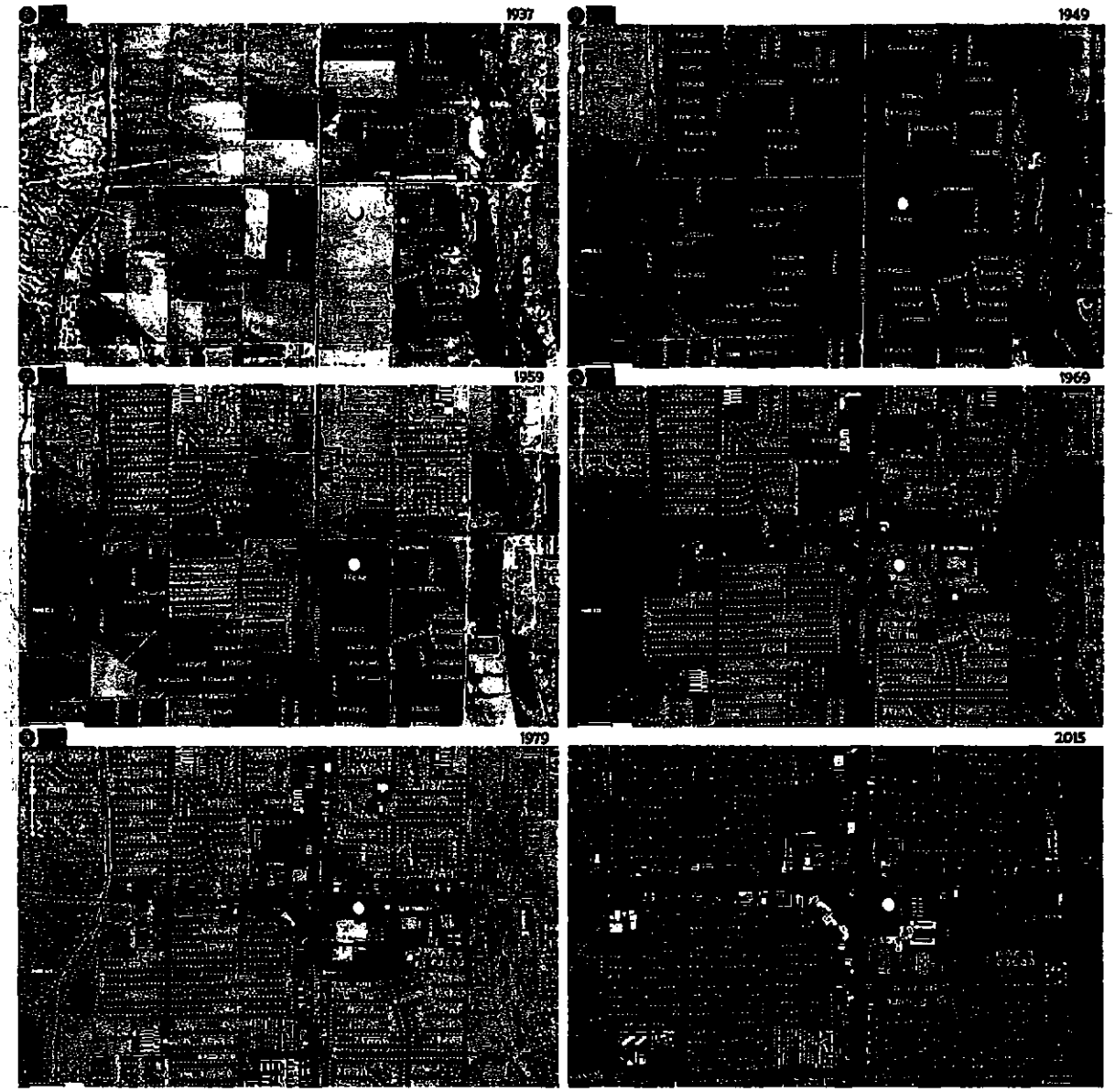


Figure 1 Agriculture at SkySong 1937 to Present

C. How Is The Design Concept Expressed In Restaurants Building Architecture And Site Elements?

1. West Elevation

The design of the west elevation is intended to relate to the nature of the building as a 'purpose-built' culinary destination. The entire concept for the building revolves around the idea of food and the design of the west elevation plays a key role. Conceived as a graphic interpretation of the patterning of farmland as seen from above, the west elevation plays an integral part in the building's narrative.

Commissioned artistic graphic panels based on a historical photograph of Scottsdale farmland will be integrated into the Building's Scottsdale Road elevation. Two key elements will be included – a graphic grid of botanical and typographical historic references built into the wall near SkySong Boulevard and textured panels inspired by the embedded patterns of the land captured in the 1937 aerial photograph. Composed of earth, mineral and stone, the graphic wall is a physical, educational and historical representation of our farming heritage.

Created to be understood at both the scale of pedestrians at the Scottsdale Road transit stop and by motorists traveling up and down Scottsdale road at speeds of 45 miles per hour, the textured wall panels facing Scottsdale Road represent three primary elements:

- Soil (brown)
- Crops (green)
- Harvest (gold)

Colors will be of low-reflectivity, muted, as appropriate to the desert environment. Each will have a unique texture that reinforces the nature of the three elements. Three custom colors, specifically created only for this project with liquid coloring, will be site-cast into custom concrete form-work that provides a high degree of texture shade, and shadow across the entire façade. By the very nature of this highly textured approach, the façade will change over the course of the day as the sun passes across the sky. The micro-shading across the west elevation's surface will serve to cool the wall surface and will lead to less energy consumption over other more traditional materials.

At the south end of the west elevation, a custom darker-colored concrete will be utilized, and the second component of the narrative will employ either large letters sandblasted out of the concrete surface or large steel letters attached to the concrete surface. The text chronicles the history of crops grown on the site as far back as 600AD, through the centuries to today where crops will again be grown on site, harvested, and used in preparation of the menu items in the building's new restaurants. Several four-foot by four-foot samples of the concrete façade are being constructed for City staff review.

2. **South Walkway**

A shaded pedestrian walkway leads from Scottsdale Road into the SkySong campus, along the south side of the Building. Here, the narrative continues at a more intimate scale. The names of the stewards of the site and comment on agricultural heritage may be etched into the paving along the breezeway under the shade trellis. Inscriptions would chronicle keepers of the site from the Hohokam times to the present from Winfield Scott to SkySong and will reinforce the importance of bringing agriculture back to this site.

3. **Garden**

Along the south side of the Building, visible from Scottsdale Road and from SkySong Boulevard, a 3,000 square foot garden will be established and professionally curated. Here, vegetables, herbs and fruit will be grown and harvested for use in local restaurants. People will be able to sit nearby in the shade, enjoy the garden's color and aesthetic, while watching garden activities

4. **Views into the building - following food from garden to table**

Windows under the shade canopy may allow pedestrians to look inside the Restaurants Building to see garden produce being washed, cleaned and prepared. People would then be able to enter the restaurant, and enjoy food that is -fresh and grown on-site.

5. **Shade Canopy over Plaza**

The cantilevered canopy structure will built of wide flange members and will be clad in translucent poly carbonate panels that will permit shadowing of the structure behind. The cladding, which will be applied to both sides of the canopy structure and the intermediate structural members, will be illuminated from natural lighting. This luminous skin will serve as secondary lighting for the outdoor area underneath the cantilevered overhang with LED light bollards under the canopy serving as the primary lighting source. Details for the poly carbonate cladding are included as part of the submittal package.

III. APPLICATION'S CONFORMANCE WITH APPLICABLE ORDINANCE CRITERIA, PLANS, POLICY AND GUIDELINES

Following is discussion of relevant portions of adopted City ordinance criteria, design guidelines, development plans, character area plans and other policy related to Application 24-DR-2015. The following are included:

- Zoning Ordinance Section 1.904 - Development Review Board Criteria
- SkySong Development Plan
- SkySong Design Guidelines Supplement
- Scottsdale Sensitive Design Principles
- Southern Scottsdale Character Area Plan – Character and Design Element
- City of Scottsdale Restaurant Design Guidelines

A. DEVELOPMENT REVIEW BOARD CRITERIA

(Scottsdale Zoning Ordinance Sec. 1.904) (December 14, 2012)

1. *The Board shall examine the design and theme of the application for consistency with the design and character components of the applicable guidelines, development standards, Design Standards and Policies Manual, master plans, character plan and General Plan.*

Following sections of this Narrative discuss the application's consistency with the referenced components. Other application submittals demonstrate consistency with the City's technical requirements as stated in the Design Standards and Policies Manual.

2. *The architectural character, landscaping and site design of the proposed development shall:*

   a. *Promote a desirable relationship of structures to one another, to open spaces and topography, both on the site and in the surrounding neighborhood*

The Restaurants Building has been designed to create variety in building scale and massing along Scottsdale Road and as a distinctive architectural statement at SkySong's primary entrance. As discussed in Section I.B.1, the Building is consistent with future SkySong development in the immediate area and with off-campus buildings in the surrounding areas.

   b. *Avoid excessive variety and monotonous repetition*

As described in Section II.C, the Restaurants Building has been designed to express a unified architectural theme related to agriculture and site history. Variation within the design is subtle and interprets theme elements in ways that avoid monotony and visual cacophony. All sides of the Building are visually interesting, designed for pedestrian-level viewing and, along Scottsdale Road for legibility by passing motorists.

   c. *Recognize the unique climatic and other environmental factors of this region to respond to the Sonoran Desert environment, as specified in the Sensitive Design Principles.*

The Restaurants Building has been designed in response to the region's environment and climate. Consistency with Scottsdale Sensitive Design Principles is discussed in detail in **Section III.D** of this Narrative.

3. *Ingress, egress, internal traffic circulation, off-street parking facilities, loading and service areas and pedestrian ways shall be so designed as to promote safety and convenience.*

The areas and facilities described in this criterion have been addressed in site design, consistent with requirements of the SkySong Design Guidelines Supplement. See **Section III.C** for review of the Guidelines.

Pedestrians and bicycles are major elements of SkySong's Circulation Plan. Guidelines associated with this Plan emphasize minimizing conflicts with motor vehicles and design that encourages walking and bicycling. The concept at SkySong is "park once and walk".

Future SkySong development phases along Scottsdale Road and McDowell Road place the Restaurants Building at a key crossroads in the normal flow of pedestrian traffic. Pedestrian pathways and pedestrian-oriented open space corridors will provide excellent access and are expected to be well-used by SkySong residents, students and employees as well as by people from the surrounding area. Paths and sidewalks link the transit stop directly west of the restaurants site into the campus via several routes, including a wide (15 ft. 4 in.) shaded walkway along the south side of the Restaurants Building. Bicycle access is also considered; and convenient parking is available. Access for motor vehicles is from SkySong Boulevard. Parking is available on-street, in a nearby parking structure and in a fifty-eight space parking lot on the restaurants site.

4. *If provided, mechanical equipment, appurtenances and utilities, and their associated screening shall be integral to the building design.*

The Project's rooftop mechanical equipment will be fully screened by parapet walls and/or rooftop mechanical screens that have been integrated into the overall building design.

B. SKYSONG DEVELOPMENT PLAN

1. The Restaurants Building as part of SkySong's west open space anchor

The SkySong Project Narrative's "Open Space Concept" (Figure 6, page 30) defines the Scottsdale Road/SkySong Boulevard intersection as the location of a major open space anchor, "The Plaza". The Concept describes nine characteristics of the "Plaza". These include:

- Visible from Scottsdale Road
- The place to meet, hang out
- Big trees and shade structures
- Outdoor places to meet
- Eating and drinking
- Work and conversation
- Enhanced paving
- Cool lighting
- Active, lots of people

The plaza is further described (page 32) as an active, energetic place, with a lot going on and great people-watching potential. It represents a contrast with the other open space anchor, the park at the east end of SkySong Boulevard, a more passive, contemplative place.

2. **How does the proposed Restaurants Building architecture and site plan fulfill the intent of the Plaza as a major anchor of SkySong's Open Space Concept according to the nine characteristics?**

a. Visible from Scottsdale Road

The public open space east of the restaurant continues around the building to the south, with the covered walkway providing shade for the public open space. Movable tables and chairs can be located here, bringing active uses to the SkySong Boulevard frontage near Scottsdale Road. People seated in the shade along the covered walkway and the large kitchen garden will be visible from Scottsdale Road and invite people from outside SkySong to stop and enjoy.

b. The place to meet, hang out

For SkySong residents, students and workers, the restaurants will be a real attraction. No other full-service restaurants are located within the campus. Existing plazas and the living room at SkySong Boulevard/Innovation Place are packed with people and activity. New phases of SkySong's expansion are to the west, surrounding the planned restaurant and plaza, and are connected to the plaza as part of the pedestrian walkway system

c. Big trees and shade structures

Trees will be located in the public plaza, outdoor restaurant patios and in the parking lot. Shade is a key design element. The shaded walkway on the south side of the building and the luminous shade trellis on the east not only cover primary activity and seating areas but also provide ties to SkySong architecture and the central SkySong shade structure.

d. Outdoor places to meet

The restaurants are a natural place to meet over a meal, coffee or drinks. In the center of SkySong's new development phases, they offer convenient, cool and attractive outdoor amenity.

e. Eating and drinking

The planned restaurants will greatly expand option for eating and drinking at SkySong – for employees, the public and residents. People will have the option of dining at the restaurants and consuming adult beverages within restaurant patios or of enjoying coffee, take-out or a bag lunch in the public plaza.

f. **Work and conversation**

Wi-Fi is provided throughout SkySong and, as at other SkySong public spaces, tables, chairs and other amenities (e.g., food, beverages) will be available at the Restaurants Building. We envision the plaza will be a central gathering point for informal meetings, work and socializing.

g. **Enhanced paving**

Paving design will complement the architecture and overall design concept. Paving design in the shaded south walkway will help tell the history of the site, with the names of its keepers from prehistoric times to present, and its agricultural history.

h. **Cool lighting**

The shade canopy above the main plaza is designed to allow filtered natural light and to be a translucent signature feature, related in character to SkySong's central shade structure. It will not be internally illuminated but will allow ambient light in the restaurants area to create a soft glow.

i. **Active, lots of people**

The restaurants plaza will be a magnet for the public and for people from throughout SkySong. Its unique edible garden concept and interpretive agricultural history will make it a culinary destination. People will be able to watch activity from a garden-side table, see food harvested, look behind the scenes through windows near Scottsdale Road to watch its cleaning and preparation and enjoy a meal made with fresh-from-the-garden ingredients.

To Summarize: SkySong's west, restaurants plaza conforms to the characteristics and intent outlined for the plaza in the SkySong Open Space Concept. The extension of plaza seating south of the building, the large garden and transparent building design provide good visibility from Scottsdale Road.

Architectural design elements include colors, textures and other features that attest to the importance of agriculture and the site's heritage. The elevation will be well-screened with shade trees as part of the Scottsdale Road Streetscape, but the symbolism and story embodied in the west elevation will be legible at pedestrian scale, from the adjacent bus stop as well as for passing motorists.

The Restaurant Building's east-facing orientation was selected to integrate it more effectively with campus pedestrian and open space systems and to minimize the impacts of solar heat gain.

The proposed east-facing orientation best meets the intent of the SkySong Open Space Concept and walkability guidelines in the approved SkySong Project Narrative and Design Guidelines Supplement.

Alternative siting options were studied. However, orienting the building to the south, facing SkySong Boulevard would subject its outdoor spaces to significant heat impacts from south and west sun. While the sun is good for growing vegetables, it is not so good for people wanting to work or have coffee outdoors in the summertime. Orientation to the east provides morning sun, protection from the most intense solar impacts and extends the season during which the outdoor patios and plaza can be comfortably used.

C. SKYSONG DESIGN GUIDELINES SUPPLEMENT

This application is consistent with the SkySong Design Guidelines Supplement. The Guidelines include two major sections: Architectural Guidelines and Open Space and Pedestrian Circulation Guidelines. Following is description of how relevant Guidelines are addressed.

ARCHITECTURAL GUIDELINES (page 39 of the Guidelines)

Vary building height and massing along Scottsdale and McDowell Roads

The planned one-story Restaurants Building will add variety in the context of future building height and massing along Scottsdale Road. It will provide a one-story "gateway" at SkySong Boulevard, transitioning between taller buildings to the north and south to a more human scale where motorists and transit users enter the property and where on- campus pedestrian paths connect into the SkySong "main street" .

Design buildings to be compatible with Scottsdale Sensitive Design Principles and existing SkySong architecture

Compatibility with existing SkySong architecture

The proposed Restaurants Building fits well within the context of existing SkySong architecture, while also creates its own distinctive character, appropriate to the design theme and new uses it brings to the campus:

- The shade canopy on the east side of the building, covering the plaza, refers, in its design, to the signature "SkySong" shade canopy at the heart of the campus, spanning the intersection of SkySong Boulevard and Innovation Place. Its translucence, coloring and design draw from a similar aesthetic.

- The shade trellis along the building next to the garden incorporates red steel and expanded metal mesh seen in Phase Three office buildings, immediately south of the site.

- Lighting elements, paving details and hardscape materials are continuations of the master design themes established at SkySong.

Compatibility with Scottsdale Sensitive Design Principles

Scottsdale Sensitive Design Principles are discussed in detail in the following section of this Narrative.

Design buildings for LEED certification

All buildings at SkySong are required to be designed to achieve LEED certification. The Restaurants Building will be LEED certified.

Design buildings to incorporate human-scale elements and architectural detail in lower floors to enhance the pedestrian experience

The Restaurants Building is one story in height, a human-scale transition for larger office buildings to be built to the east, south and north. Building and site design are rich in architectural detail and amenities that create visual interest for pedestrians and "tell the story" of site history in unique and compelling ways.

Include building elements that help provide shade and shadow movement across building facades

Building elements on east, west and south sides of the Restaurants Building will create changing patterns of sun and shadow throughout the day. Elements include, on the west, a distinctive, textured elevation of cast panels designed, on the east, a translucent overhead shade canopy and on the south, a trellised, shaded walkway. All will create dynamic shade, shadow and light patterns as the sun moves across the sky.

Roof-mounted appurtenances should be integrated into the building's form, colors and materials

All rooftop mechanical equipment for the project, including the future restaurant tenant equipment such as makeup air and kitchen exhaust fans, will be located on the flat roof area of the building above the lease spaces and will be completely screened from view.

OPEN SPACE GUIDELINES – WALKABILITY AND PLACEMAKING (page 49 of guidelines)

The Open Space Guidelines are divided into sections addressing walkability and place making. Elements within each are general, allowing for flexibility in design.

1. ***Walkability Guidelines***

Elements of walkability discussed in the Guidelines include:

- Comfort
- Accessibility
- Friendliness
- Safety and security
- Things to see, hear, smell and feel along the way
- Interim destinations

These elements relate to the campus-wide pedestrian walkways and spaces system, but others can be applied to the plaza and environs of the restaurant building. Applicable elements include:

a. Comfort

The restaurants, patios and public plaza provide climate protection and comfortable places to sit, relax, socialize, meet or work along major pedestrian routes.

b. Accessibility

The Restaurants Building and associated public spaces are designed to accommodate pedestrians of all ability levels.

c. Friendliness

The restaurant and plaza will be welcoming gathering spaces within the campus, where people can meet, socialize and enjoy the activity around them.

d. Safety and Security

The restaurants will be activity hubs, well-lighted and well populated. From the plaza and restaurant patios, "eyes on the street" will contribute to security for pedestrians.

e. Things to see, hear, smell and feel along the way

As pedestrians walk near the restaurants and plaza they will be able to smell tantalizing aromas from the restaurants and the garden, to hear and see activity in and around the Buildings and enjoy cool, shady places to sit.

f. Interim destinations

What better place to stop along a pedestrian route than a place to sit, get some food or coffee, check emails and meet up with friends? The restaurants and plaza will be great stopping points on the way from Point A to Point B as pedestrians move across campus.

2. *Placemaking Guidelines*

Four categories of Placemaking Guidelines are included: access and linkage, comfort and image, uses and activities and sociability.

a. Access and Linkage Guidelines

The public plaza and restaurants are located within the campus' normal pedestrian traffic flow. They are convenient to public transit and to pedestrian paths and sidewalks providing access throughout the SkySong campus. Bicycle access to the building and plaza is encouraged and convenient parking provided. Access for people at all levels of ability is provided.

b. Comfort and Image Guidelines

The Restaurants Building and associated public spaces will include comfortable outdoor seating, places to work and a high level of maintenance quality. They will be well-lighted and located within the line of sight of nearby buildings and traffic along SkySong Boulevard. Design and furnishing of the public plaza spaces will be consistent with the high level of quality and amenity established at SkySong.

c. Uses and Activities Guidelines

The presence of restaurant uses adjacent to the public plaza will help encourage a high level of use throughout the day and evening. The proposed design will enable a wide range of activities such as socializing, working, relaxing, eating, watching people and meeting with others. Seating choices may include movable tables and chairs as well as fixed seating.

d. Sociability Guidelines

Design of the Restaurant Building, plaza and site contribute to creating a well-used, enjoyed and active place at SkySong conducive to social interaction.

D. SCOTTSDALE SENSITIVE DESIGN PRINCIPLES

The Scottsdale Sensitive Design Principles are meant to encourage projects that respond to Scottsdale's unique environment, climate and cultural context. Following is discussion of how this application addresses relevant design principles.

Principle 1. The design character of any area should be enhanced and strengthened by new development.

- *Building design should consider the distinctive qualities and character of the surrounding context and, as appropriate, incorporate those qualities in its design.*
- *Building design should be sensitive to the evolving context of an area over time.*

As described in discussion of the *SkySong Design Guidelines Supplement.*

General Architectural Guidelines, architecture of the Restaurants Building includes character elements drawn from existing SkySong development in terms of the east and south shade structures, architectural elements, paving details, lighting and hardscape materials. These elements strengthen campus character, while incorporating them into architectural and site design in creative ways.

Principle 5. The design of the public realm, including streetscapes, parks, plazas and civic amenities, is an opportunity to provide identity to the community and to convey its design expectations. Streetscapes should provide continuity among adjacent uses through use of cohesive landscaping, decorative paving, street furniture, public art and integrated infrastructure elements.

The public realm is well-served through this application by addition of a public plaza that is an integral element of the SkySong Open Space Concept. It introduces a theme unique to the historic context of the property that will enhance community identity.

Principle 6. Developments should integrate alternative modes of transportation, including bicycles and bus access, within the pedestrian network that encourage social contact and interaction within the community.

The Restaurants Building is adjacent to a transit stop and connected into SkySong's campus-wide network of pedestrian walkways and bicycle facilities. The campus-wide network is closely tied to SkySong's Open Space Concept plan, which presents a hierarchy of gathering. A major "anchor" Plaza, located in the Restaurants Building area, has been designed with amenities, site features and furnishings that will attract use and foster social interaction – a major SkySong gathering place.

There is direct access between the Restaurants Building site and a transit stop on

Scottsdale Road. Transit users can walk directly into campus along a shaded walkway between Building and garden. Their path will take them to the public plaza with links to the campus-wide pedestrian circulation system.

Principle 7. Development should show consideration for the pedestrian by providing landscaping and shading elements as well as inviting access connections to adjacent developments. Design elements should be included to reflect a human scale, such as the use of shelter and shade for the pedestrian and a variety of building masses.

SkySong's Pedestrian Circulation Plan, Open Space Concept Plan and Design Guidelines Supplement (previously discussed) all require design consistent with this principle. The Restaurants Building will provide variety with the context of larger-scale office buildings; shade is a key design element, landscaping is consistent with established SkySong native and arid-region design and pedestrian connections within and to destinations outside SkySong are key parts of the development approach.

Principle 9. The design of the built environment should respond to the desert environment:

- *Interior spaces should be extended into the outdoors both physically and visually when appropriate*
- *Materials with colors and coarse textures associated with this region should be utilized.*
- *A variety of textures and natural materials should be used to provide visual interest and richness, particularly at the pedestrian level. Materials should be used honestly and reflect their inherent qualities Features such as shade structures, deep roof overhangs and recessed windows should be incorporated.*

The proposed design supports this principle. Building materials incorporate textures and colors appropriate to this desert region. The entire east facade and a portion of the south façade of the building are comprised of tall operable glazing that will both visually and physically connect the Project's indoor and outdoor dining spaces. Because the building's orientation of the major outdoor space is to the east, the outdoor space will be far more comfortable during the cooler months and the usability of that space as temperatures begin to climb in the warmer months will be extended.

The Restaurants Building's patios and public plaza are east-facing and located under a cantilevered overhang 45 feet in length. Priority has been placed on siting the building and orienting outdoor spaces and primary glass façades tot harnesses the warmth of the morning sun in the cooler months while providing effective shade during the hottest months.

See discussion regarding architecture within Section III.F for additional information pertaining to building materials.

Principle 10. Developments should strive to incorporate sustainable and healthy building practices and products. Design strategies and building techniques, which minimize environmental impact, reduce energy consumption, and endure over time, should be utilized.

The Restaurants Building is designed, as required for all buildings at SkySong, to be LEED certified. Healthy building practices and products have been incorporated into throughout. The building will be constructed from steel, concrete, and glass rather than metal framing and stucco. The building's heavy construction type will ensure durability and longevity. The design team is keenly aware that the single most intensive consumption of power takes place during the construction, habitation, maintenance, and renovation of buildings. Every effort has been made in the building's orientation and design to ensure that its energy consumption is significantly reduced. From the building's east-facing orientation, which allows for lower power use relative to cooling and heating over the building's life cycle, to the potential on-site production of vegetables, fruits, and herbs to offset the need to bring these items to the site using delivery trucks, the goal is to minimize the building's ecological footprint in innovative ways through responsible design.

Principle 11. Landscape design should respond to the desert environment by utilizing a variety of mature landscape materials indigenous to the arid region. The character of the area should be emphasized through the careful selection of planting materials in terms of scale, density, and arrangement. The landscaping should complement the built environment while relating to the various uses.

The Project's landscaping will both blend seamlessly with the SkySong landscape palette and will have a profound relationship to the building's uses. A 3,000 square-foot edible garden could produce some of the food consumed by patrons of the Restaurant Building, creating awareness of how dining and the act of producing the food we consume are linked as part of the overall design concept. In addition, the landscaping, which includes native, arid-region and arid-adapted landscape materials and will continue hardscape and paving details as part of SkySong's overall landscape theme.

Principle 12. Site design should incorporate techniques for efficient water use by providing desert adapted landscaping and preserving native plants. Water, as a landscape element, should be used judiciously Water features should be placed in locations with high pedestrian activity.

SkySong, as part of its Design Guidelines, has adopted a campus-wide plant palette of native, arid region and arid-adapted low water use plant materials (Design Guidelines and Development Framework for the ASU-Scottsdale Center for New Technology and Innovation and the Surrounding Area - Appendix: "ASU Scottsdale Center for New Technology and Innovation Recommended Plant Palette", 2005).

Landscaping proposed for the Restaurants Building is consistent with the adopted Guidelines and plant palette. The 2005 Guidelines also encourage incorporation of water features designed for minimum water use and maximum effect (page 41). Any water features added to the site in the future will be consistent with this Guideline.

Principle 13. The extent and quality of lighting should be integrally designed as part of the built environment. A balance should occur between the ambient light levels and designated focal lighting needs. Lighting should be designed to minimize glare and invasive overflow, to conserve energy, and to reflect the character of the area.

Lighting at the Restaurants Building is integrally designed to be consistent with the lighting plan previously approved for the SkySong campus. As with every other aspect of the Project's design, lighting is critical not only in terms of its contextual response to the immediate surroundings but also in regard to the creation of a social gathering space. The 7,500 square-foot east shade canopy will cover outdoor restaurant and plaza spaces, capturing and reflecting ambient light and creating a visual tie to the iconic shade structure at the center of SkySong.

The shade canopy will incorporate a translucent panel that will appear luminescent, lit by warm LED lighting to produce a soft, low-level glow of indirect illumination within outdoor restaurant patios and the public plaza. No pole-mounted fixtures will be required. Lighting will consume far less energy than the use of typical ground-, pole- and building-mounted fixtures. This lighting approach will produce filtered daytime light and an inviting outdoor environment during the evening.

Principle 14. Signage should consider the distinctive qualities and character of the surrounding context in terms of size, color, location and illumination. Signage should be designed to be complementary to the architecture, landscaping and design theme for the site, with due consideration for visibility and legibility.

Signage will be integrates into the Restaurant Building's design in a way that both enhances and supports the architectural expression and facilitates maximum visibility.

Two locations have been identified along the building's Scottsdale Road frontage for signage: a location at the north end of the building, most visible for southbound traffic, and a location at the south end of the building visible for northbound traffic. By clustering signs in these locations, the nature of the building as a collection of restaurants, as opposed to a multi-tenant building, is reinforced and visual clutter that would otherwise occur by spreading the signage across the building's west elevation is reduced. The clustering of signage at these locations also preserves the building's west elevation for the artistic that celebrates the relationship of the proposed uses to the region's agricultural heritage.

E. SOUTHERN SCOTTSDALE CHARACTER AREA PLAN – CHARACTER AND DESIGN ELEMENT

The following discussion addresses consistency of the application with the *Southern Scottsdale Character Area Plan* (20060 Character and Design element.

NOTE: Numbering of goals and policies are taken from the Character Area Plan.

Character and Design Element

GOAL CD 2. THE CHARACTER AND DESIGN OF MIXED-USE AND COMMERCIAL DEVELOPMENT SHOULD ACCOMMODATE A VARIETY OF LAND USES, ENGAGE PEDESTRIANS, AND EXTEND INDOOR SPACES TO THE OUTSIDE.

Policy CD 2.1. Encourage pedestrian-oriented site design for new and revitalized development within Corridors, Regional Centers, and Activity Areas.

Response: Sited at the center of the next SkySong development phases, the restaurants are on major pedestrian circulation routes and are well-situated to become natural stops along the way.

Policy CD 2.3. Within Corridors, Regional Centers, and Activity Areas, locate new development along the street and provide parking immediately behind the building area.

Response: Although limited on-street parking is provided at SkySong, there is a strong focus on "park once and walk". It is expected that the majority of restaurant and plaza users will access the site on foot or by bicycle. Parking is provided in front of the restaurant and public plaza, primarily to accommodate off-campus diners. Locating the parking lot east of the building allows extension of the plaza for special events. The Restaurants Building is located on SkySong Boulevard. Given its development context, locating parking behind the building (i.e., on Scottsdale Road) is not desirable.

Policy CD 2.4. New development and redevelopment should provide a diversity of design by accommodating a mix of land uses both vertically and horizontally.

Response: The planned restaurants expand the diversity of land uses at SkySong by offering dining options not currently available.

covered walkway along its south side. Windows are located to be protected by these shade structures. This response is discussed in greater detail in the *Scottsdale Sensitive Design Principles Narrative* section.

Policy CD 4.2. Encourage the use of a variety of textures and natural building materials to provide architectural visual interest and richness, particularly at the pedestrian level.

Response: A rich variety of materials and texture appropriate to the Sonoran Desert will be used. Along the west building elevation, textured panels will represent elements of site history using custom concrete form-work that will create a variety of shade patterns and textures. Visual interest at pedestrian scale is strong throughout the site, through use of windows that open to the outdoors, filtered shade and site elements such as an edible garden.

Policy CD 4.3. Support landscape design that responds to the desert environment by utilizing indigenous and adapted landscape materials that complement the Southern Scottsdale built environment.

Response: Native, arid-region and arid-adapted landscape materials will be used to create a landscape appropriate to Scottsdale's Sonoran Desert setting and the established SkySong landscape palette.

GOAL CD 5. MAINTAIN, PROTECT, AND ENHANCE THE CHARACTER, QUALITY, AND CONNECTIVITY OF THE PUBLIC REALM AND OPEN SPACE AREAS.

Policy CD 5.3. Recognize that public realm design guidelines and standards represent an opportunity to provide identity to a community or neighborhood and convey design expectations.

Response: The existing open spaces and facilities are open to and used quite extensively by the surrounding community. The addition of the planned restaurant uses and public plaza can become a new destination attractive to neighbors and the general public.

Policy CD 5.4. Encourage plant placement that maximizes shade opportunities in pedestrian spaces, parking lots, and streetscape environments.

Response: Shade is an important attribute of the proposed restaurant building and site. The entire east side of the building and plaza area will be covered by a translucent shade canopy and trees will be planted within the plaza and restaurant patios. On the south side of the building an 18-foot seven-wide shaded walkway is planned, extending from the front of the building to Scottsdale Road.

GOAL CD 6. PROMOTE, PLAN, AND IMPLEMENT DESIGN STRATEGIES THAT ARE SUSTAINABLE.

Policy CD 6.1. Encourage compact development design along Corridors and in Regional Centers and Activity Areas to help reduce travel distances, encourage walking and cycling, and stimulate public transit use.

Response: SkySong includes an extensive system of pedestrian paths that help people make the decision to park once and walk or bicycle. Bicyclists will be provided with convenient parking at the Restaurants Building and connections to Scottsdale's system of bike lanes and multi-use paths. A transit stop is located immediately west of the restaurants, on Scottsdale Road. Transit users can walk directly from the transit stop to the restaurants using the shaded walkway along the south side of the building.

Policy CD 6.2. Encourage building design, orientation, and layout that reduce energy consumption.

Policy CD 6.3. Develop adaptable and sustainable building design strategies that could accommodate future innovative energy and environmental technologies as they become commercially viable.

Policy CD 6.4. Encourage the use of sustainable design principles for remodeling and new development projects to mitigate building construction and operational impacts on the environment.

Response: All buildings at SkySong are required to build to LEED standards as a stipulation of the 2005, original zoning approval. The Restaurants Building will be designed and constructed to

achieve LEED certification. See also discussion of Principle 10, *Scottsdale Sensitive Design Principles section* of this Narrative.

GOAL CD 9. ESTABLISH DESIGN GUIDELINES FOR CORRIDORS, REGIONAL CENTERS, AND ACTIVITY AREAS.

Policy CD 9.3. Continue to utilize the current lighting guidelines to enhance public safety, provide appropriate lighting for development, and supply transitional lighting levels to existing neighborhoods.

Response: See discussion of Principle 13, *Scottsdale Sensitive Design Principles* section of this Narrative.

GOAL CD 10. PROVIDE PUBLIC ART TO CREATE EXCITING AND ATTRACTIVE PUBLIC SPACES THAT ARE USED AND ENJOYED BY SOUTHERN SCOTTSDALE RESIDENTS, WORKERS, AND VISITORS.

Policy CD 10.1: Enhance the quality of life of Southern Scottsdale residents by increasing their access to the visual arts and create a more aesthetically-pleasing urban environment.

Response: The restaurants site may collaborate with SkySong to explore the possibility of locating public art elements in the plaza area. Features that interpret the history of the site and the importance of agriculture to this part of the Valley are currently proposed as integral parts or architectural and site design.

Policy CD 10.2. Support the creation of exciting, appealing, and harmonious public spaces by integrating architecture, design, public art, and the planning of infrastructure at the earliest design stage.

Response: The theme for the restaurants' design and public spaces is unique and compelling. The historic agricultural use of the property and the urban agriculture concept is embodied in the design approach and may be expressed in expanded days as this part of SkySong matures. The net result will be an exciting and unique contribution to the public realm that will attract use and activity.

F. CITY OF SCOTTSDALE RESTAURANT DESIGN GUIDELINES

The "*Purpose*" of the Restaurant Design Guidelines ("Restaurant Guidelines") cites "increasing development pressure for corporate-driven design solutions (that) threaten the very essence of what makes Scottsdale a desirable and unique place."

The proposed Restaurants Building is the antithesis of "corporate-driven design". The architecture is driven instead by its context at SkySong and by the unique agricultural history of the site. Wetta Ventures, LLC, the developer, is local and is known for creative and site-specific restaurant projects. The Restaurant Guidelines' *Purpose* is strongly supported by the current application.

Within the Restaurant Guidelines are specific guidelines for design. Following is comment on how the proposed Restaurants Building design relates to these.

Site Design

All development proposals should show evidence of coordination with the site plan elements and other contextual influences of neighboring properties.

The Restaurants Building at SkySong is sited in accordance with the approved master Development Plan for the SkySong campus. It is located among planned office and R&D buildings. Its design draws from architectural and site plan elements typical of its context within the campus. It is sited to maximize pedestrian access via the campus-wide pedestrian circulation system and includes a public plaza along the main spine of the campus, a key element in the overall Open Space Concept. Building entries and the public plaza are convenient to parking and to the pedestrian pathway system.

Service areas, storage areas and refuse enclosures should be screened from public view and from adjacent sites. In highly developed settings... consider the use of trash compactors with odorizers.

Service areas, storage and refuse enclosures are located north of the building within an area to be screened with a masonry wall. The view of this area will be screened from future adjacent office development.

Site design should accommodate a logical and safe vehicular and pedestrian circulation pattern throughout the site that minimizes conflicts. Linkages for pedestrians should be direct avoiding circuitous routes that are not easily understood.

The Restaurants Building site design conforms to the Circulation Plan and Open Space Concept approved as part of Case. These show a campus-wide network of pedestrian walkways and open spaces. Pedestrian access to the restaurants is direct and conflicts with motor traffic are minimized.

Parking fields and expansive areas of paved surfaces should be broken up with landscape planting.

Most parking at SkySong will be located in parking structures. Limited on-street parking is available. The parking area in front (east) of the Restaurants Building is not expansive and includes trees within planter islands.

Outdoor dining areas are encouraged.

Outdoor dining is planned in restaurant patios along the east side of the building. Dining can also be accommodated in the public plaza on the east and south sides of the building under shade canopies.

Architecture

Building design should take into consideration the unique qualities and character of the surrounding area.

As discussed elsewhere in this Narrative, the Restaurants Building architecture includes character elements drawn from existing SkySong development in terms of the east and south shade structures, architectural elements, paving details, lighting and hardscape materials.

Encourage building elements that speak to the desert environment and climate.

Windows on east and south-facing building facades and plaza areas are shaded by deep canopies that mitigate the impacts of heat and sun, while encouraging outdoor uses throughout most of the year. Building colors, materials and motifs draw from the site's history in this desert valley and are reflective of native colors, materials, textures and patterns.

Buildings that derive their image predominantly from applied treatments that express corporate identity are discouraged.

The Restaurants Building design is not expressive of "corporate identity" and its tenants are expected to be unique and local.

All sides of a building should express consistent architectural detail and character. Site and screen walls should be architecturally integrated with the building.

All sides of the Restaurants Building are consistent in terms of character, expressive of the overall site design theme related to history and the importance of agriculture. All sides are visible to pedestrians and are detailed to ensure visual interest and aesthetic continuity around the entire building.

Building should respond to solar heat gain, reflectivity and glare through building orientation and the use of architectural shading devices.

The building has been designed and sited with these factors in mind. The building is oriented toward the east where its plaza and façade are shaded by an expansive shade canopy. The south elevation is protected from the sun by a deep (15 ft. 4 in. deep) shade structure. The west elevation, which receives the most intense solar impacts, has no windows and is shaded by street trees and other landscaping.

Shading for outdoor dining should be architecturally integrated with the main structure.

The shade canopy that covers outdoor dining patios is an integral part of the building's architecture.

The following architectural treatments are generally discouraged:

- *Gradation in paint color applied to one surface or use of large graphics*
- *Extended bands of vibrant and/or highly contrasting corporate*
- *Long, uninterrupted expanses of glass.*
- *Floor to ceiling glass storefront treatments.*

Varying paint colors and subtle graphic components are key elements of the Restaurant Buildings' design concept. They are expressed in ways that integrate well with the entire building and site design features.

The design of the west building elevation, next to the transit stop on Scottsdale Road includes a series of large, textured panels speaking to the nature of the building as a 'purpose-built' culinary destination. The entire concept for the building revolves around the idea of food and the design of the west elevation plays a key role.

Conceived as a graphic interpretation of the patterning of farmland as seen from above, the west elevation plays an integral part in the building's comprehensive narrative based on its specific use. Created to be understood at both pedestrian scale and to be legible to motorists traveling up and down Scottsdale road at speeds of 45 miles per hour, the design is broken into three primary elements; Soil (brown), Crops (green) and Harvest (gold) and each will have a unique texture that reinforces the nature of each element.

Each of these three custom colors, created specifically for this project will be site-cast into custom concrete form-work that provides a high degree of texture shade, and shadow across the entire façade. By the very nature of this highly textured approach, the façade will change over the course of the day as the sun passes across the sky. The micro-shading across the west elevation's surface will serve to cool the wall surface and will lead to less energy consumption over other more traditional materials.

At the south end of the west elevation, a custom colored concrete will be utilized, and with employ with a design embedded in the concrete surface that chronicles the history of crops grown on the site from Hohokam times, through the centuries to today when crops may again be grown on site, harvested, and used in preparation of the menu items in the building's new restaurants.

The narrative continues at the scale of the pedestrian along the south side of the building, where the names of the stewards of the site, its agricultural history, could be etched into the paving along a trellised walkway. The names chronicle keepers of the site

from the Hohokam to Winfield Scott to SkySong and reinforce the importance of bringing agriculture back to this site at the adjacent edible garden.

Colors, textures and other design aspects of the west building elevation are integral parts of the building's "story" and are tied to related elements throughout the site. They are not "applied to one surface" as simple decoration and the "large graphics" are a subtle background element that introduce the overall design theme.

Building colors should emphasize muted earth tones. Use of highly reflective or glossy materials should be limited and are not appropriate in all contexts.

Building materials proposed have a low reflectivity and are of a palette consistent with the desert environment. See also discussion of Principle 9, in the *Scottsdale Sensitive Design Principles* section of this Narrative.

Landscape Design (See also discussion of Principle 11, in the Scottsdale Sensitive Design Principles section of this Narrative)

Landscaping should blend with the dominant existing or planned streetscape and character of the area.

Landscaping materials and design will blend seamlessly with both the Scottsdale Road streetscape and SkySong's established landscape materials and character.

Landscaping should be provided at the base of buildings to anchor them to the surrounding environment and soften the structure.

Landscaping provides a visual foreground for the Restaurants Building.

- Along Scottsdale Road, in-ground base planting is provided that blends with the existing streetscape.
- A wide covered walkway, usable as outdoor plaza space, extends along the south side of the building, adjacent to an edible kitchen garden and landscaping along SkySong Boulevard.
- The north and east sides of the building do not have base plantings.
    - The north side is separated from an enclosed service/refuse/storage yard by a secondary walkway (to be used primarily for access to the yard). The base of the building is screened from view by the service enclosure.
    - The east elevation of the building is set back under a translucent shade canopy, with attached restaurant patios and a public plaza. Within the plaza and patios are trees, but there is no base planting along the east façade, *per se*.

Trees should be used throughout paved areas and along pedestrian pathways to provide shade, to reduce heat build-up and glare.

Trees are provided within the parking lot, the public plaza and restaurant patios.

Dense landscaping and architectural treatments used in combination should be provided to screen unattractive views and features such as storage areas, trash enclosures, utility cabinets and similar elements.

The storage/trash enclosure is screened with an architectural element and is tucked away between the north side of the building and a future office development site. It is expected that a pedestrian path providing access to the Scottsdale Road transit stop may be located on the north side of the enclosure, within a future development site. A buffer between path and enclosure may be considered at the time of office building development, but is not part of this application.

The site design for projects located at street corners should provide special landscape treatment at street intersection.

Although the Restaurants Building is located just north of the northeast corner of SkySong Boulevard and Scottsdale Road, its property boundary does not include land located right at the corner. The street corner area will include special landscaping and SkySong entrance features and is the responsibility of the master SkySong developer.

The use of mature trees is encouraged to provide an immediate impact especially when used in buffering adjacent uses.

Land on three sides of the Restaurants Building site is vacant. The fourth (west) side is on Scottsdale Road and has been landscaped according to the Scottsdale Road Streetscape Plan. Buffering of adjacent uses does not apply. Existing mature trees will remain and 36-inch box trees will be added east of the building, in the parking lot and patio/plaza areas.

Proper maintenance and timely replacement of plant material is expected and required by ordinance.

Plant materials will be maintained to a high standard, including replacement as needed.

Lighting *(See also discussion of Principle 13, in the Scottsdale Sensitive Design Principles section of this Narrative)*

A lighting design and plan must accompany all applications for new development or redevelopment.

A lighting design and plan will be submitted, as required.

Avoid competing light levels and maintain balanced light levels on-site and between adjacent properties.

Lighting levels will be consistent with SkySong's existing lighting design concepts and with the SkySong Design Guidelines Supplement.

Recommended light level guidelines and uniformity ratios established by the Illumination Engineering Society of North America (IESNA) in the IESNA Lighting Handbook (current edition) should be considered and incorporated where appropriate for lighting designs.

This has been done.

Light glare or excess brightness should be minimized.

Lighting for the building and site has been designed to minimize glare and excessive brightness, consistent with overall campus lighting standards.

Signage/Corporate Identification (See also discussion of Principle 14, in the Scottsdale Sensitive Design Principles section of this Narrative)

Applied treatments used to achieve business identity... should not be the dominant architectural feature.

Dominant architectural features are not applied to enhance recognition of corporate identity or character. Restaurants proposed are not fast-food or similar establishments that depend on golden arches or red striped awnings and cupolas that enable quick identification as part of their corporate identity.

All signage should be architecturally integrated with their surroundings...

Signage for Restaurants Building tenants will be integral parts of the architecture, with design and colors appropriate to the site.

Building design should anticipate signage. Designs should provide logical sign areas, allowing flexibility for new users as the building is re-used over time.

Signage and flexibility have been considered in the site and building design.

Repetitious signage information on the same building façade should be avoided.

There will be no repetitious signage information on any one building façade.

Signs composed of individual letters are encouraged.

This is consistent with the design approach proposed for the Restaurants Building.

Visible raceways and transformers for individual letters are discouraged.

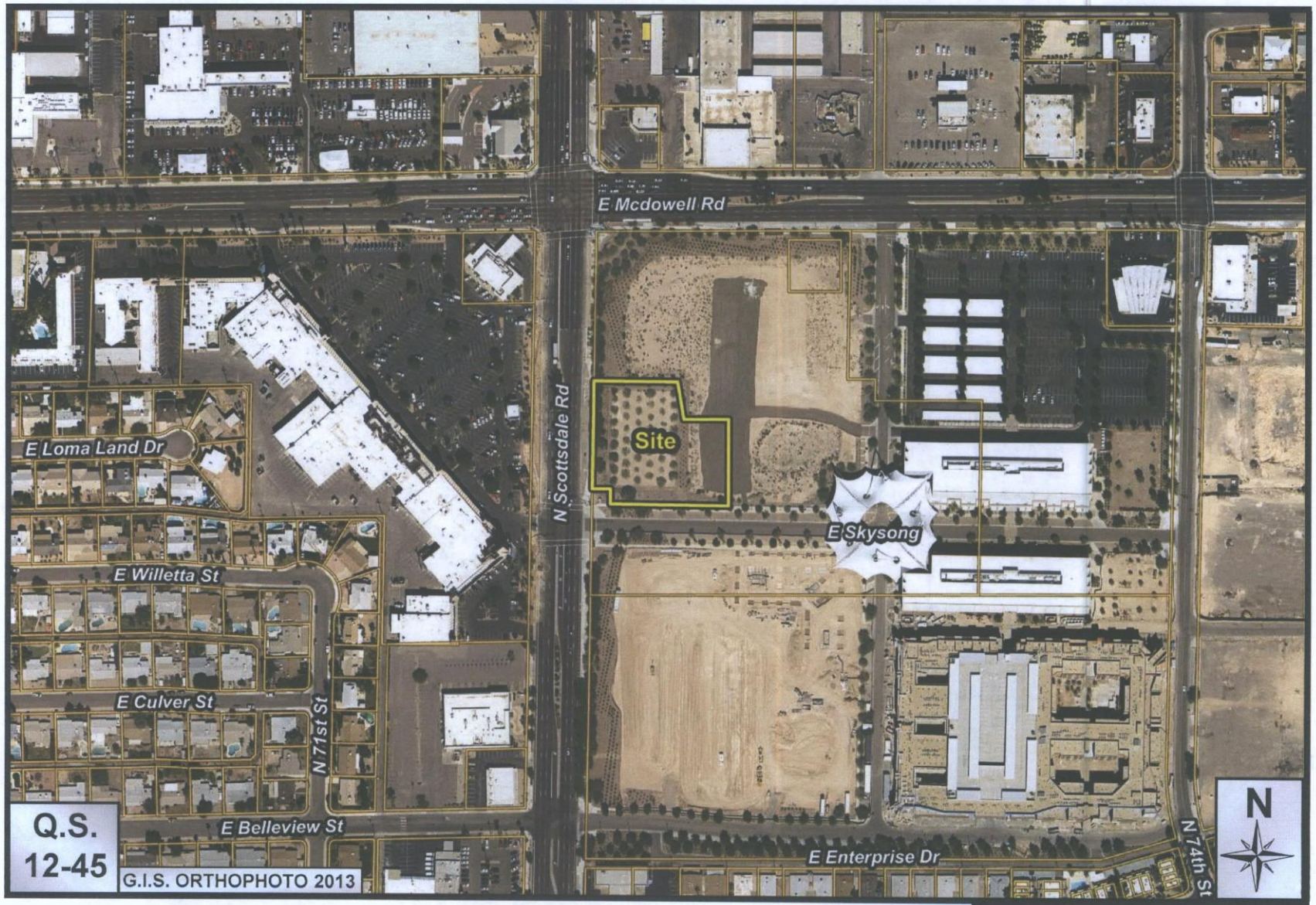
Any raceways and transformers associated with individual letter signs will be hidden from view.

IV. CONCLUSION

Wetta Ventures is excited about the Restaurants Building application, the continuing development of SkySong and making a contribution to the revitalization of Southern Scottsdale.

The Restaurants Building is a high-quality and modern design that will provide expanded dining options for both SkySong and the surrounding neighborhoods. The Project respectfully responds to its context, the region's unique climatic factors, and to all applicable City policy, plans, ordinances and guidelines.

We look forward to discussing the Project with you in the near future and respectfully request your support for Case 24-DR-2015.



SkySong Restaurant

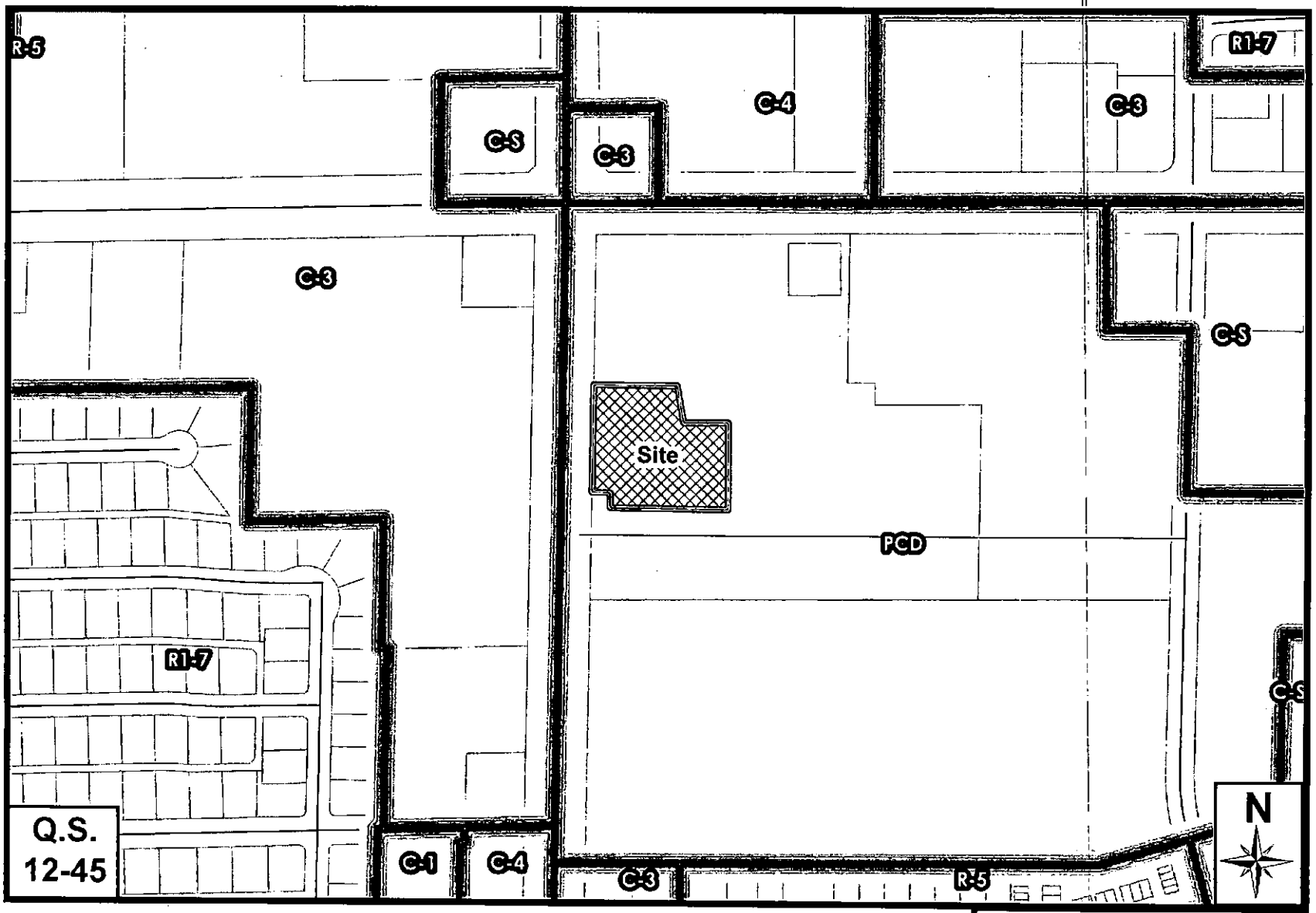
24-DR-2015

ATTACHMENT #2

SkySong Restaurant

24-DR-2015

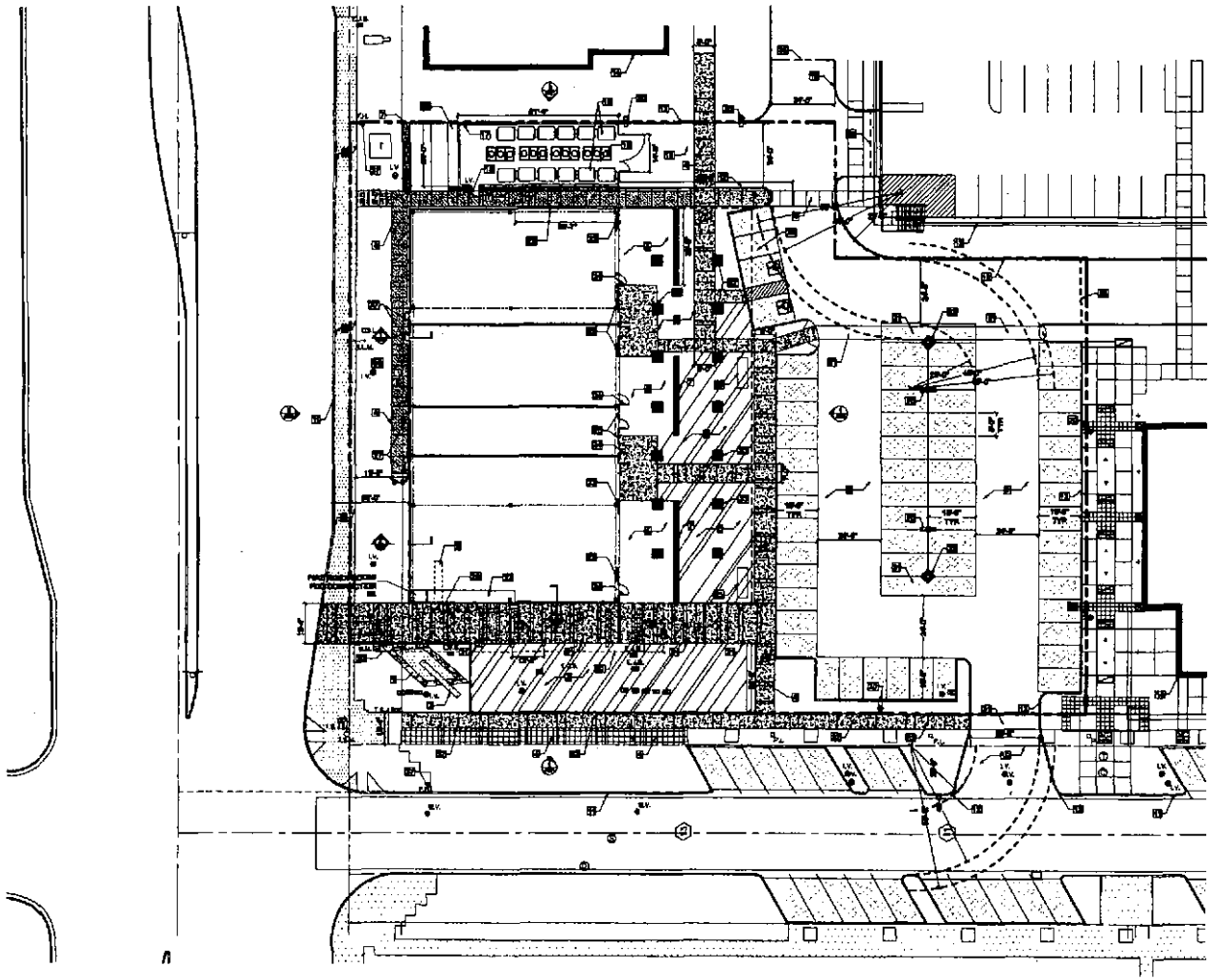
ATTACHMENT #2A



SkySong Restaurant

24-DR-2015

ATTACHMENT #3



1 ARCHITECTURAL SITE PLAN
1" = 30'-0"

SHEET NOTES - SITE PLAN

1 EX. GABION WALL TO REMAIN (NOT A PART)
2 EX. GABION WALL TO BE REMOVED
3 EX. MONUMENT SIGN TO REMAIN (NOT A PART)
4 NEW HARDSCAPE/SIDEWALK (SEE LANDSCAPE PLAN)
5 RESTAURANT PATIO AREA (FUTURE, BY TENANT)
6 PUBLIC OUTDOOR OPEN SPACE (SEE LANDSCAPE PLAN)
7 PLANTER AREA (SEE LANDSCAPE PLAN)
8 EDIBLE GARDEN (SEE LANDSCAPE PLAN)
9 NEW PARKING AREA
10 NEW DRIVEWAY ENTRANCE
11 EX. CURB AND GUTTER (NOT A PART)
12 NEW CURB AND GUTTER
13 FUTURE PARKING GARAGE (NOT A PART)
14 FUTURE BUILDING (NOT A PART)
15 FUTURE CURB AND GUTTER (NOT A PART)
16 GREASE INTERCEPTOR
17 TRASH / RECYCLE CONTAINER
18 OPAQUE TRASH GATE (SEE DETAILS)
19 CONCRETE PAVING
20 POLE MOUNTED LIGHTING (SEE ELECTRICAL)
21 BOLLARD LIGHT (SEE ELECTRICAL)
22 FUTURE UTILITY ROOM
23 OPERABLE STOREFRONT DOOR SYSTEM
24 OPERABLE (36" MIN WIDTH) STOREFRONT DOOR
25 FIXED STOREFRONT
26 STEEL EXTERIOR DOORS (ON PIANO HINGE)
27 HOLLOW-METAL EXTERIOR SERVICE DOOR
28 EDGE OF ROOF OVERHANG ABOVE
30 LINE OF CANOPY/SHADE TRELLIS OVERHEAD
31 ENHANCED PAVING - SEE LANDSCAPE
32 EX. SIDEWALK TO REMAIN
33 TREE PLANTER (SEE LANDSCAPE)
34 EX. PUBLIC SIDEWALK
35 NEW BICYCLE RACKS
36 NEW SERVICE ENTRY SECTION (SEE ELECTRICAL)
37 EXISTING FIRE HYDRANT (MAX 340' SPACING)
38 TEMPORARY 'END OF ROAD' BARRICADE

BRICK & WEST DESIGN

CONSULTANTS:

CONSTRUCTION:

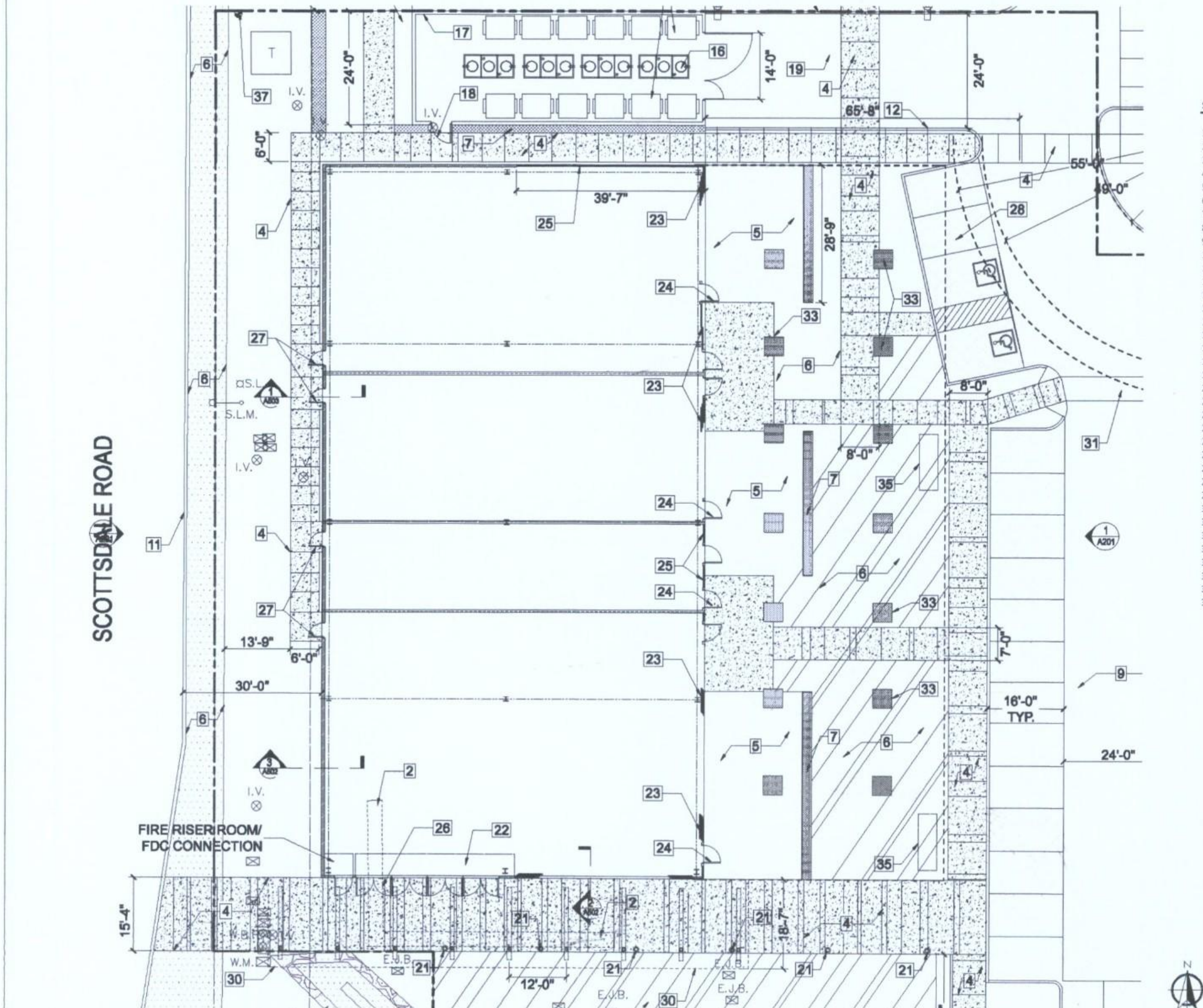
WESTA VENTURES

SKYBONG RESTAURANTS BLDG.

G001
OVERALL SITE PLAN

24-DR-2015
8/27/15

ATTACHMENT #4



1 DETAIL ARCHITECTURAL SITE PLAN 1
1" = 10'-0"

SHEET NOTES - SITE PLAN

1. EX. GABION WALL TO REMAIN (NOT A PART)
2. EX. GABION WALL TO BE REMOVED
3. EX. MONUMENT SIGN TO REMAIN (NOT A PART)
4. NEW HARDSCAPE/SIDEWALK (SEE LANDSCAPE PLAN)
5. RESTAURANT PATIO AREA (FUTURE, BY TENANT)
6. PUBLIC OUTDOOR OPEN SPACE (SEE LANDSCAPE PLAN)
7. PLANTER AREA (SEE LANDSCAPE PLAN)
8. EDIBLE GARDEN (SEE LANDSCAPE PLAN)
9. NEW PARKING AREA
10. NEW DRIVEWAY ENTRANCE
11. EX. CURB AND GUTTER (NOT A PART)
12. NEW CURB AND GUTTER
13. FUTURE PARKING GARAGE (NOT A PART)
14. FUTURE BUILDING (NOT A PART)
15. FUTURE CURB AND GUTTER (NOT A PART)
16. GREASE INTERCEPTOR
17. TRASH / RECYCLE CONTAINER
18. OPAQUE TRASH GATE (SEE DETAILS)
19. CONCRETE PAVING
20. POLE MOUNTED LIGHTING (SEE ELECTRICAL)
21. BOLLARD LIGHT (SEE ELECTRICAL)
22. FUTURE UTILIY ROOM
23. OPERABLE STOREFRONT DOOR SYSTEM
24. OPERABLE (36" MIN WIDTH) STOREFRONT DOOR
25. FIXED STOREFRONT
26. STEEL EXTERIOR DOORS (ON PIANO HINGE)
27. HOLLOW-METAL EXTERIOR SERVICE DOOR
28. EDGE OF ROOF OVERHANG ABOVE
30. LINE OF CANOPY/SHADE TRELLIS OVERHEAD
31. ENHANCED PAVING - SEE LANDSCAPE
32. EX. SIDEWALK TO REMAIN
33. TREE PLANTER (SEE LANDSCAPE)
34. EX. PUBLIC SIDEWALK
35. NEW BICYCLE RACKS
36. NEW SERVICE ENTRY SECTION (SEE ELECTRICAL)
37. EXISTING FIRE HYDRANT (MAX 340' SPACING)

BRICK & WEST
DESIGN

CONSULTANTS:

CERTIFICATION:

WETTA VENTURES

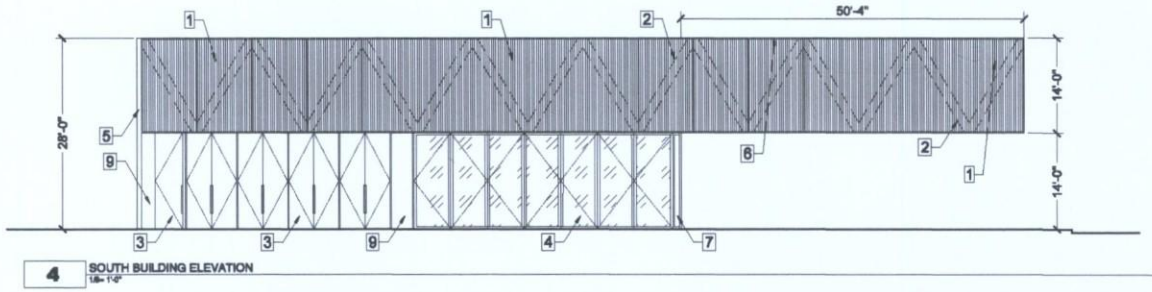
SKYSONG RESTAURANTS BLDG.
Scottsdale, Arizona
WETTA VENTURES
CONTACT: Dave Wetta

Date
Project No.
Drawn By
Checked By

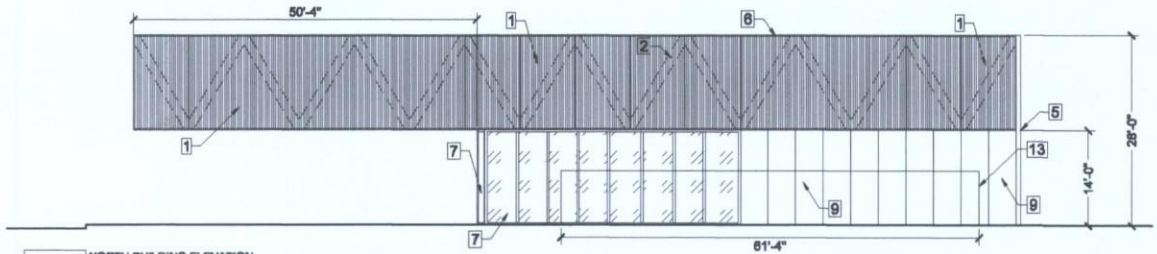
Revision | Date

G002
DETAIL SITE PLAN

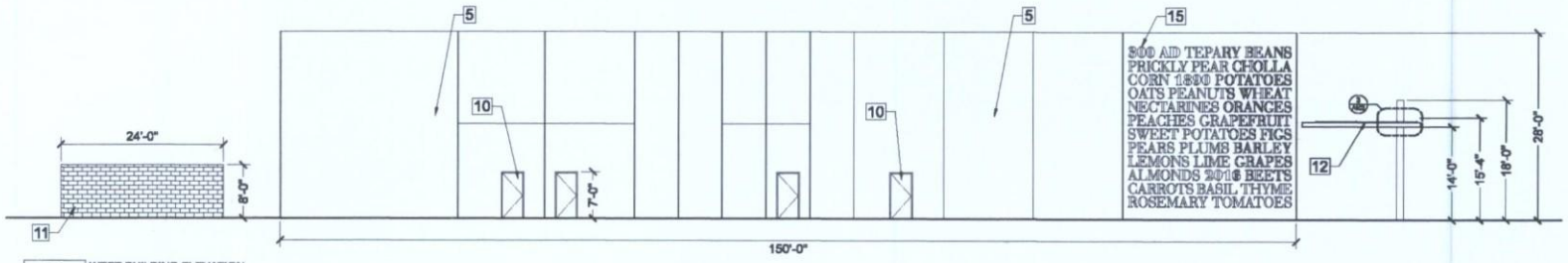
24-DR-2015
7/27/2015



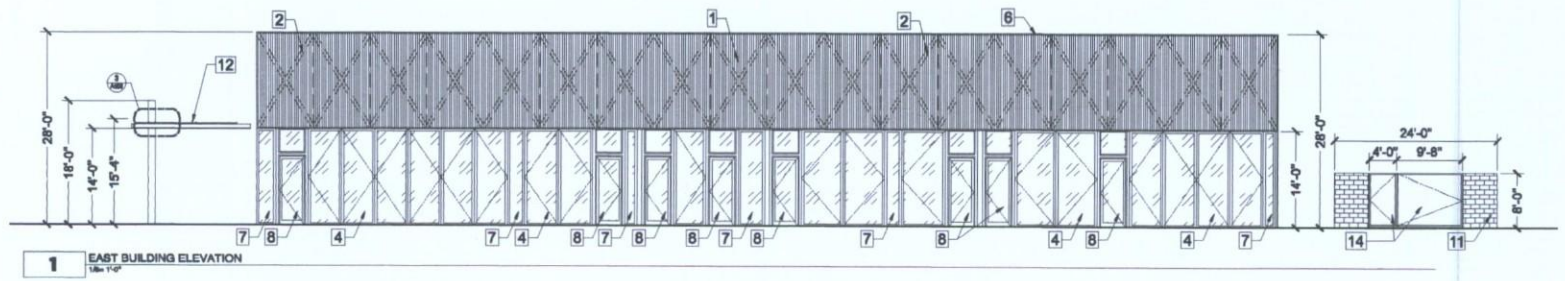
4 SOUTH BUILDING ELEVATION



3 NORTH BUILDING ELEVATION



2 WEST BUILDING ELEVATION



1 EAST BUILDING ELEVATION

SHEET NOTES - ELEVATIONS

1 POLYCARBONATE CLADDING OVER SUPERSTRUCTURE
2 SUPERSTRUCTURE (SHADOWED BEYOND)
3 STEEL PANEL DOORS (SEAMLESS / PIANO HINGED)
4 BI-FOLD OPERABLE STOREFRONT DOORS
5 SITE CAST CONCRETE WALL WITH INTEGRAL COLOR (SAMPLSE TO BE SUPPLIED FOR REVIEW)
6 KNIFE-EDGE STEEL FRAME FOR POLYCARBONATE PANELS
7 FIXED STOREFRONT WINDOW
8 OPERABLE STOREFRONT (SWING) DOOR (MIN. 36" WIDE)
9 STEEL PANEL TO MATCH STEEL DOORS
10 HOLLOW-METAL EXTERIOR SERVICE DOOR PAINTED TO MATCH ADJACENT WALL COLOR
11 MASONRY WALL
12 STEEL SHADE CANOPY OVER WALKWAY
13 OUTLINE OF TRASH ENCLOSURE (BEYOND)
14 OPAQUE STEEL TRASH GATES
15 NARRATIVE WALL ELEMENT - STEEL LETTERS INTEGRATED INTO WEST ELEVATION

BRICK & WEST DESIGN

CONSULTANTS:

CERTIFICATION

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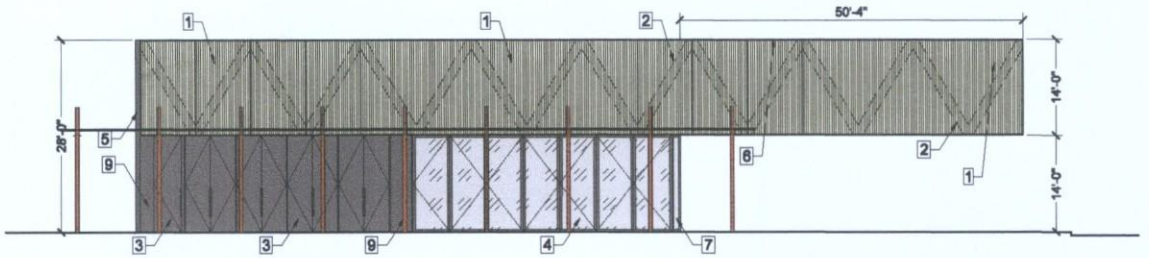
Project No.
Drawn By
Checked By

Revision Date

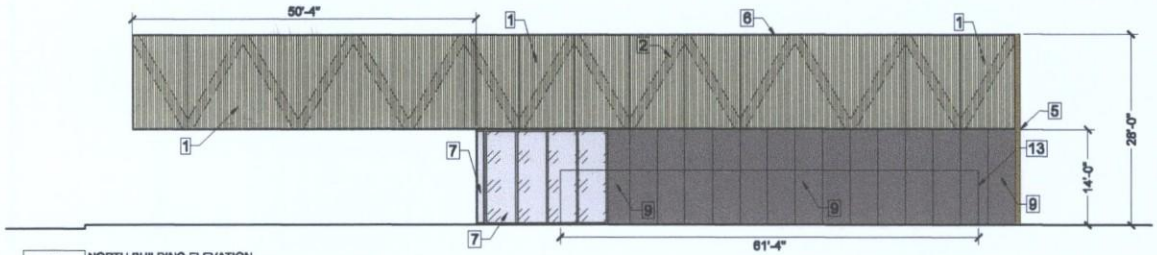
A201
EXTERIOR ELEVATIONS

24-DR-2015
7/27/2015

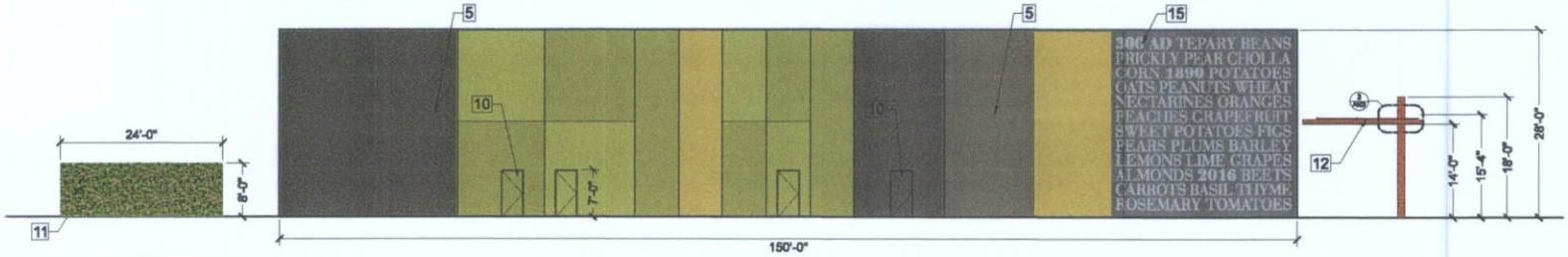
ATTACHMENT #5



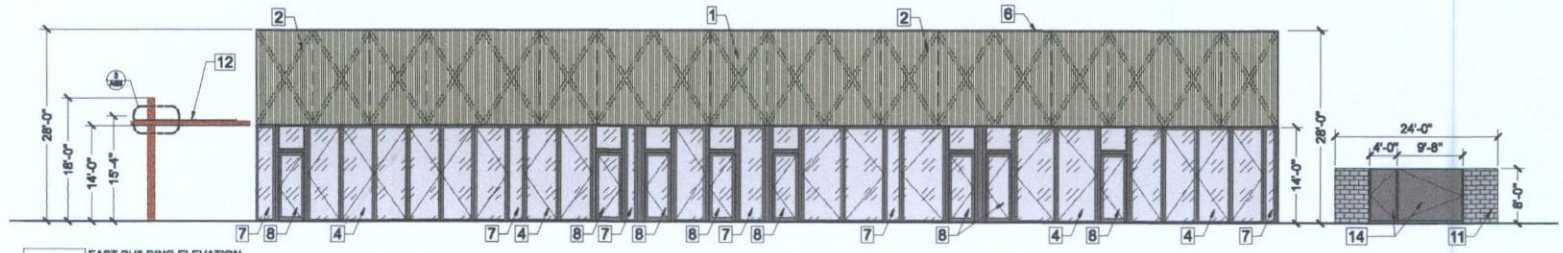
4 SOUTH BUILDING ELEVATION



3 NORTH BUILDING ELEVATION



2 WEST BUILDING ELEVATION



1 EAST BUILDING ELEVATION

SHEET NOTES - ELEVATIONS

1 POLYCARBONATE CLADDING OVER SUPERSTRUCTURE
2 SUPERSTRUCTURE (SHADOWED BEYOND)
3 STEEL PANEL DOORS (SEAMLESS / PIANO HINGED)
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13 OUTLINE OF TRASH ENCLOSURE (BEYOND)
14 OPAQUE STEEL TRASH GATES
15 NARRATIVE WALL ELEMENT - STEEL LETTERS INTEGRATED INTO WEST ELEVATION

BRICK & WEST DESIGN

CONSULTANTS:

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Date
Project no.
Drawn By
Checked By

Revision Date

A202
EXTERIOR ELEVATIONS

24-DR-2015
7/27/2015

BASE COLOR PALETTE

COLOR 1
'WHEAT'
Pantone 117 at 50%

COLOR 2
'EARTH'
Pantone Warm Gray 9 at 90%

COLOR 3
'GROWTH'
Pantone 576 at 70%

APPLIED COLOR PALETTE

A Color 2 Vertical Texture

B Color 3 Horizontal Texture

C Color 3 Vertical Texture

D Color 3 Vertical Texture

E Color 3 Horizontal Texture

F Color 3 Vertical Texture

G Color 1 Vertical Texture

H Color 3 Horizontal Texture

I Color 3 Vertical Texture

J Color 3 Vertical Texture

K Color 3 Horizontal Texture

L Color 3 Vertical Texture

M Color 2 Vertical Texture

N Color 2 Horizontal Texture

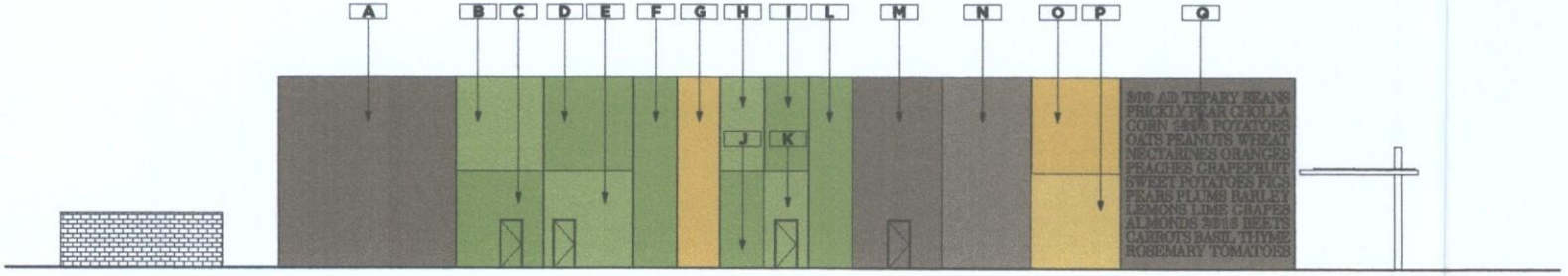
O Color 1 Vertical Texture

P Color 1 Horizontal Texture

Q Color 2 Smooth

LETTER TREATMENT

Letters to be sandblasted into concrete, exposing aggregate and providing contrast



1 WEST BUILDING ELEVATION
1/8" = 1'-0"

24-DR-2015
8/27/15

BRICK & WEST DESIGN

CONSULTANTS:

CERTIFICATION

WITTA VENTURES

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Date
Project no.
Drawn By
Checked By

Revision Date

A801
WEST ELEVATION MATERIAL KEY

BRICK & WEST
DESIGN

CONSULTANTS:

CERTIFICATION:

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Date
Project no.
Drawn By
Checked By

Revision Date

A901
RENDERING

24-DR-2015
7/27/2015

ATTACHMENT #6

BRICK & WEST
DESIGN

CONSULTANTS:

CERTIFICATION:

WESTA VENTURES

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WESTA VENTURES
CONTACT: Dana Westa
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Date:
Project no.
Drawn By:
Checked By:

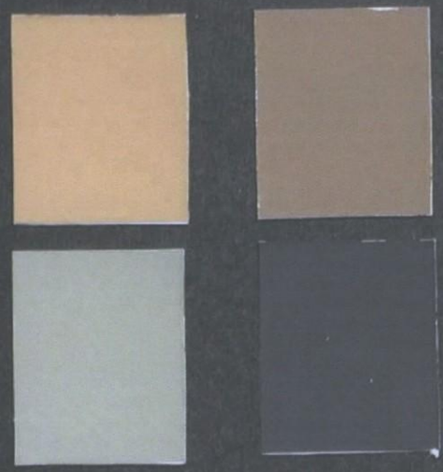
Revision | Date

A902
RENDERING

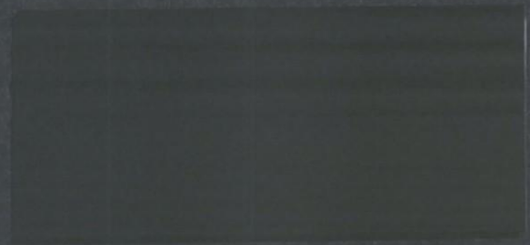
24-DR-2015
7/27/2015

ATTACHMENT #7

BLACKENED STEEL EXTERIOR METAL CLADDING

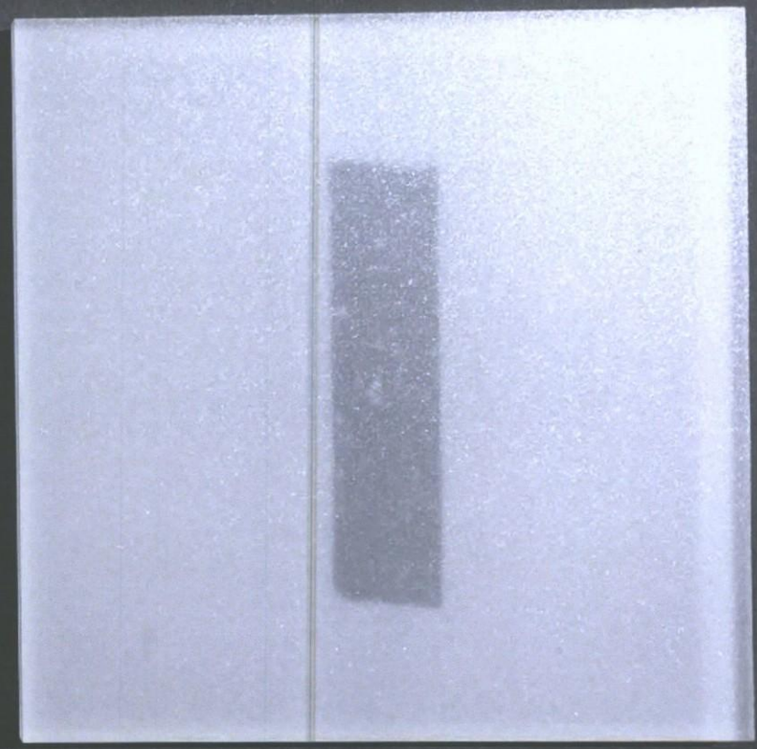


WEST ELEVATION COLOR PALETTE
(REFER TO MOCK-UPS AND SHEET A801)



BRONZE ANODIZED ALUMINUM STOREFRONT

CMU MASONRY UNITS



POLYCARBONATE CLADDING

ATTACHMENT #8

APPLIED COLOR PALETTE

COLOR 2

'EARTH'
Pantone Warm Gray 9 at 90%

COLOR SHOWN IN VERTICALTECTURE
SEE A801 FOR LOCATION AND ORIENTATION OF TEXTURE
ACTUAL PHOTO OF MATERIAL MOCK-UP
ACTUAL PANELS WILL BE AVAILABLE FOR VIEW PRIOR TO HEARING

COLOR 2

'EARTH'
Pantone Warm Gray 9 at 90%

COLOR SHOWN IN SMOOTH TEXTURE
SEE A801 FOR LOCATION AND ORIENTATION OF TEXTURE
ACTUAL PHOTO OF MATERIAL MOCK-UP
ACTUAL PANELS WILL BE AVAILABLE FOR VIEW PRIOR TO HEARING

COLOR 3

'GROWTH'
Pantone 576 at 70%

COLOR SHOWN IN VERTICALTECTURE
SEE A801 FOR LOCATION AND ORIENTATION OF TEXTURE
ACTUAL PHOTO OF MATERIAL MOCK-UP
ACTUAL PANELS WILL BE AVAILABLE FOR VIEW PRIOR TO HEARING

COLOR 1

'WHEAT'
Pantone 117 at 50%

COLOR SHOWN IN VERTICALTECTURE
SEE A801 FOR LOCATION AND ORIENTATION OF TEXTURE
ACTUAL PHOTO OF MATERIAL MOCK-UP
ACTUAL PANELS WILL BE AVAILABLE FOR VIEW PRIOR TO HEARING

BRICK & WEST
DESIGN

CONSULTANTS:

CERTIFICATION:

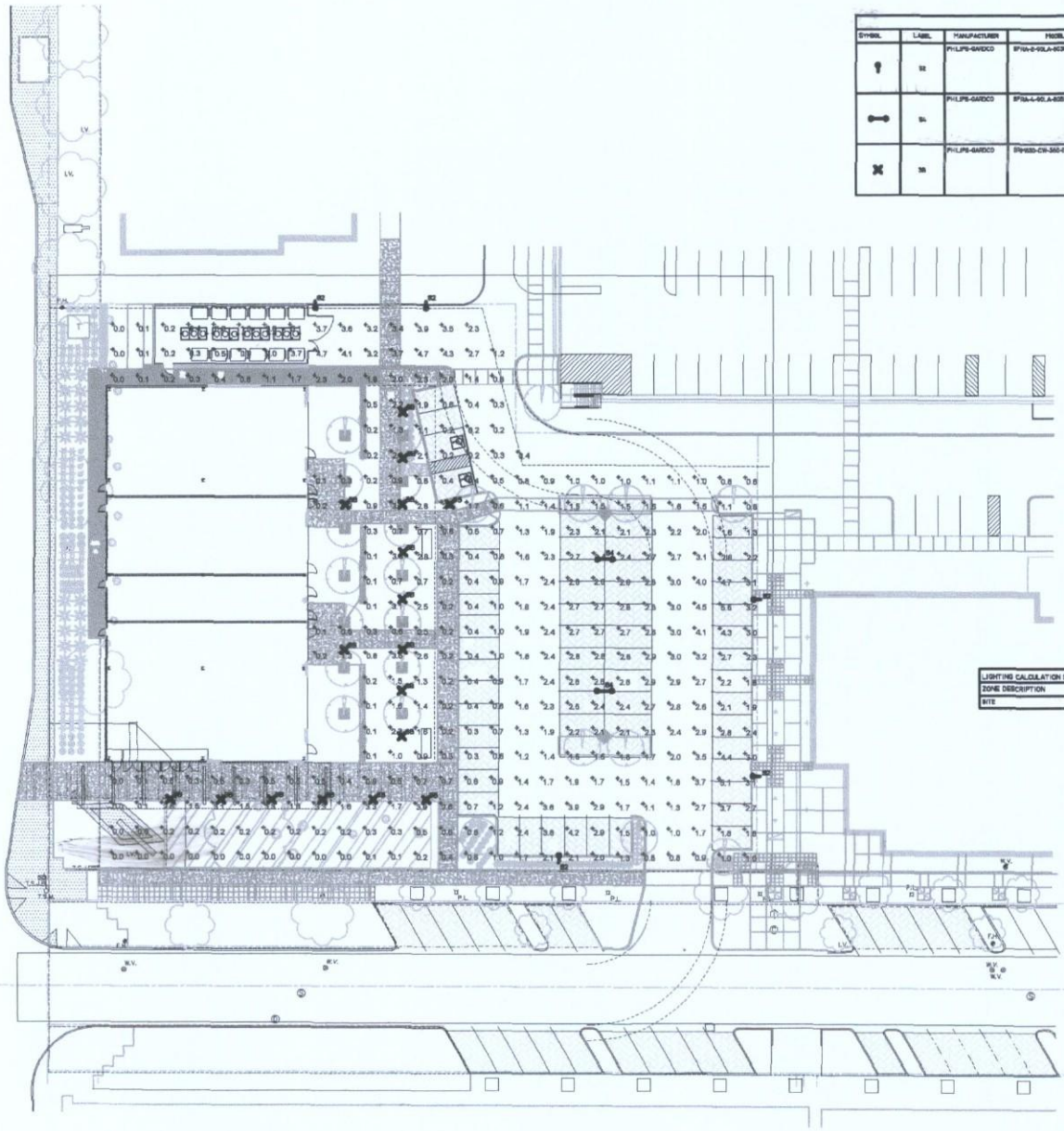
WETTA VENTURES

SKYSONG RESTAURANTS BLDG.
Scottsdale, Arizona
WETTA VENTURES
CONTACT: Dave Wetta
(602) 478-3538

Date
Project No
Drawn By
Checked By

Revision | Date

MATL
CONCRETE MATERIAL
SAMPLE BOARD



LUMINAIRE SCHEDULE

SYMBOL	LABEL	MANUFACTURER	MODEL	DESCRIPTION	LAMP	QTY	LM	LLF	WATTS
	S2	PHILIPS-GARDCO	SPSN-S-90LA-SCR-HW	SINGLE HEAD AREA LIGHT, TYPE II FULL-CUT-OFF OPTICS. MOUNTED AT 20'-0" TO BOTTOM OF FIXTURE.	3000K LED	1	7997	0.8	66
	S1	PHILIPS-GARDCO	SPSN-L-90LA-SCR-HW	TWIN HEAD AREA LIGHT, TYPE II FULL-CUT-OFF OPTICS. MOUNTED AT 20'-0" TO BOTTOM OF FIXTURE.	3000K LED	1	7701	0.8	170
	S3	PHILIPS-GARDCO	SPH30-CW-360-SRP	LED LOUVERED BOLLARD	3000K LED	1	718	0.8	41

TARGET ILLUMINANCE CRITERIA

ZONE TYPE	AVG	MAX
SITE - S-4: URBAN	2.5 FC	10.0 FC
PROPERTY LINE (MAX SPILL VERTICAL AT 6'-0" AFG)	N/A	1.0 FC

LIGHTING CALCULATION SUMMARY

ZONE DESCRIPTION	Ave	Max	Min	Max/Min	Ave/Min
SITE	1.8 FC	9.5 FC	0.2 FC	N/A	N/A

BRICK & WEST DESIGN

CONSULTANTS:

CERTIFICATION:

SKYSONG RESTAURANTS BLDG.
Scottsdale, Arizona
WETTA VENTURES
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Date
Project No.
Drawn By
Checked By

Revision Date

E1
ELECTRICAL SITE PLAN

24-DR-2015
7/27/2015

ATTACHMENT #10

TYPE: S2, S4

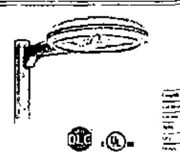
PHILIPS

GARDCO

Site & Area

SlenderForm

Round Arm Mount luminaire



LED

TYPE: S2, S4

SFRA SlenderForm

Site & Area, Round Arm Mount luminaire

SlenderForm Accessories

Description

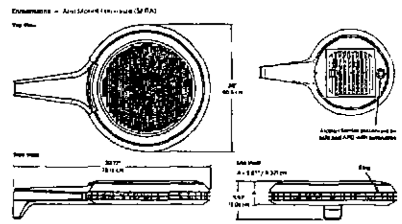
Optical System

LED Wattage and Lumen Values

TYPE: S2, S4

SFRA SlenderForm

Site & Area, Round Arm Mount luminaire



TYPE: SB

LED BOLLARD

Page 1 of 3

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

Featuring Motion Response

PREFIX

HEIGHT

LED CONTROL

LED SELECTION

LIGHTED COVERAGE

VOLTAGE

FINISH

OPTIONS

PHILIPS GARDCO

TYPE: SB

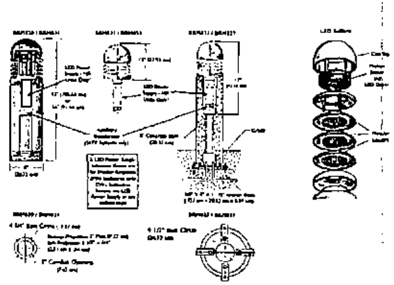
LED BOLLARD

Page 2 of 3

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

Featuring Motion Response

DIMENSIONS



PHILIPS GARDCO

TYPE: SB

LED BOLLARD

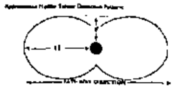
Page 3 of 3

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

Featuring Motion Response

SPECIFICATIONS

LED PERFORMANCE



OPTICAL SYSTEM

ANCHORAGE

PHILIPS GARDCO

BRICK & WEST DESIGN

CONSULTANT

CERTIFICATION

WITTA VENTURES

SKYSONG RESTAURANTS BLDG.

Scottsdale, Arizona
WITTA VENTURES
CONTACT: Dave Witta
(602) 478-3538

24-DR-2015
5/6/2015

Revision

E2

FIXTURE CUT SHEETS

ATTACHMENT #11

PHILIPS

GARDCO

Site & Area

SlenderForm

Round Arm Mount luminaire

Project:

Location:

Cat. No.:

Type:

Qty:

Notes:

Philips Gardco SlenderForm luminaires combine LED performance excellence and advanced LED thermal management technology with a distinct styling to provide outdoor area lighting that is both energy efficient and aesthetically pleasing. SlenderForm is defined by its high performance, sleek low profile design and rugged construction. The advanced LED optical systems provide IES Types II, III, IV and V distributions. Surge protection included with all SlenderForm luminaires.

Ordering guide

example: SFRA-APD-MTP-1-5W-105LA-6453-NW-UNV-AR-NP-PC

Prefix	Controls	MTP	Mounting	Optic[1]	LED Watts	LED Temp	Voltage[2]	Ring	Finish	Options
SFRA-	–	–	1	Standard Optic Position	150 mA	CW	120	AR	BRP	LP[3]
SlenderForm Round Arm Mount luminaire	Standard luminaire	(blank)	Standard	2 Type 2	25LA-4815	Cool White 5,700 K 70 CRI (nominal)	120V	Ring painted to match housing	Bronze Paint	Line Fusing
	DIM 0-10V Dimming	MTP[4] Module Thermal Protection	2@180	3 Type 3	350 mA		208V	ORBRP Optional Painted Ring Bronze paint	BLP Black Paint	LF-C[3] Line Fusing for Canada
	MRSO[4,5] Motion Response at 50% low, pole mounted sensor		2@90	4 Type 4	55LA-4839	NW Neutral White 4,000 K 70 CRI (nominal)	240V	ORBLP Optional Painted Ring Black paint	WP White Paint	PC[5,6] Photocell with Receptacle (includes PCR5 receptacle)
	APD[3] Automatic Profile Dimming		2@90	5W Type 5 Wide	70LA-6435		277V	ORWP Optional Painted Ring White paint	NP Natural Paint	PCB[5,6] Photocell Button
	APD-MRO[4,5] Auto Profile Dimming with Motion Response Override Pole mounted sensor		3	5M Type 5 Medium	90LA-8035	WW[11] Warm White 3,000 K 70 CRI (nominal)	347 347V	ORNP Optional Painted Ring Natural paint	OC Optional Color Specify optional color or RAL (ex: OC-LGP or OC-RAL7024)	PCR5[5,6,7] Photocell Receptacle only with 2 dimming connections
	APD-MRA[4] Auto Profile Dimming with Motion Response Override Luminaire mounted sensor		3@90	BLC Backlight Control	530 mA		480 480V	ORORC Optional painted ring/color. Specify optional color or RAL (ex: OC-LGP or OC-RAL7024)	SC Special color Specify, must supply color chip. Requires factory quote.	PCR7[8,9,10] Photocell Receptacle only with 2 dimming and 2 auxiliary connections
	MRP[4] Motion Response at 50% low, fixture mounted sensor		4	2BL Type 2 with backlight (less shield)	80LA-4853		UNV 120-277V 50Hz/60Hz	ORSC Optional Painted Ring - Special Color Specify. Must supply color chip. Requires factory quote.		PTF2[8] Pole Top Fitter for 2⅛"-3" Tenon
			4@90	Optic Rotated Left (90°)	105LA-6453		HVU 347-480V 50Hz/60Hz			PTF3[8] Pole Top Fitter for 3"-3½" Tenon
			W Wall Mount	2-90 Type 2	130LA-8053					PTF4[8] Pole Top Fitter for 3½"-4" Tenon
			WS Wall mount including surface conduit. Rear entry permitted.	3-90 Type 3	700 mA					SPA Square Pole Adapter
				4-90 Type 4	110LA-4870					DL[5] Diffusing Lens
				BLC-90 Backlight Ctl	140LA-6470					CLR[5] Clear Glass Lens
				2BL-90 Type 2 with backlight (less shield)						POLY[5,6] Polycarbonate Lens (1 year warrant yon lens)
				LCL[5] LEED Corner Left						BD[12] Bird Deterent Spike Kit (field installed only)
				Optic Rotated Right (270°)						
				2-270 Type 2						
				3-270 Type 3						
				4-270 Type 4						
				BLC-270 Backlight Ctl						
				2BL-270 Type 2 with backlight (less shield)						
				LCR[5] LEED Corner Right						

1. Available 120V-277V only.
2. Available 120V or 277V only.
3. MRSO and APD-MRO luminaires require one motion sensor per pole, ordered separately.
4. MRI and APD-MRI luminaires include an integral motion sensor.
5. MTP types limited to LED Wattages utilizing 530 mA (80LA, 105LA, 130 LA) or 700 mA (110LA, 140LA) only.
6. See pages 6-7 for detail on optic orientation prior to ordering.
7. Must specify input voltage with LF, LFC, PC, and PCB options.
8. Not available in 480V. Provide specific input voltage.
9. Not available in 3@120.
10. Available with 90LA-6485 and 130LA-8053 only.
11. Consult factory for lead times on Warm White.
12. Reduces performance.
13. Works with 3-pin or 5-pin NEMA photocell/dimming device.
14. Works with 3-pin or 5-pin NEMA photocell/dimming device and auxiliary connections are not connected (for future use only.)
15. If ordered with DIM, APD, MRI, MRSO, APD-MRI, APD-MRO, dimming will not be connected to NEMA receptacle.

SFRA SlenderForm

Site & Area, Round Arm Mount luminaire

SlenderForm Accessories (order separately)

FSIR-100

MR hand held programmer

For use with "MRI" motion response when field programming is required. For use with MRI and APD-MRI only. If desired, only one is needed per job.

MS-A-120V

120V Input Area Motion Sensor

For MRSO (Motion Response) or APD-MRO (Automatic Profile Dimming with Motion Response Override)

MS-A-277V

277V Input Area Motion Sensor

For MRSO (Motion Response) or APD-MRO (Automatic Profile Dimming with Motion Response Override)

Note: Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for MRSO or APD-MRO luminaires. See Luminaire Configuration Information on page 5 for more details. Area motion sensor color is Arctic White. MRI and APD-MRI luminaires include an integral motion sensor.

Description

Philips Gardco SlenderForm luminaires combine LED performance excellence and advanced Philips Gardco LED thermal management technology with a distinct styling to provide outdoor area lighting that is both energy efficient and aesthetically pleasing. SlenderForm is defined by its high performance, sleek low profile design and rugged construction. The die cast aluminum housing has a maximum profile of just 3.67". The advanced LED optical systems provide IES Types II, III, IV and V distributions. All LED wattages utilize high performance Class

1 LED systems. The luminaire features a state of the art integral thermal control system to maximize LED performance and life, and to extend component life. The door frame is die cast aluminum. Luminaires are finished with a fade and abrasion resistant TGIC powdercoat. All SlenderForm luminaires provide full cutoff performance, with 0% lumens at or above 90° above nadir.

Optical System (featuring unitized optic lens construction)

Arm Mount Luminaires (SFRA)								
Optic Type	**Type II**	**Type II** (no backlight)	**Type III**	**Type IV**	**Type V** (Medium)	**Type V** (Wide)	**Backlight Control**	**LEED Corner***
Standard Optic Position	2	2BL	3	4	5M	5W	BLC	See page 7 for information on LCL and LCR orientation
Optic Rotated Left* (90°)	2-90	2BL-90	3-90	4-90	–	–	BLC-90	
Optic Rotated Right* (270°)	2-270	2BL-270	3-270	4-270	–	–	BLC-270	

* See page 6 for details on optic orientation.

LED Wattage and Lumen Values Standard SFRA Luminaires

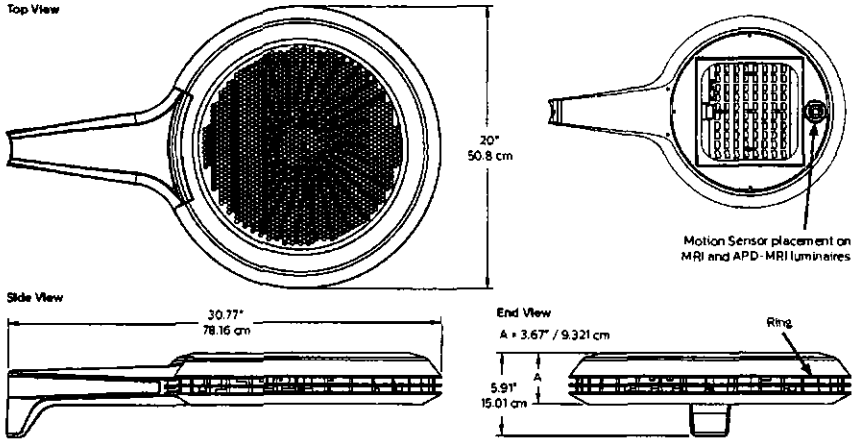
Order Code (standard units)	Total LEDs	LED Current (mA)	Average System Watts[1]	LED Selection	Initial Lumens[2]					
					2 Type 2	2BL Type 2 with Backlight	3 Type 3	4 Type 4	5M Type 5 - Medium	5W Type 5 - Wide
25LA	48	150	25	NW	2,352 (s)	2,477 (s)	2,287 (s)	2,169	2,579 (s)	2,538
55LA	48	350	53	NW	4,942 (s)	5,203 (s)	4,804 (s)	4,759 (s)	5,419 (s)	5,313 (s)
70LA	64	350	69	NW	6,549 (s)	6,896 (s)	6,367 (s)	6,307	7,182 (s)	7,041
90LA	80	350	84	NW	7,997 (s)	8,420 (s)	7,775 (s)	7,701 (s)	8,769 (s)	8,597 (s)
80LA	48	530	80	NW	7,103 (s)	7,479 (s)	6,905 (s)	6,671	7,788 (s)	7,824
105LA	64	530	105	NW	9,414 (s)	9,912 (s)	9,152 (s)	9,076	10,322 (s)	10,108
130LA	80	530	128	NW	11,494 (s)	12,102 (s)	11,174 (s)	10,945	12,603 (s)	12,494
110LA	48	700	107	NW	8,874 (s)	9,343 (s)	8,627 (s)	8,522 (s)	9,730 (s)	9,567 (s)
140LA	64	700	140	NW	11,761	12,383	11,434	11,294	12,896	12,679

1. System input wattage may vary based on input voltage, by up to +/- 10% , and based on manufacturer forward voltage, by up to +/- 8%.
2. Lumen values based on photometric tests performed in compliance with IESNA LM-79.
(s) Data is scaled based on tests of similar, but not identical, luminaires.

SFRA SlenderForm

Site & Area, Round Arm Mount luminaire

Dimensions – Arm Mount Luminaire (SFRA)



Approximate Luminaire Weight:
28.1 Lbs (12.75 Kg)

Type	Single	Twin @ 180	3/4
SFRA	0.66 / 0.062	1.32 / 0.123	1.60 / 0.149

SFRA SlenderForm

Site & Area, Round Arm Mount luminaire

Luminaire Configuration Information

SFRA

Philips Gardco SlenderForm LED standard luminaire providing constant wattage and constant light output when power to the luminaire is energized.

SFRA-DIM

Philips Gardco SlenderForm LED luminaire provided with 0 -10V dimming for connection to a control system provided by others.

SFRA-APD

Philips Gardco SlenderForm LED luminaire with Automatic Profile Dimming. Luminaire is provided with a programmable LED Driver, programmed to go to 60% power, 60% light output two (2) hours prior to night time mid-point and remain at 60% for six (6) hours after night time mid-point. Mid-point is continuously recalculated by the programmable LED Driver based on the average mid-point of the last two full night cycles. Short duration cycles, and power interruptions are ignored and do not affect the determination of mid-point.

APD is available in 120V – 277V input only.

ECF-APD Dimming Profile:

100%	2 hours	6 hours	100%
	60%	60%	

Power On — Mid Point — Power Off

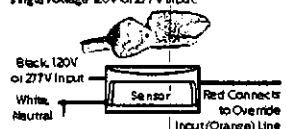
The SFRA-APD offers many of the advantages of a sophisticated control system, including an average energy savings of at least 33% versus constant wattage, constant light output systems, without the need for a control system.

SFRA-MRS0

Philips Gardco SlenderForm LED luminaire with motion response, providing a 60% power reduction on low and a commensurate reduction in light output. The power and light output reduction is accomplished utilizing the Philips DynaDimmer module, programmed for a constant 60% power. Power supplied by the motion sensor connected to the override line on the DynaDimmer takes the luminaire to high setting, 100% power and light output, when motion is detected. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes.

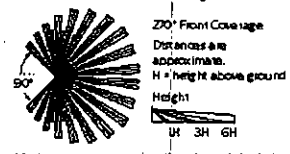
MRS0 is available in 120V or 277V input only to the luminaire. Motion sensors require single voltage 120V or 277V input.

The Area PIR motion sensor is the WattStopper EW-200-120-W (120V Input - MSA-120V) or the WattStopper EW-200-277-W (277V Input - MSA-277V) One motion sensor per pole is required and is ordered separately. Area sensors require single voltage 120V or 277V input.



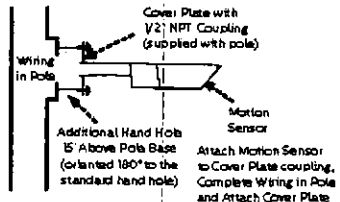
The area motion detector provides coverage equal to up to 6 times the sensor height above ground, 270° from the front-center of the sensor.

Area PIR Motion Sensor Coverage Pattern:



Motion response requires that the pole include an additional hand hole 15 feet above the pole base, normally oriented 180° to the standard hand hole. For Philips Gardco poles, order the pole with the Motion Sensor Mounting (MSM) option which includes the hand hole and a special hand hole cover plate for the sensor with a 1/2" NPT receptacle centered on the hand hole cover plate into which the motion sensor mounts. Once the motion sensor is connected to the hand hole cover plate, then wiring connections are completed in the pole. The plate (complete with motion sensor attached and wired) is then mounted to the hand hole. If poles are supplied by others, the customer is responsible for providing suitable mounting accommodations for the motion sensor in the pole.

Mounting to a Philips Gardco Pole:



SFRA-APD-MRO

Philips Gardco SlenderForm LED luminaire with Automatic Profile Dimming, with Motion Response Override. APD-MRO combines the benefits of both automatic profile dimming and motion response, using the Philips DynaDimmer module. The luminaire will dim to 60% power, 60% light output, per the dimming profile shown for SFRA-APD. If motion is detected during the time that the luminaire is operating at 60%, the luminaire returns to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes. This configuration is not available for use with wall mounted luminaires.

Notes:

SFRA - APD-MRO is available in 120V or 277V input only to luminaire. The motion sensor requires either 120V or 277V input to the motion sensor.

SFRA-APD-MRO has the same pole requirements and utilizes the same motion sensors as the SFRA-MRS0. The motion sensor mounts and wires identically as well. The SFRA-APD-MRO utilizes the identical dimming profile as shown for the SFRA-APD.

By combining the benefits of automatic profile dimming and motion response, the SFRA-APD-MRO assures maximum energy savings, and insures that adequate light is present if motion is detected. Note: All motion sensors utilized consume 0.0 watts in the off state.

All motion sensors utilized consume 0.0 watts in the off state.

Luminaire Configuration Information (Continued)

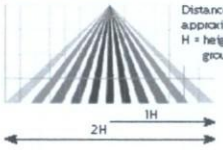
SFRA-MRI

Luminaires with Motion Response and an integral motion sensor include a LED driver and an integral motion sensor. The FSP-211 driver is set to a constant 50%. When motion is detected, the luminaire goes to 100%. The luminaire remains on high until no motion is detected for the motion sensor duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes. Available with 120V or 277V input only.

SFRA-MRI luminaires are provided with the WattStopper FSP-211 motion sensor, equipped with an L3-W lens, with a maximum recommended 20 ft. mounting height. The area coverage and range of the integral sensors make them most suitable for applications not requiring long range detection. For longer range detection applications, configurations with pole mounted motion sensors are recommended.

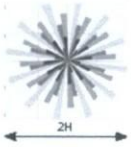
FSP-211-L3W - Supplied with SlenderForm Round MRI Luminaires

Side Coverage Pattern



Distances are approximate. H = height above ground

Top Coverage Pattern



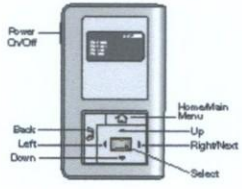
SFRA-APD- MRI

Luminaires with Automatic Profile Dimming and Motion Response Override combine the benefits of both automatic profile dimming and motion response. APD-MRI luminaires utilize a programmable LED driver. The luminaire will dim to 50% power, 50% light output, per the dimming profile shown for APD luminaires *(see page 4)*. If motion is detected during the time that the luminaire is operating at 50%, the luminaire goes to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns to low. Duration period is factory set at 5 minutes.

APD-MRI luminaires are available with 120V or 277V input voltages only. APD-MRI luminaires use the identical motion sensor as MRI luminaires. See motion sensor details for SFRA-MRI. See page 3 for approximate motion sensor placement on MRI and APD-MRI luminaires.

MTP LED Module Thermal Protection

Luminaires with LED Module Thermal protection feature a programmable LED driver that helps to regulate LED module temperature by regulating current to it. The MTP features helps to protect LEDs and LED drivers when operating in a high ambient environment (50° C). The driver is connected to a NTC thermistor to the LED module. Depending on the LED module temperature, the driver will follow a linear line between 100% and the MTP minimum dimming level, set at 50%. MTP types limited to LED Wattages utilizing 530 mA (80LA, 105LA, 130LA) or 700 mA (110LA, 140LA) drive currents only.



FSIR-100 Wireless Remote Programming Tool

The FSIR-100 Remote Programming Tool accessory permits adjustment of sensor settings, including duration and dimming level on low, without the need to connect any wires to the luminaire. The FSIR-100 Wireless IR Programming Tool is a handheld tool for setup and testing of WattStopper FSP-211. It provides wireless access to the FSP-211 sensors for setup and parameter changes. The FSIR-100 display shows menus and prompts to lead you through each process. The navigation pad provides a familiar way to navigate through the customization fields.

Within a certain mounting height of the sensor, the FSIR-100 allows modification of the system without requiring ladders or tools simply with a touch of a few buttons. The FSIR-100 IR transceiver allows bi-directional communication between the FSP-211 and the FSIR-100 programming tool. Simple menu screens let you see the current status of the system and make changes. It can change FSP-211 sensor parameters such as high/low mode, sensitivity, time delay, cut off and more. With the FSIR-100 you can also establish and store FSP-211 parameter profiles.

The FSIR-100 operates on three standard 1.5V AAA Alkaline batteries or three rechargeable AAA NiMH batteries. The battery status displays in the upper right corner of the display. Three bars next to BAT= indicates a full battery charge. A warning appears on the display when the battery level falls below a minimum acceptable level. To conserve battery power, the FSIR-100 automatically shuts off 10 minutes after the last key press.

You navigate from one field to another using (up) or (down) arrow keys. The active field is indicated by flashing (alternates between yellow text on black background and black text on yellow background.)

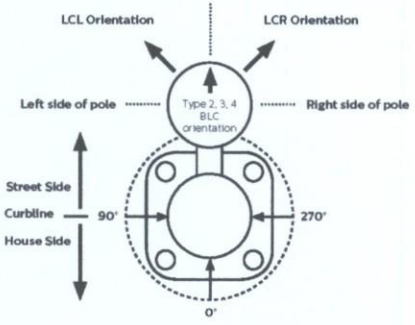
Once active, use the Select button to move to a menu or function within the active field. Value fields are used to adjust parameter settings. They are shown in "less-than/greater-than" symbols: <value>. Once active, change them using (left) and (right) arrow keys. In general the up key increments and the down key decrements a value. Selections wrap-around if you continue to press the key beyond maximum or minimum values. Moving away from the value field overwrites the original value. The Home button takes you to the main menu. The Back button can be thought of as an undo function. It takes you back one screen. Changes that were in process prior to pressing the key are lost.

Asymmetric Optical Orientation Information

Standard Optic Position

Aimed Between The Yoke Supports

Luminaires ordered with asymmetric optical systems in the standard optic position will have the optical system oriented as shown below:

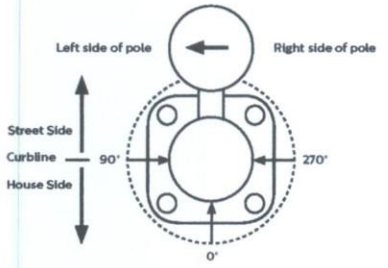


Note: The hand hole will normally be located on the pole at the 0° point.

Optic Rotated Left (90°) Optic Position

Aimed Toward One Yoke Support

Luminaires ordered with asymmetric optical systems in the Optic Rotated Left (90°) optic position will have the optical system oriented as shown below:

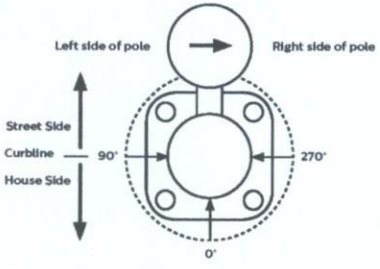


Note: The hand hole will normally be located on the pole at the 0° point.

Asymmetric Optical Orientation Information

Optic Rotated Right (270°) Optic Position

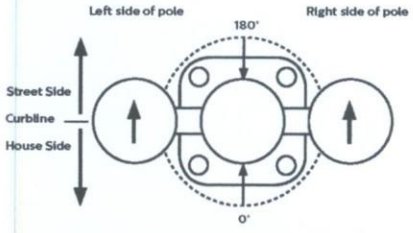
Luminaires ordered with asymmetric optical systems in the Optic Rotated Right (270°) optic position will have the optical system oriented as shown below:



Note: The hand hole will normally be located on the pole at the 0° point.

Twin Luminaire Assemblies With Rotated Optical Systems

Twin luminaire assemblies installed with rotated optical systems are an excellent way to direct light toward the interior of the site (Street Side) without additional equipment. It is important, however, that care be exercised to insure that luminaires are installed in the proper location.



Luminaires with Optic Rotated Right (270°) are installed on the LEFT Side of Pole

Luminaires with Optic Rotated Left (90°) are installed on the RIGHT Side of Pole

Note: The hand hole location will depend on the drilling configuration ordered for the pole.

SFRA SlenderForm

Site & Area, Round Arm Mount luminaire

Specifications

Housing

The SlenderForm features a die cast aluminum housing, and mounts directly to a pole. SFRA luminaires arrive with the arm factory installed. As a result, the luminaires provide the functionality, strength and installation ease of an integral arm luminaire.

IP Rating

SlenderForm luminaires have a rating of IP66.

Vibration Resistance

SlenderForm Round (SFRA) carries a 3G vibration rating that conforms to standards set forth by ANSI C136.31. Testing includes vibration to 3G acceleration in three axes, all performed on the same luminaire.

Electrical

Luminaires are equipped with an LED driver that accepts 120V through 277V, or 347V through 480V, 50hz to 60hz, input. Driver output is based on the LED wattage selected. Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600 VAC at 302°F / 150°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher. Power factor is not less than 90%. Luminaire consumes 0.0 watts in the off state. All motion sensors utilized consume 0.0 watts in the off state. Surge protector standard. 10kA per ANSI/IEEE C62.41.2002.

LED Thermal Management

The Philips Gardco SlenderForm LED provides die cast aluminum integral thermal radiation fins to provide the excellent thermal management so critical to long LED system life.

Optical Systems

The advanced LED optical systems provide IES Types II, III, IV and V distributions. All optical systems feature unitized lens optic construction.

SlenderForm Round luminaires are provided standard without a lens, for maximized performance. A clear glass lens is available as an option. A diffuse lens is also available as an option, resulting in reduced performance.

Listings

All luminaires bear UL or CUL (where applicable) Wet Location labels.All SFRA luminaires equipped with NW or CW are DesignLights Consortium® qualified.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BRP), black (BLP), white (WP), and natural aluminum (NP). Consult factory for specs on optional or custom colors.

Warranty

Philips Gardco luminaires feature a 5 year limited warranty. Philips Gardco LED luminaires with LED arrays feature a 5 year limited warranty covering the LED arrays. LED Drivers also carry a 5 year limited warranty. Motion sensors are covered by warranty for 5 years by the motion sensor manufacturer. See Warranty Information on www.sitelighting.com for complete details and exclusions. Polycarbonate lenses carry a 1 year warranty.

Predicted Lumen Depreciation Data[1]

Ambient Temperature °C	Driver (mA)	Calculated L_{70} Hours[1,2]	L_{70} Per TM-21[2,3]	Lumen Maintenance % @ 60,000 hours
Up to 40 °C	Up to 700mA	> 200,000 Hours	> 60,000 Hours	94%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L70 is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L70 hours limited to 6 times actual LED test hours.

Philips Lighting, North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel: 855-486-2216

Imported by: Philips Lighting,
A division of Philips Electronics Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel: 800-668-9008

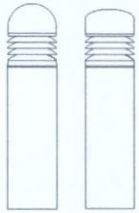
Job:
Type:
Notes:

LED BOLLARD

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

Featuring
Motion Response

Gardco's dome top and bevel top LED Louver Bollards provide uniform illumination, superior spacings and solid vandal resistance. Rugged extruded and cast construction with silicone seals and gasketing assure years of trouble free service. The BRM830 and BRM834 are complete assemblies with an aluminum base. BRM831and BRM835 head only units affix to custom architectural elements. BRM833 and BRM837 luminaires include a concrete base assembly. Gardco's advanced stack-louver LED technology and Motion Response provide maximized light output and maximum energy savings.



PREFIX	HEIGHT	LED CONTROL	LED SELECTION	LIGHTED COVERAGE	VOLTAGE	FINISH	OPTIONS

Enter the order code into the appropriate box above. Note: Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

PREFIX — HEIGHT

Dome Top	Bevel Top		
BRM830	BRM834	with Cast Aluminum Base	42" 36"
BRM831[1]	BRM835[1]	Head Only	11"
BRM833	BRM837	with Natural Concrete Base	42"
BRM833B	BRM837B	with Beige Concrete Base	42"
BRM833G	BRM837G	with Grey Concrete Base	42"

1. Not Available in 347V.

LED CONTROL

MR Motion Response
LEDs stay on Low Level (8 watts) when no motion is present. LEDs increase to full light output (41 watts) when motion detected.

CWL Constant Wattage Full Light Output
Full light output only (41 watts). No motion sensor included.

(Note: A variation of LED wattage (+/- 8%) may occur due to LED manufacturer's forward volt specification and ambient temperature.)

LED SELECTION

CW 6,500°K, 75CRI
NW 4,300°K, 75CRI
WW 3,000°K, 75CRI

Solid Colors
LA Amber
LR Red
LG Green
LB Blue

Consult factory for lead times on LEDs other than CW, NW, and WW.

LIGHTED COVERAGE

360 360° lighted louvers
180 180° lighted louvers
(Provides reduced backside light.)

VOLTAGE

UNIV *120V through 277V, 50hz to 60hz input.*
347[2] *347V*

Voltage Note:
2. 347V bollards require and include a step-down transformer in bollard. Not available in BRM831 or BRM835.

FINISH

BRP	Bronze Paint	**OC**	Optional Color Paint *Specify RAL designation as ex: OC-RAL7024.*
BLP	Black Paint		
WP	White Paint		
NP	Natural Aluminum Paint		
BGP	Beige Paint		
VP	Verde Green Paint	**SC**	Special Color Paint *Specify. Must supply color chip.*
LGP	Light Granite Paint		
DGP	Dark Granite Paint		
LSP	Light Sandstone Paint		
DSP	Dark Sandstone Paint		
RBP	Red Brick Paint		

OPTIONS

SPR Surge Protection for 120V through 277V Input meeting ANSI C62.41.2
SPRH Surge Protection for 347V through 480V Input meeting ANSI C62.41.2

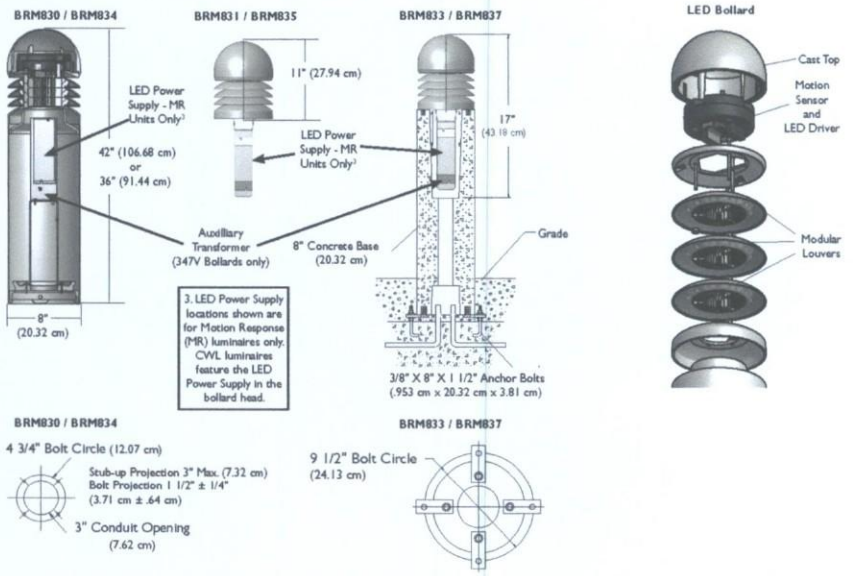
1611 Clovis Barker Road, San Marcos, TX 78666
(800) 227-0758 (512) 753-1000 FAX: (512) 753-7855 sitelighting.com

G200-009/1012

PHILIPS
GARDCO

LED BOLLARD
BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver
Featuring
Motion Response

DIMENSIONS



NOTE: Factory supplied template must be used when setting anchor bolts. Philips Gardco will not honor any claim for incorrect anchorage placement from failure to use factory supplied templates.

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G200-009/1012
PHILIPS
GARDCO

LED BOLLARD

BRM830/831/833 Dome Top Louver
BRM834/835/837 Bevel Top Louver

Featuring
Motion Response

SPECIFICATIONS

UPPER HOUSING: Diecast aluminum dome top secures to one-piece louvered casting with three (3) concealed tamper resistant screws.

LOWER HOUSING:

BRM830 / BRM834 : Luminaire features a cylindrical .125" (.318 cm) wall 6063-T5 extruded aluminum base housing. Bottom section has a welded-in cast ring for attachment to base assembly with four (4) hex head set screws.

BRM831 / BRM835 : Louver head assembly is affixed to ballast mounting bracket which is suitable for insertion into architectural elements (by others).

BRM 833 / BRM837: Luminaire includes a pre-cast concrete base constructed with steel molds and wire reinforcing. Base is acid-etched to provide a smooth textured aggregate finish.

LED PERFORMANCE:

PREDICTED LUMEN DEPRECIATION DATA*		
Ambient Temperature °C	Driver mA	L_{70} Hours†
15 °C	350	112,000
25 °C	350	90,000
40 °C	350	65,000

4. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
5. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output.

OPTICAL SYSTEM: Gardco LED Bollards feature the advanced Gardco stacked louver LED technology, assuring maximimized light output. Each individual louver is replaceable if needed or desired.

ANCHORAGE:

BRM830 / BRM834: Base assembly consists of a cast aluminum platform and ballast mounting bracket. Assembly is secured and leveled to the mounting foundation with four (4) 3/8" X 8" x 1 1/2" (.953 cm x 20.32 cm x 3.81 cm) anchor bolts on a 4 3/4" (12.07 cm) bolt circle.

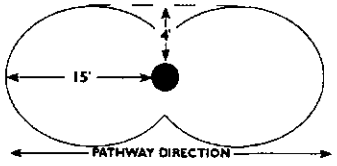
BRM 831 / BRM835: Mounting plate is cast aluminum with slots to accept anchor bolts (by others) at 90° on a 6 1/4" (15.88 cm) diameter bolt circle. A 4 1/2" (11.43 cm) diameter opening is required to house LED Power Supply for Motion Response (MR) units.

BRM833 / BRM837: Base assembly consists of four (4) galvanized steel base tabs fastened to pre-cast concrete base. Assembly is secured and leveled to the mounting foundation with four (4) 3/8" X 8" X 1 1/2" (.953 cm x 20.32 cm x 3.81 cm) anchor bolts on a 9 1/2" (24.13 cm) bolt circle. Base is designed for 5" (12.7 cm) direct burial.

ELECTRICAL: For CWL bollards, the LED power supply is located within the bollard head. For Motion Response (MR) bollards the LED power supply is located within the bollard shaft. Bollards accept from 120 Volts through 277 Volts. 50hz to 60 hz. input. Bollards with 347V input require and include a step-down transformer (placed within the bollard shaft) to provide proper input voltage to the LED power supply. The LED driver is located in the upper dome. LED power supplies and LED drivers are replaceable. LEDs provided as specified.

Luminaires ordered with Motion Response include a microwave motion sensor. The motion sensor is completely and safely concealed within the LED Bollard head to avoid potential vandalism to the sensor. LEDs operate on Low Level (8 watts) when no motion is present. LEDs increase to full light output (41 watts) when motion is detected. Motion Response system permits adjustments for time on high level and motion sensitivity.

Approximate Motion Sensor Detection Pattern:



Bollard orientation is adjustable in 120° increments. Consult LED Bollard Motion Response installation instruction sheets for more detailed information concering bollard placement and sensor performance.

LUMINAIRE FINISH: Each luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured textured powdercoat finish.

LABELS: All luminaires bear UL or CUL (where applicable) Wet Location labels.

WARRANTY: Gardco luminaires feature a 5 year limited warranty. Gardco LED luminaires with LED arrays or modules feature a 5 year limited warranty covering the LED arrays or modules. See Warranty Information on www.sitelighting.com for complete details and exclusions.

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G200-0091012

PHILIPS
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BURY

May 1, 2015

Project No. 112448-10003

Ms. Ashley Couch
Stormwater Manager
City of Scottsdale
7447 E. Indian School Road, Suite 125
Scottsdale, AZ 85251

Re: Drainage letter for SkySong Restaurants Building
NE Corner of North Scottsdale Road and SkySong Blvd.
City of Scottsdale, Maricopa County, Arizona

Dear Ms. Couch:

This letter is submitted to describe the proposed project mentioned above as it relates to the master drainage study for the SkySong project. The master drainage study for the SkySong project was prepared by Wood, Patel & Associates, Inc., and is attached hereto. The report is dated June 21, 2006 and is titled "Drainage Report for SkySong ASU Scottsdale Innovation Center Infrastructure Improvements."

The proposed project for which this letter is being submitted is located on the northeast corner of the intersection of Scottsdale Road and SkySong Blvd. The majority of the project area is located within drainage area #6 as indicated on the Proposed Drainage area map within the master drainage study referenced above, with a portion of the eastern parking area being within drainage area #2. In the master drainage study, both DA #2 and DA #6 were assumed to be developed using a C-value of 0.90 with a 5 minute time of concentration (see Drainage Calculations table in Appendix 4). The drainage characteristics of the proposed project are well within these assumptions.

There is a storm drain lateral stub-out provided to this project area from the existing 24-inch storm drain line in SkySong Blvd (see pipe "P-9" in the master drainage study). Storm water runoff will be collected from the project site and discharged in to the storm drain line along SkySong Blvd. (P-9) in conformance with the master drainage study for the SkySong project. Stormwater from SkySong is ultimately conveyed to the 72-inch storm drain line that exists along the southern property line of SkySong, which eventually outfalls to the Indian Bend Wash to the east.

As summarized above, the proposed project fully conforms with the master drainage study for SkySong that was previously approved by the City of Scottsdale. Please contact me at aparenica@buryinc.com or call if there is any further information you may need on this project.

Sincerely,

Aaron K. Parenica, P.E.
VICE PRESIDENT

7047 E Greenway Parkway
Suite 250
Scottsdale, Arizona 85254

P 480.659.3452

Arizona
Florida
Texas

BURYINC.COM

24-DR-2015
5/6/2015

DRAINAGE REPORT
FOR
SKYSONG ASU SCOTTSDALE
INNOVATION CENTER
INFRASTRUCTURE IMPROVEMENTS

Revised June 21, 2006
May 4, 2006
WP #052562 and WP #062663

Prepared For:

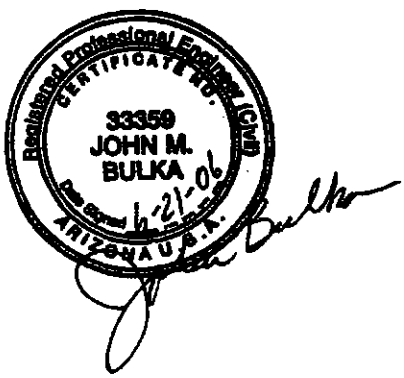
Higgins Development Partners
c/o Tom Finnerty
101 E. Erie Suite 800
Chicago, IL 60611
Phone (312) 943-4999
Fax (312) 943-4057

Submitted To:

Ms. Thyra Ryden-Diaz
Project Manager
Capital Project Management
City of Scottsdale
7447 E. Indian School Road
Scottsdale, AZ 85251
Phone (480) 312-4327
Fax (480) 312-9226

Prepared By:

Wood, Patel & Associates, Inc.
1855 North Stapley Drive
Mesa, Arizona 85203
Phone (480) 834-3300
Fax (480) 834-3320



ENGINEER

Prepared By: Jesse Heywood E.I.T.

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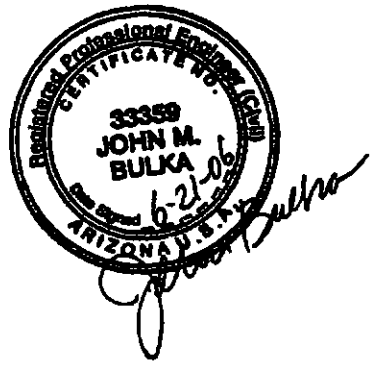

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1.0 INTRODUCTION

This Drainage Report for The Skysong ASU Scottsdale Innovation Center Infrastructure Street Improvements has been prepared as required by the City of Scottsdale. The Skysong ASU Scottsdale Innovation Center is a proposed in-fill project within the City of Scottsdale, Arizona. This development lies in Section 2, Township 1 North, Range 4 East of the Gila and Salt River Meridian. More particularly the site is located at the southeast corner of McDowell and Scottsdale Roads. (Please see Appendix 1, Vicinity Map.)

The Los Arcos Mall occupied this site for over 30 years, until its recent demolition. The existing mall site consisted of several large buildings located in the center of the site with parking around the perimeter. The proposed site is approximately 36.6 acres with land use to consist of office, research, residential and retail buildings. The mix of uses has not been fully determined at this time. At the ultimate build out condition, the site will have approximately 1.2 million square feet of commercial space and 604 residential condominium units. In addition, the City of Scottsdale will be building approximately 95,000 square feet of office space along with a possible 200 room hotel. The first phase of construction will consist of mass grading the entire site, constructing the major roads and utility infrastructure, and constructing one building shell and parking lot. Future buildings and parking areas will be constructed as determined by the developer. This report will analyze the drainage condition for the majority of the infrastructure improvements.

2.0 DESCRIPTION OF EXISTING DRAINAGE CONDITIONS

2.1 Existing On-Site Conditions

The existing site was formally the Los Arcos Mall and is currently vacant undeveloped land. The site slopes generally from northwest to southeast at approximately 1.0%. The site is bounded by Scottsdale Road to the west, McDowell Road to the north, 74th Street to the east, and an alley adjoining a multi family residential complex to the south. Other site features include large open pits on the site where old basements from the mall were located. (Please see Appendix 2, Existing Drainage Map.)

The Los Arcos Mall occupied this site for over 30 years, until its recent demolition. The mall site consisted of several large buildings located in the center of the site with parking around the perimeter. In a Memorandum prepared by Engineering and Environmental Consultants Inc. dated April 19, 2005 it is reported that onsite stormwater retention facilities were not accounted for, and the stormwater runoff generated from the site drained directly to the adjacent streets. This stormwater was conveyed to the east, through the Scottsdale municipal storm drain system, and ultimately to the Indian Bend Wash. In the Memorandum the existing Los Arcos Mall drainage pattern was analyzed as summarized below. (Please see Appendix 6, Memorandum by Engineering & Environmental Consultants.)

Table 1 Approximate Peak Discharge from Los Arcos Mall Site

Discharge to:	Drainage Area [acres]	10-year [cfs]	100-year [cfs]
Scottsdale Rd	8.8	48	91
McDowell Rd	7.8	43	81
74th Street	20.4	103	196
Total:	**37.0**	**194**	**368**

2.2 Offsite Conditions

The stormwater runoff from this site, outfalls directly to the adjacent City of Scottsdale Municipal storm drain system. This system consists of an existing 6-foot by 6-foot concrete box culvert located in McDowell Road. According to City of Scottsdale Utility Maps this storm drain travels east and eventually outfalls into Indian Bend Wash. There is an existing 60-inch storm drain in Scottsdale Road that that drains to the south. This pipe then turns east

along the south property line of the site and increases to a 72-inch storm drain pipe. This 72-inch pipe travels east along the south property line and is located in an existing 20-foot drainage easement. It then continues east to Miller Road where it increases to a 78-inch storm drain pipe. According to City of Scottsdale Utility Maps the pipe drains south on Roosevelt where it then turns east and eventually outfalls into Indian Bend Wash. The 60-inch storm drain and 6-foot by 6-foot box culvert are hydraulically connected at a manhole located in the intersection of McDowell Road and Scottsdale Road.

The *City of Scottsdale Storm Water Master Plan and Management Program,* prepared by KVL Consultants Inc., states that this site would discharge approximately 122 c.f.s. into the 72-inch pipe located at the southeast property corner during the 10-year storm event. The management program also states that the 72-inch pipe has sufficient capacity to accept this flow. We have calculated this 10 year flow to be approximately 200 c.f.s.

As a part of the City of Scottsdale Capital Improvement Program (C.I.P.), a 42-inch storm drain is planned to be constructed at the southeast corner of the site in 74th Street. According to the City of Scottsdale, this future storm drain will alleviate stormwater flow that is part of an existing 72-inch storm drain pipe.

2.3 Flood Hazard Zone

The Maricopa County, Arizona and Incorporated Areas Flood Insurance Rate Map (FIRM) Panel Number 04013C2160F, dated September 30, 2005 (see Appendix 3), indicates that the entire site falls in Flood zone "X".

Zone "X" is defined by FEMA as follows:

Areas determined to be outside the 0.2% annual chance floodplain.

3.0 PROPOSED DRAINAGE PLAN

3.1 General Description

This site will ultimately be developed in multiple phases. The first phase of construction will consist of mass grading the entire site, constructing the major roads and utility infrastructure, and constructing one building shell and parking lot. Future buildings and parking areas will be constructed as determined by the developer. The first phase of construction will include temporary de-silting basins. These de-silting basins have been designed for the undeveloped condition and will be removed as each quadrant of the site is developed.

This report addresses the impact of the infrastructure access roads to the overall drainage patterns of the site. This storm drain infrastructure will follow the preliminary drainage design that is outlined in the *Preliminary Drainage Report for ASU Scottsdale Center for New Technology and Innovation,* by Wood/Patel & Associates dated 10/31/2005. Runoff from the easterly half of the site will be collected at the southeast corner of the development and discharge to the existing 72-inch storm drain which conveys stormwater to the east to Indian Bend Wash. The westerly half of the site will be collected via inlets and also be conveyed to the existing 72-inch storm drain.

3.2 Stormwater Storage Requirements

On-site detention is not required per the stipulations defined in Case #26-ZN-2004 Section 3.2 Master Drainage Plan & Report. Therefore, a request for a Stormwater Storage Waiver was not submitted as a part of the submittal. Since the Los Arcos Mall historically did not provide any appreciable stormwater storage, this development will only need to provide retention for the excess of the post development stormwater runoff versus the pre development. The Los Arcos Mall consisted almost entirely of impervious parking lots and rooftops. Similarly this development has a land use of commercial, research, retail and/or residential with a runoff coefficient of 0.9. Therefore, the proposed development should not generate more runoff than what occurred when the Los Arcos Mall was in operation.

3.3 Project Phasing

The project will be built in phases. The first phase consists of mass grading the entire site, constructing the major roads and utility infrastructure, and constructing one building shell and parking lot. The major roads include the two main access roads running north-south and east-

west, which will bisect the site into quarter sections. All wet utilities including storm drain pipe, sanitary sewer, and water are provided in these access roads. These utilities are sized for the estimated demands that the site will have at projected ultimate build out. Since the project is still in the early phases of planning the exact limits and land use of each phase are unknown at this time. Ultimately, the site may consist of approximately 1.2 million square feet of commercial research and design office space and 609 residential condominiums. The City of Scottsdale may also build approximately 95,000 square feet of office space along with a possible 200 room hotel.

This project will not be performing any work in the right-of-way on Scottsdale and McDowell Road or within 30' of the back of curb. All turn lanes, deceleration lanes and bus bays that connect to this project are to be designed by others. These improvements are to be done as part of a larger street improvement project. The City of Scottsdale is also proposing angled parking along the 74th Street Right-of-Way which may alter the existing drainage patterns in 74th Street. This work is also to be performed by others.

4.0 SPECIAL CONDITIONS

4.1 Special Conditions

Currently, there are no washes with 100-year flows greater than 50cfs that traverses the project site. Where existing washes or planned drainage corridors convey greater than 50cfs, a drainage easement will be provided.

5.0 DATA ANALYSIS METHODS

5.1 Hydrologic Procedures

The drainage improvements will be developed consistent with Chapter 4 of the, *Design Standards and Policies Manual*, City of Scottsdale. The Rational Method has been used to quantify peak discharge values for the central concentration points on the site. (Please see Appendix 4, Drainage Calculations and Appendix 5, Drainage Map.)

5.2 Hydraulic Procedures

Onsite storm sewer has been designed to accommodate the 10-year storm event. Similarly, catch basins are designed according to their inlet capacity. StormCAD Version 5.0, by Haestad Methods, was utilized to analyze the proposed storm sewer system.

The methodology developed by the Federal Highway Administration is used to calculate the allowable street cross-section capacities. Street capacity is designed for an allowable depth of 8-inches per the City of Scottsdale Ordinance 37-42 (4).

5.3 Stormwater Storage Calculations

Onsite detention is not required per the stipulations defined in Case # 26-ZN-2004 Section 3.2 Master Drainage Plan & Report.

6.0 CONCLUSIONS

Based on the results of this report, we can conclude:

- The proposed major drainage infrastructure will be designed in accordance with the City of Scottsdale *Design Standards & Policies Manual* and the City's Capital Improvement Program.

- The Rational Method has been used to estimate peak discharges for all drainage areas in this report.

- Temporary de-silting basins have been installed to provide temporary erosion control and storm water detention in order to accommodate the undeveloped 100 year, 2 hour storm event.

- The storm drain infrastructure has been sized to drain the site at the ultimate build out condition.

- Onsite permanent detention will not be provided per the stipulations defined in Case # 26-ZN-2004 Section 3.2 Master Drainage Plan & Report at ultimate build out of this development.

- The onsite drives have been designed to convey the 100-year storm event with an allowable depth of 8-inches per City of Scottsdale Ordinance 37-42 (4).

- The flow capacity of each storm drain pipe, catch basin, and inlet has been designed to accept the 10-year storm event.

- The post development runoff characteristics will be similar to the pre development conditions for this development as a result of the consistent runoff characteristics of the existing and proposed developments.

7.0 WARNING AND DISCLAIMER OF LIABILITY

Appendix 4-C

Warning and Disclaimer of Liability

The Drainage and Floodplain Regulations and Ordinances of the City of Scottsdale are intended to "minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding caused by the surface runoff of rainfall" (Scottsdale Revised Code §37-16).

As defined in S.R.C. §37-17, a flood plain or "*Special flood hazard* area means an area having flood and/or flood related erosion hazards as shown on a FHBM or FIRM as zone A, AO, A1-30, AE, A99, AH, or E, and those areas identified as such by the floodplain administrator, delineated in accordance with subsection 37-18(b) and adopted by the floodplain board." It is possible that a property could be inundated by greater frequency flood events or by a flood greater in magnitude than a 100-year flood. Additionally, much of the Scottsdale area is a dynamic flood area; that is, the floodplains may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY PURSUANT TO S.R.C §37-22
"The degree of flood protection provided by the requirements in this article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by manmade or natural causes. This article (Chapter 37, Article II) shall not create liability on the part of the city, any officer or employee thereof, or the federal government for any flood damages that result from reliance on this article or any administrative decision lawfully made thereunder."

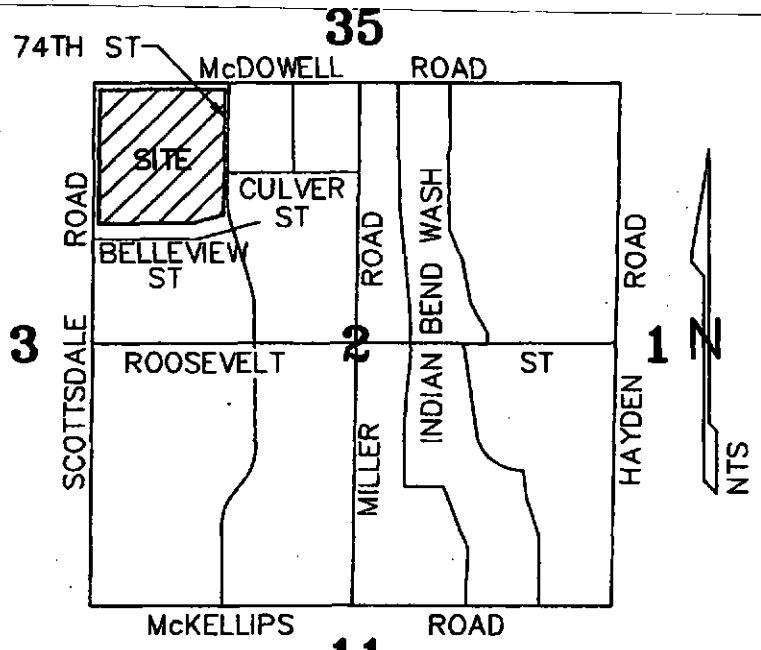
Compliance with Drainage and Floodplain Regulations and Ordinances does not insure complete protection from flooding. The Floodplain Regulations and Ordinances meet established local and federal standards for floodplain management, but neither this review nor the Regulations and Ordinances take into account such flood related problems as natural erosion, streambed meander or man-made obstructions and diversions, all of which may have an adverse affect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above. If I am an agent for an owner I have made the owner aware of and explained this disclaimer.

Plan Check No.	Owner or Agent	Date

APPENDIX 1

Vicinity Map



VICINITY MAP

NW 1/4 SECTION 2, T-1N, R-4E

VICINITY MAP

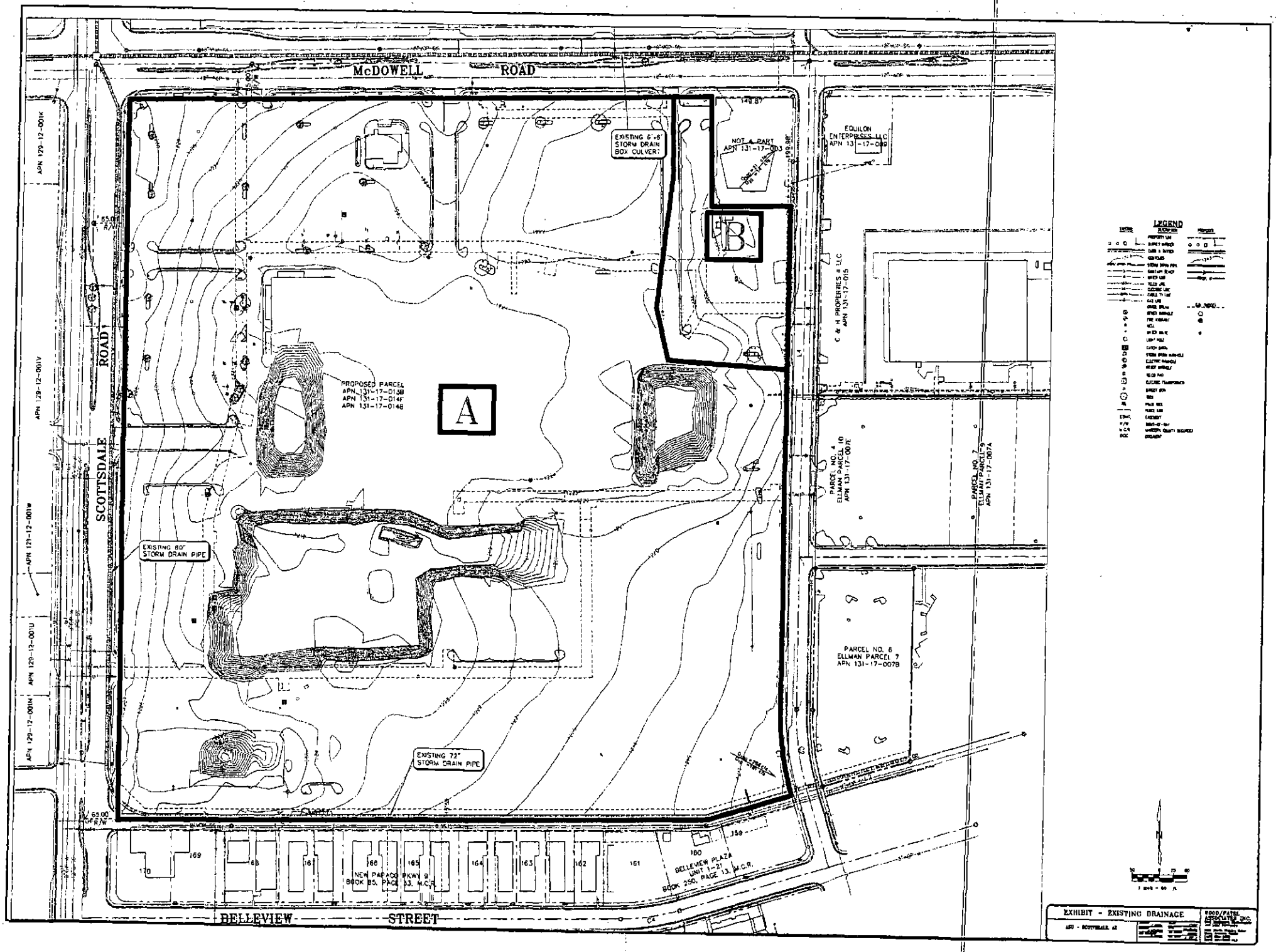
ASU CENTER FOR NEW TECHNOLOGY
SCOTTSDALE, AZ

ENGINEER	T. WONSESKI
DESIGNER	J. HEYWOOD
CAD TECHNICIAN	D. SAYRE
SCALE	NTS
DATE	09-26-05
JOB NUMBER	052562
REF. SHEET	1 OF 1

WOOD/PATEL ASSOCIATES INC.
Civil Engineers, Hydrologists and Land Surveyors
1855 North Stapley Drive
Mesa, Arizona 85203
(480) 834-3300
(480) 834-3320 FAX

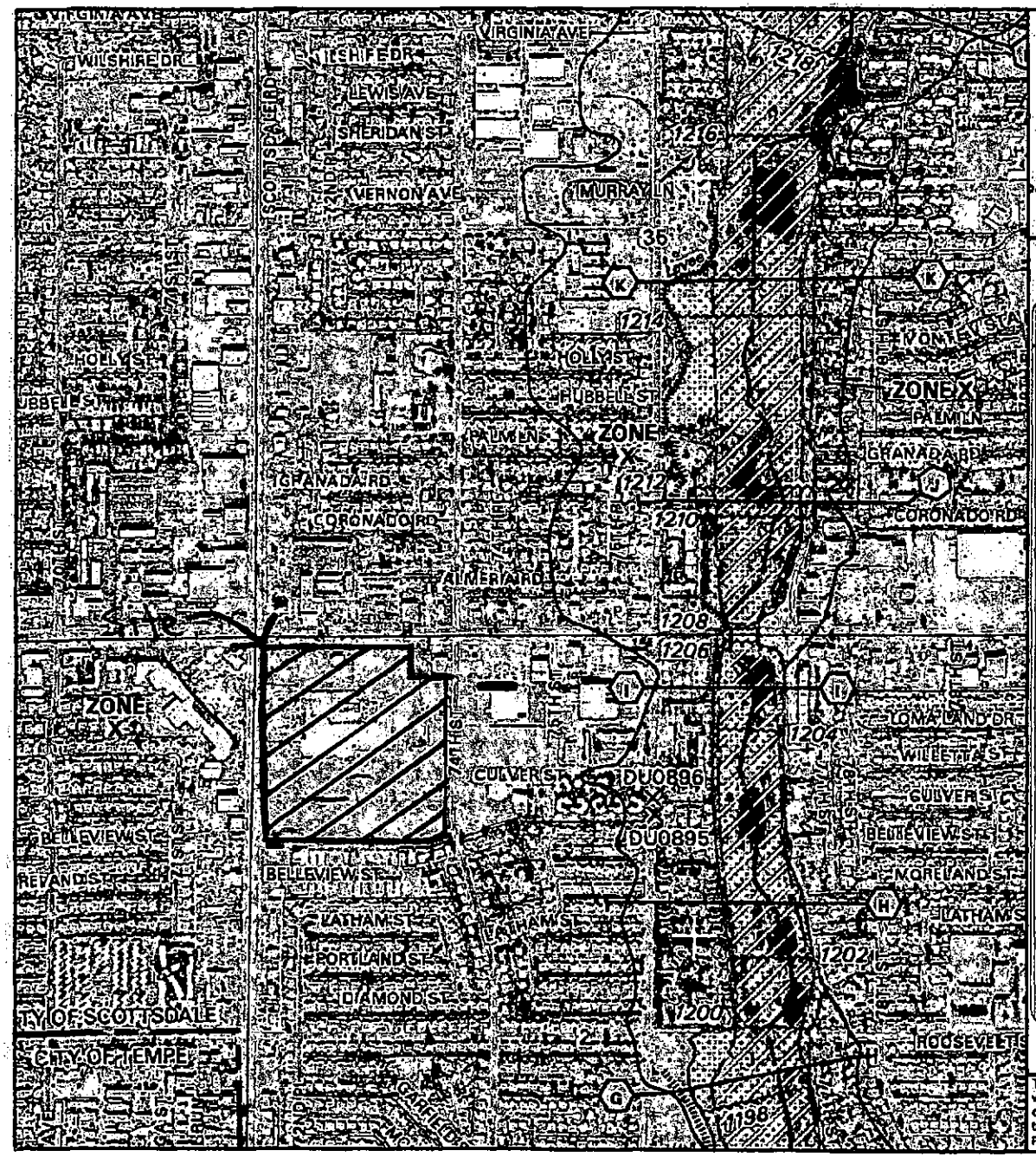
APPENDIX 2

Existing Drainage Map


McDOWELL ROAD
SCOTTSDALE ROAD
BELLEVIEW STREET
NEW PAPAGO PKWY 9
BOOK 85, PAGE 33, M.C.R.
BELLEVIEW PLAZA
UNIT 1-21
BOOK 250, PAGE 13, M.C.R.
EXISTING 6'-8" STORM DRAIN BOX CULVERT
EXISTING 80" STORM DRAIN PIPE
EXISTING 72" STORM DRAIN PIPE
PROPOSED PARCEL
APN 131-17-015B
APN 131-17-014F
APN 131-17-014B
A
B
NOT A PART
APN 131-17-003
EQUILON ENTERPRISES LLC
APN 131-17-009
C & H PROPERTIES II LLC
APN 131-17-015
PARCEL NO. 4
ELLMAN PARCEL 10
APN 131-17-007E
PARCEL NO. 7
ELLMAN PARCEL 9
APN 131-17-007A
PARCEL NO. 6
ELLMAN PARCEL 7
APN 131-17-007B
APN 129-12-001K
APN 129-12-001V
APN 129-12-001W
APN 129-12-001U
APN 129-12-001N
LEGEND
EXHIBIT - EXISTING DRAINAGE

APPENDIX 3

Flood Insurance Rate Map



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

M 0 300 600

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2160F

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 2160 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2160	F
MESA, CITY OF	040048	2160	F
SCOTTSDALE, CITY OF	045012	2160	F
TEMPE, CITY OF	040054	2160	F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER

04013C2160F

MAP REVISED

SEPTEMBER 30, 2005

Federal Emergency Management Agency

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

MAP SCALE 1" = 1000'

0 1000 2000 FEET

0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 2160F

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
AND INCORPORATED AREAS

PANEL 2160 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2160	F
MESA, CITY OF	040048	2160	F
SCOTTSDALE, CITY OF	045012	2160	F
TEMPE, CITY OF	040054	2160	F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C2160F
MAP REVISED
SEPTEMBER 30, 2005

Federal Emergency Management Agency

APPENDIX 4

Drainage Calculations

Drainage Calculations
ASU SCOTTSDALE CENTER FOR NEW TECHNOLOGY

6/21/2006

W/P Job No. 052562

See Drainage Map Exhibit for Sub-Area Designations

Q = C x I x A

Area Designation	Area (SF)	Area (Acres)	Runoff Coefficient	Time of Conc. (min)	I(2) in/hr	Q(2) cfs	I(10) in/hr	Q(10) cfs	I(25) in/hr	Q(25) cfs	I(50) in/hr	Q(50) cfs	I(100) in/hr	Q(100) cfs
1	39,870	0.92	0.90	5	3.7	3.05	6.1	5.02	7.0	5.77	8.0	6.59	9.2	7.58
2	208,019	4.78	0.90	5	3.7	15.90	6.1	26.22	7.0	30.09	8.0	34.38	9.2	39.54
3	28,257	0.65	0.90	5	3.7	2.16	6.1	3.56	7.0	4.09	8.0	4.67	9.2	5.37
4	22,732	0.52	0.90	5	3.7	1.74	6.1	2.86	7.0	3.29	8.0	3.76	9.2	4.32
5	220,095	5.05	0.90	5	3.7	16.83	6.1	27.74	7.0	31.83	8.0	36.38	9.2	41.84
6	80,168	1.84	0.90	5	3.7	6.13	6.1	10.10	7.0	11.59	8.0	13.25	9.2	15.24
7	14,268	0.33	0.90	5	3.7	1.09	6.1	1.80	7.0	2.06	8.0	2.36	9.2	2.71
8	27,913	0.64	0.90	5	3.7	2.13	6.1	3.52	7.0	4.04	8.0	4.61	9.2	5.31
9	14,836	0.34	0.90	5	3.7	1.13	6.1	1.87	7.0	2.15	8.0	2.45	9.2	2.82
10	7,754	0.18	0.90	5	3.7	0.59	6.1	0.98	7.0	1.12	8.0	1.28	9.2	1.47
11	7,200	0.17	0.90	5	3.7	0.55	6.1	0.91	7.0	1.04	8.0	1.19	9.2	1.37
12	6,716	0.15	0.90	5	3.7	0.51	6.1	0.85	7.0	0.97	8.0	1.11	9.2	1.28
13	4,692	0.11	0.90	5	3.7	0.36	6.1	0.59	7.0	0.68	8.0	0.78	9.2	0.89
14	6,734	0.15	0.90	5	3.7	0.51	6.1	0.85	7.0	0.97	8.0	1.11	9.2	1.28
15	7,787	0.18	0.90	5	3.7	0.60	6.1	0.98	7.0	1.13	8.0	1.29	9.2	1.48
16	5,695	0.13	0.90	5	3.7	0.44	6.1	0.72	7.0	0.82	8.0	0.94	9.2	1.08
17	6,704	0.15	0.90	5	3.7	0.51	6.1	0.84	7.0	0.97	8.0	1.11	9.2	1.27
18	16,483	0.38	0.90	5	3.7	1.26	6.1	2.08	7.0	2.38	8.0	2.72	9.2	3.13
19	16,212	0.37	0.90	5	3.7	1.24	6.1	2.04	7.0	2.34	8.0	2.68	9.2	3.08
20	16,664	0.38	0.90	5	3.7	1.27	6.1	2.10	7.0	2.41	8.0	2.75	9.2	3.17
21	16,388	0.38	0.90	5	3.7	1.25	6.1	2.07	7.0	2.37	8.0	2.71	9.2	3.12
22	16,202	0.37	0.90	5	3.7	1.24	6.1	2.04	7.0	2.34	8.0	2.68	9.2	3.08
23	15,934	0.37	0.90	5	3.7	1.22	6.1	2.01	7.0	2.30	8.0	2.63	9.2	3.03
24	35,319	0.81	0.90	5	3.7	2.70	6.1	4.45	7.0	5.11	8.0	5.84	9.2	6.71
25	229,390	5.27	0.90	5	3.7	17.54	6.1	28.91	7.0	33.18	8.0	37.92	9.2	43.60
26	14,283	0.33	0.90	5	3.7	1.09	6.1	1.80	7.0	2.07	8.0	2.36	9.2	2.71
27	11,161	0.26	0.90	5	3.7	0.85	6.1	1.41	7.0	1.61	8.0	1.84	9.2	2.12
28	10,470	0.24	0.90	5	3.7	0.80	6.1	1.32	7.0	1.51	8.0	1.73	9.2	1.99
29	6,987	0.16	0.90	5	3.7	0.53	6.1	0.88	7.0	1.01	8.0	1.15	9.2	1.33
30	181,125	4.16	0.90	5	3.7	13.85	6.1	22.83	7.0	26.20	8.0	29.94	9.2	34.43
31	49,023	1.13	0.90	5	3.7	3.75	6.1	6.18	7.0	7.09	8.0	8.10	9.2	9.32
32	33,998	0.78	0.90	5	3.7	2.60	6.1	4.28	7.0	4.92	8.0	5.62	9.2	6.46
33	25,963	0.60	0.90	5	3.7	1.98	6.1	3.27	7.0	3.75	8.0	4.29	9.2	4.94
34	26,411	0.61	0.90	5	3.7	2.02	6.1	3.33	7.0	3.82	8.0	4.37	9.2	5.02
35	27,989	0.64	0.90	5	3.7	2.14	6.1	3.53	7.0	4.05	8.0	4.63	9.2	5.32
36	27,192	0.62	0.90	5	3.7	2.08	6.1	3.43	7.0	3.93	8.0	4.49	9.2	5.17
37	42,272	0.97	0.90	5	3.7	3.23	6.1	5.33	7.0	6.11	8.0	6.99	9.2	8.04
38	35,554	0.82	0.90	5	3.7	2.72	6.1	4.48	7.0	5.14	8.0	5.88	9.2	6.76
39	25,710	0.59	0.90	5	3.7	1.97	6.1	3.24	7.0	3.72	8.0	4.25	9.2	4.89
TOTAL	1,590,171	36.51				121.56		200.41		229.98		262.84		302.26

ASU Scottsdale Center - STREET DRAINAGE AREA CONCENTRATION POINTS

Onsite Rational Method Hydrology Worksheet
Reference: City of Scottsdale Engineering & Design Standards
Date: 6/21/2006

Known Values:
Design Storm: 10 & 100 Years

Calculated Values:
Tc=drainage length/avg.velocity/60
Q=CiA

Location of Drainage Sub Area denoted on Drainage Map.

Concentration Point Drainage Sub Area	Area (sq ft)	(ac)	Weighted "C" Value	Length of Area (ft)	Average Velocity (fps)	Initial Time of Concen. (min)	Time of Concen. (min)[1]	Half Street Flow Cap. w/ overtopping (cfs)[2]	10 - Year						100 - Year					
									Intensity (in/hr)	Q (cfs)	Uncaptured flow from Upstream (cfs)	Total Q (cfs)	Captured (cfs)	Bypass (cfs)	Intensity (in/hr)	Q (cfs)	Uncaptured flow from Upstream (cfs)	Total Q (cfs)	Captured (cfs)	Bypass (cfs)
Plaza Blvd																				
6	80,168	1.8	0.90	240	9.3	0	0	49.1	6.1	10.1	0	10.1	10.1	0	9.2	15.2	0	15.2	15.2	0
8	27,913	0.6	0.90	240	9.3	0	0	49.1	6.1	3.5	0	3.5	3.5	0	9.2	5.3	0	5.3	5.3	0
7	14,268	0.3	0.90	80	4.0	0	0	21.1	6.1	1.8	0	1.8	1.8	0	9.2	2.7	0	2.7	2.7	0
9	14,836	0.3	0.90	80	4.0	0	0	21.1	6.1	1.9	0	1.9	1.9	0	9.2	2.8	0	2.8	2.8	0
10	7,754	0.2	0.90	50	8.1	0	0	42.7	6.1	1.0	0	1.0	1.0	0	9.2	1.5	0	1.5	1.5	0
11	7,200	0.2	0.90	50	8.1	0	0	42.7	6.1	0.9	0	0.9	0.9	0	9.2	1.4	0	1.4	1.4	0
14	6,734	0.2	0.90	50	4.0	0	0	21.1	6.1	0.8	0	0.8	0.8	0	9.2	1.3	0	1.3	1.3	0
17	6,704	0.2	0.90	50	4.0	0	0	21.1	6.1	0.8	0	0.8	0.8	0	9.2	1.3	0	1.3	1.3	0
18	16,483	0.4	0.90	80	8.1	0	0	42.7	6.1	2.1	0	2.1	2.1	0	9.2	3.1	0	3.1	3.1	0
19	16,212	0.4	0.90	80	8.1	0	0	42.7	6.1	2.0	0	2.0	2.0	0	9.2	3.1	0	3.1	3.1	0
20	16,684	0.4	0.90	80	4.0	0	0	21.1	6.1	2.1	0	2.1	2.1	0	9.2	3.2	0	3.2	3.2	0
21	16,388	0.4	0.90	80	4.0	0	0	21.1	6.1	2.1	0	2.1	2.1	0	9.2	3.1	0	3.1	3.1	0
22	16,202	0.4	0.90	130	7.8	0	0	41.1	6.1	2.0	0	2.0	1.9	0.2	9.2	3.1	0	3.1	2.4	0.7
23	15,934	0.4	0.90	130	7.8	0	0	41.1	6.1	2.0	0	2.0	1.8	0.2	9.2	3.0	0	3.0	2.4	0.7
Center Street																				
3	26,257	0.6	0.90	420	5.0	0	1	23.0	6.1	3.6	0	3.6	3.6	0	9.2	5.4	0	5.4	5.4	0
4	22,732	0.5	0.90	420	5.0	0	1	23.0	6.1	2.9	0	2.9	2.9	0	9.2	4.3	0	4.3	4.3	0
12	6,716	0.2	0.90	75	4.2	0	0	19.2	6.1	0.8	0	0.8	0.8	0	9.2	1.3	0	1.3	1.3	0
13	4,692	0.1	0.90	75	4.2	0	0	19.2	6.1	0.6	0	0.6	0.6	0	9.2	0.9	0	0.9	0.9	0
15	7,787	0.2	0.90	75	4.2	0	0	19.2	6.1	1.0	0	1.0	1.0	0	9.2	1.5	0	1.5	1.5	0
16	5,695	0.1	0.90	75	4.2	0	0	19.2	6.1	0.7	0	0.7	0.7	0	9.2	1.1	0	1.1	1.1	0
26	14,283	0.3	0.90	200	4.2	0	1	19.2	6.1	1.8	0	1.8	1.8	0	9.2	2.7	0	2.7	2.7	0
27	11,161	0.3	0.90	200	4.2	0	1	19.2	6.1	1.4	0	1.4	1.4	0	9.2	2.1	0	2.1	2.1	0
South Drive																				
31	49,023	1.1	0.9	355	5.4	0	1	32.3	6.1	6.2	0	6.2	3.2	3.0	9.2	9.3	0	9.3	4.0	5.3
32	33,998	0.8	0.9	245	4.2	0	1	25.3	6.1	4.3	3.0	7.2	5.6	1.6	9.2	8.5	5.3	11.8	7.3	4.5
33	25,883	0.6	0.9	280	3.6	0	1	21.8	6.1	3.3	1.6	4.9	4.5	0.4	9.2	4.9	4.5	9.4	6.8	2.7
34	26,411	0.6	0.9	230	3.6	0	1	21.8	6.1	3.3	0.4	3.7	3.7	0	9.2	5.0	2.7	7.7	7.7	0

[1] Minimum time of concentration used is 5 minutes.
[2] Includes flows above the crown elevation up to the specified flow depth elevation of 0.5'.

Street Capacity Computations

6" Vertical Curb

Description: Calculation of Local Street Flow Conveyance Capacity for Local Street

References: Federal Highway Administration, Hydraulic Engineering Circular No. 22, "Drainage of Highway Pavements", November 1996

Known Values:

Depth of Flow =	0.5 ft
Cross Slope =	0.02 ft/ft
Street Width (F/C to F/C) =	24 ft
Manning's "n" Value=	0.015

Calculated Values:

Referenced Equations:

$Q = 0.56 * (S_x^{1.67}) * (S^{0.5}) * (T^{2.67}) / n$ for flow below crown (FHWA Procedure)

$Q = 1.486 * A * (R^{0.67}) * (S^{0.5}) / n$ for flow above crown (Manning's equation)

where Q = flow rate, cfs; T = width of flow, ft; S_x = cross slope, ft/ft; A = conveyance area, sq ft; S = longitudinal slope, ft/ft; R = hydraulic radius, ft

Longitudinal Slope ft/ft	*Conveyance Area sq ft*	*Velocity fps*	*Full Street Flow Capacity[1] cfs*	*1/2 Street Flow Without Overtopping, cfs[1][2]*	*1/2 Street Flow with Overtopping, cfs[1][3]*
0.0050	9.12	3.56	33	3	16
0.0055	9.12	3.74	34	3	17
0.0060	9.12	3.90	36	3	18
0.0065	9.12	4.06	37	3	19
0.0070	9.12	4.22	38	3	19
0.0075	9.12	4.36	40	4	20
0.0080	9.12	4.51	41	4	21
0.0085	9.12	4.65	42	4	21
0.0090	9.12	4.78	44	4	22
0.0095	9.12	4.91	45	4	22
0.0100	9.12	5.04	46	4	23
0.0105	9.12	5.16	47	4	24
0.0110	9.12	5.29	48	4	24
0.0115	9.12	5.41	49	4	25
0.0120	9.12	5.52	50	5	25
0.0125	9.12	5.64	51	5	26
0.0130	9.12	5.75	52	5	26
0.0135	9.12	5.86	53	5	27
0.0140	9.12	5.96	54	5	27
0.0145	9.12	6.07	55	5	28
0.0150	9.12	6.17	56	5	28
0.0250	9.12	7.97	73	7	36
0.0350	9.12	9.43	86	8	43
0.0450	9.12	10.69	98	9	49
0.0550	9.12	11.82	108	10	54
0.0650	9.12	12.85	117	11	59

Notes:

1.) Street flow capacity does not include local gutter depression effect.

2.) Half-street flow capacity is limited to the lower of the crown elevation or top of curb elevation.

3.) Includes flows above the crown elevation up to the specified flow depth elevation.

Center Street Flow Capacity

Project: ASU Scottsdale Center
Date: 06/21/06

Description: Calculation of Local Street Flow Conveyance Capacity
References: Federal Highway Administration, Hydraulic Engineering
Circular No. 12,"Drainage of Highway Pavements", March 1984
CITY OF SCOTTSDALE ENGINEERING & DESIGN STANDARDS

Known Values:

Depth of Flow = 0.5 ft
Cross Slope = 0.02 $^{ft}/_{ft}$
Street Width (F/C to F/C) = 24 ft
Manning's "n" Value= 0.015

Calculated Values:

Referenced Equations:

$Q = 0.56 * (S_x^{1.67}) * (S^{0.5}) * (T^{2.67}) / n$ for flow below crown (FHWA Procedure)

$Q = 1.486 * A * (R^{0.67}) * (S^{0.5}) / n$ for flow above crown (Manning's equation)

where Q = flow rate, cfs; T = width of flow, ft
S_x = cross slope, ft/ft; A = conveyance area, sq ft
S = longitudinal slope, ft/ft; R = hydraulic radius, ft

Drainage Sub Area[1]	*Longitudinal Slope ft/ft*	*Conveyance Area sq ft*	*Velocity fps*	*Full Street Capacity*[2] *cfs*	*1/2 Street Flow with overtopping*[4] *cfs*	*1/2 Street Flow w/o overtopping*[2,3] *cfs*	*Actual 100 yr Flow (cfs)*
3	0.0100	9.12	5.04	46	23	4.13	5.37
4	0.0100	9.12	5.04	46	23	4.13	4.32
12	0.0070	9.12	4.22	38	19	3.46	1.28
13	0.0070	9.12	4.22	38	19	3.46	0.89
15	0.0070	9.12	4.22	38	19	3.46	1.48
16	0.0070	9.12	4.22	38	19	3.46	1.08
26	0.0070	9.12	4.22	38	19	3.46	2.71
27	0.0070	9.12	4.22	38	19	3.46	2.12

[1] Location Denoted on Drainage Map
[2] Street flow capacity does not include local gutter depression effect.
[3] Half-street flow capacity is limited to the lower of the crown elevation or top of curb elevation.
[4] Includes flows above the crown elevation up to the specified flow depth elevation.

Plaza Blvd. Flow Capacity

Project: ASU Scottsdale Center
Date: 06/21/08

Description: Calculation of Local Street Flow Conveyance Capacity
References: Federal Highway Administration, Hydraulic Engineering Circular No. 12,"Drainage of Highway Pavements", March 1984
CITY OF SCOTTSDALE ENGINEERING & DESIGN STANDARDS

Known Values:

Depth of Flow = 0.5 ft
Cross Slope = 0.02 ft/ft
Street Width (F/C to F/C) = 30 ft
Manning's "n" Value= 0.015

Calculated Values:

Referenced Equations:

$Q = 0.56 * (S_x^{1.67}) * (S^{0.5}) * (T^{2.67}) / n$ for flow below crown (FHWA Procedure)

$Q = 1.486 * A * (R^{0.67}) * (S^{0.5}) / n$ for flow above crown (Manning's equation)

where Q = flow rate, cfs; T = width of flow, ft
S_x = cross slope, ft/ft; A = conveyance area, sq ft
S = longitudinal slope, ft/ft; R = hydraulic radius, ft

Drainage Sub Area[1]	*Longitudinal Slope ft/ft*	*Conveyance Area sq ft*	*Velocity fps*	*Full Street Capacity*[2] *cfs*	*1/2 Street Flow with overtopping*[4] *cfs*	*1/2 Street Flow w/o overtopping*[2,3] *cfs*	*Actual 100 yr Flow (cfs)*
6	0.0380	10.50	9.35	98	49	14.62	15.24
8	0.0380	10.50	9.35	98	49	14.62	5.31
7	0.0070	10.50	4.01	42	21	6.27	2.71
9	0.0070	10.50	4.01	42	21	6.27	2.82
10	0.0288	10.50	8.14	85	43	12.73	1.47
11	0.0288	10.50	8.14	85	43	12.73	1.37
14	0.0070	10.50	4.01	42	21	6.27	1.28
17	0.0070	10.50	4.01	42	21	6.27	1.27
18	0.0288	10.50	8.14	85	43	12.73	3.13
19	0.0288	10.50	8.14	85	43	12.73	3.08
20	0.0070	10.50	4.01	42	21	6.27	3.17
21	0.0070	10.50	4.01	42	21	6.27	3.12
22	0.0267	10.50	7.84	82	41	12.25	3.08
23	0.0267	10.50	7.84	82	41	12.25	3.03

[1] Location Denoted on Drainage Map

[2] Street flow capacity does not include local gutter depression effect.

[3] Half-street flow capacity is limited to the lower of the crown elevation or top of curb elevation.

[4] Includes flows above the crown elevation up to the specified flow depth elevation.

South Drive Flow Capacity

Project: ASU Scottsdale Center
Date: 06/21/06

Description: Calculation of Local Street Flow Conveyance Capacity
References: Federal Highway Administration, Hydraulic Engineering Circular No. 12,"Drainage of Highway Pavements", March 1984
CITY OF SCOTTSDALE ENGINEERING & DESIGN STANDARDS

Known Values:

Depth of Flow = 0.5 ft
Cross Slope = 0.02 $^{ft}/_{ft}$
Street Width (F/C to F/C) = 40 ft
Manning's "n" Value= 0.015

Calculated Values:

Referenced Equations:

$Q = 0.56 * (S_x^{1.67}) * (S^{0.5}) * (T^{2.67}) / n$ for flow below crown (FHWA Procedure)

$Q = 1.486 * A * (R^{0.67}) * (S^{0.5}) / n$ for flow above crown (Manning's equation)

where Q = flow rate, cfs; S_x = cross slope, ft/ft; S = longitudinal slope, ft/ft; T = width of flow, ft; A = conveyance area, sq ft; R = hydraulic radius, ft

Drainage Sub Area[1]	*Longitudinal Slope ft/ft*	*Conveyance Area sq ft*	*Velocity fps*	*Full Street Capacity*[2] *cfs*	*1/2 Street Flow with overtopping*[4] *cfs*	*1/2 Street Flow w/o overtopping*[2,3] *cfs*	*Actual 100 yr Flow (cfs)*
31	0.0153	12.00	5.38	65	32	19.99	9.32
32	0.0094	12.00	4.22	51	25	15.67	6.46
33	0.0070	12.00	3.64	44	22	13.52	4.94
34	0.0070	12.00	3.64	44	22	13.52	5.02

[1] Location Denoted on Drainage Map

[2] Street flow capacity does not include local gutter depression effect.

[3] Half-street flow capacity is limited to the lower of the crown elevation or top of curb elevation.

[4] Includes flows above the crown elevation up to the specified flow depth elevation.

Inlet Capacity Calculations
ASU SCOTTSDALE CENTER FOR NEW TECHNOLOGY

6/21/2008
W/P Job No. 052562

								MIN. REQUIRED					
Area Designation	Condition	Area (SF)	Area (Acres)	Runoff Coefficient	Time of Conc. (min)	I(10) in/hr	Q(10) cfs	MAG 535 Double Grate[2]	MAG 535 Single Grate[3]	MAG 537 2'x2'[4]	City of Phoenix Det. P1589-2 M1 L=3'[5]	City of Phoenix Det. P1589-2 M1 L=6'[5]	City of Phoenix Det. P1589-2 M1 L=10'[5]
Onsite Areas[1]													
3	Sump	28,257	0.65	0.9	5	6.10	3.56	-	-	X	-	-	-
4	Sump	22,732	0.52	0.9	5	6.10	2.86	-	-	X	-	-	-
5	Sump	220,095	5.05	0.9	5	6.10	27.74	-	X	-	-	-	-
6	Sump	80,188	1.84	0.9	5	6.10	10.10	-	X	-	-	-	-
7	Sump	14,268	0.33	0.9	5	6.10	1.80	-	-	X	-	-	-
8	Sump	27,913	0.64	0.9	5	6.10	3.52	-	-	X	-	-	-
9	Sump	14,836	0.34	0.9	5	6.10	1.87	-	-	X	-	-	-
10	Sump	7,754	0.18	0.9	5	6.10	0.98	-	-	X	-	-	-
11	Sump	7,200	0.17	0.9	5	6.10	0.91	-	-	X	-	-	-
12	Sump	6,716	0.15	0.9	5	6.10	0.85	-	-	X	-	-	-
13	Sump	4,692	0.11	0.9	5	6.10	0.59	-	-	X	-	-	-
14	Sump	6,734	0.15	0.9	5	6.10	0.85	-	-	X	-	-	-
15	Sump	7,787	0.18	0.9	5	6.10	0.98	-	-	X	-	-	-
16	Sump	5,695	0.13	0.9	5	6.10	0.72	-	-	X	-	-	-
17	Sump	6,704	0.15	0.9	5	6.10	0.84	-	-	X	-	-	-
18	Sump	16,483	0.38	0.9	5	6.10	2.08	-	-	X	-	-	-
19	Sump	16,212	0.37	0.9	5	6.10	2.04	-	-	X	-	-	-
20	Sump	16,664	0.38	0.9	5	6.10	2.10	-	-	X	-	-	-
21	Sump	16,388	0.38	0.9	5	6.10	2.07	-	-	X	-	-	-
22	On Grade	16,202	0.37	0.9	5	6.10	2.04	-	-	-	-	X	-
23	On Grade	15,934	0.37	0.9	5	6.10	2.01	-	-	-	-	X	-
26	Sump	14,283	0.33	0.9	5	6.10	1.80	-	-	X	-	-	-
27	Sump	11,161	0.26	0.9	5	6.10	1.41	-	-	X	-	-	-
28	Sump	10,470	0.24	0.9	5	6.10	1.32	-	-	X	-	-	-
29	Sump	6,987	0.16	0.9	5	6.10	0.88	-	-	X	-	-	-
31	On Grade	49,023	1.13	0.9	5	6.10	6.18	-	X	-	-	-	-
32	On Grade	33,998	0.78	0.9	5	6.10	4.28	-	-	-	-	-	X
33	On Grade	25,983	0.60	0.9	5	6.10	3.27	-	-	-	-	-	X
34	Sump	26,411	0.61	0.9	5	6.10	3.33	-	-	-	-	X	-
35	Sump	27,989	0.64	0.9	5	6.10	3.53	-	-	X	-	-	-
36	Sump	27,192	0.62	0.9	5	6.10	3.43	-	-	X	-	-	-
37	Sump	42,272	0.97	0.9	5	6.10	5.33	-	-	-	-	X	-
38	Sump	35,554	0.82	0.9	5	6.10	4.48	-	-	-	-	X	-
39	On Grade	25,710	0.59	0.9	5	6.10	3.24	-	-	-	-	X	-

[1]FOR ON GRADE CATCH BASINS SEE ATTACHED ADOT DRAINAGE DESIGN PROGRAM PRINTOUTS.
[2]MAG STANDARD INLET 535 TYPE F DOUBLE GRATE CAN INTAKE 14.3 cfs WITH 6" OF HEAD .
[3]MAG STANDARD INLET 535 TYPE F SINGLE GRATE CAN INTAKE 6.4 cfs WITH 6" OF HEAD .
[4]MAG STANDARD INLET 537 TYPE G CAN INTAKE 3.8 cfs WITH 6" OF HEAD .
[5]City of Phoenix Det. P1589-2 INLET SEE ATTACHED SPREADSHEET FOR FLOW INTAKE.
[6]Area 5 & 6 will allow greater depths of ponding due to location.

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

03-30-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 22 CHECKER - _____ PAGE _____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

GUTTER FLOW HYDRAULICS 10 yr flow
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	2.670
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	2.040
SPREAD-Ft.--T	=	7.198
Average Velocity-V-fps	=	3.661
FLOW in Gutter-CFS--Q	=	1.072
% Flow in Gutter-CFS	=	52.545
Velocity of Flow in Gutter-fps	=	4.805
Depth at Curb Line-Inches--d	=	2.391

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	2.040
Gutter Velocity at INLET-fps	=	6.000
GUTTER FLOW at INLET-CFS--Q	=	1.716
Depth at INLET Curb Line-Inches--d	=	3.924
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	13.144
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.382	0.779	1.261
6.583	0.714	1.456	0.584
→ 9.583	0.905	1.846	0.194
13.583	1.000	2.040	0.000
20.583	1.000	2.040	0.000

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

03-28-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 2a CHECKER - _____ PAGE____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

100 yr flow

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	2.670
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	3.080
SPREAD-Ft.--T	=	8.543
Average Velocity-V-fps	=	4.005
FLOW in Gutter-CFS--Q	=	1.389
% Flow in Gutter-CFS	=	45.108
Velocity of Flow in Gutter-fps	=	5.319
Depth at Curb Line-Inches--d	=	2.713

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	3.080
Gutter Velocity at INLET-fps	=	6.551
GUTTER FLOW at INLET-CFS--Q	=	2.198
Depth at INLET Curb Line-Inches--d	=	4.343
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	17.009
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.302	0.931	2.149
6.583	0.586	1.804	1.276
→ 9.583	0.775	2.387	0.693
13.583	0.944	2.908	0.172
20.583	1.000	3.080	0.000

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

03-30-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 23 CHECKER - _____ PAGE_____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION 10 yr flow

Roadway Grade-% Per cent--G	=	2.670
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	2.010
SPREAD-Ft.--T	=	7.153
Average Velocity-V-fps	=	3.649
FLOW in Gutter-CFS--Q	=	1.062
% Flow in Gutter-CFS	=	52.830
Velocity of Flow in Gutter-fps	=	4.788
Depth at Curb Line-Inches--d	=	2.380

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	2.010
Gutter Velocity at INLET-fps	=	5.980
GUTTER FLOW at INLET-CFS--Q	=	1.700
Depth at INLET Curb Line-Inches--d	=	3.909
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	13.026
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.385	0.774	1.236
6.583	0.718	1.444	0.566
→ 9.583	0.909	1.827	0.183
13.583	1.000	2.010	0.000
20.583	1.000	2.010	0.000

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

03-28-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 23 CHECKER - _____ PAGE____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

100 yr flow

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	2.670
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	3.030
SPREAD-Ft.--T	=	8.486
Average Velocity-V-fps	=	3.991
FLOW in Gutter-CFS--Q	=	1.375
% Flow in Gutter-CFS	=	45.385
Velocity of Flow in Gutter-fps	=	5.298
Depth at Curb Line-Inches--d	=	2.700

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	3.030
Gutter Velocity at INLET-fps	=	6.529
GUTTER FLOW at INLET-CFS--Q	=	2.177
Depth at INLET Curb Line-Inches--d	=	4.326
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	16.832
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.305	0.925	2.105
6.583	0.591	1.789	1.241
→9.583	0.780	2.365	0.665
13.583	0.948	2.873	0.157
20.583	1.000	3.030	0.000

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

03-30-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 31 CHECKER - _____ PAGE_____
Ver 3.40: December 1995

GRATE INLET DESIGN -- ON GRADE

GUTTER FLOW HYDRAULICS 10-yr flow
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	1.530
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.500
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.062
Manning's 'N	=	0.015
Flow-CFS--Q	=	6.180
SPREAD-Ft.--T	=	12.570
Average Velocity-V-fps	=	3.806
FLOW in Gutter-CFS--Q	=	2.038
% Flow in Gutter-CFS	=	32.981
Velocity of Flow in Gutter-fps	=	5.115
Depth at Curb Line-Inches--d	=	3.719

GRATE TYPE: NON-STD. GRATE

Grate Length--Ft.	=	3.000
Grate Width---Ft.	=	2.000
Grate Area--Sq. Ft.	=	6.000
Capture Ratio -- GRATE	=	0.800
Effective Perimeter--Ft.	=	7.000
Splash-Over Velocity--FPS	=	5.400
Local Gutter Depression-Inches	=	1.000
Flow-CFS--Q	=	6.180
GUTTER FLOW at INLET-CFS--Q	=	2.491
Gutter Velocity at INLET-fps	=	5.577
Depth at INLET Curb Line-Inches--d	=	4.605
Frontal Flow Intercepted by GRATE--CFS	=	2.857
Lateral Flow Intercepted by GRATE--CFS	=	0.360
TOTAL Flow Intercepted by GRATE--CFS	=	3.217 ←
% FLOW Intercepted	=	52.055
By-pass Flow--CFS	=	2.963 ←

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

03-30-2006

PROJECT NAME- ASU Scottsdale
HIGHWAY NAME-
LOCATION - Area 31
Ver 3.40: December 1995

TRACS NO.-
DESIGNER -
CHECKER -
PAGE

GRATE INLET DESIGN -- ON GRADE

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION 100 yr flow

Roadway Grade-% Per cent--G	=	1.530
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.500
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.062
Manning's 'N	=	0.015
Flow-CFS--Q	=	9.320
SPREAD-Ft.--T	=	14.755
Average Velocity-V-fps	=	4.196
FLOW in Gutter-CFS--Q	=	2.624
% Flow in Gutter-CFS	=	28.151
Velocity of Flow in Gutter-fps	=	5.654
Depth at Curb Line-Inches--d	=	4.243

GRATE TYPE: NON-STD. GRATE

Grate Length--Ft.	=	3.000
Grate Width---Ft.	=	2.000
Grate Area--Sq. Ft.	=	6.000
Capture Ratio -- GRATE	=	0.800
Effective Perimeter--Ft.	=	7.000
Splash-Over Velocity--FPS	=	5.400
Local Gutter Depression-Inches	=	1.000
Flow-CFS--Q	=	9.320
GUTTER FLOW at INLET-CFS--Q	=	3.142
Gutter Velocity at INLET-fps	=	6.105
Depth at INLET Curb Line-Inches--d	=	5.148
Frontal Flow Intercepted by GRATE--CFS	=	3.526
Lateral Flow Intercepted by GRATE--CFS	=	0.495
TOTAL Flow Intercepted by GRATE--CFS	=	4.021 ←
% FLOW Intercepted	=	43.141
By-pass Flow--CFS	=	5.299 ←

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

04-11-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 32 CHECKER - _____ PAGE_____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

10 yr flow + 2.96 cfs bypass flow from upstream inlet #31

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.940
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	7.240
SPREAD-Ft.--T	=	14.731
Average Velocity-V-fps	=	3.277
FLOW in Gutter-CFS--Q	=	1.929
% Flow in Gutter-CFS	=	26.639
Velocity of Flow in Gutter-fps	=	4.418
Depth at Curb Line-Inches--d	=	4.199

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	7.240
Gutter Velocity at INLET-fps	=	5.128
GUTTER FLOW at INLET-CFS--Q	=	2.729
Depth at INLET Curb Line-Inches--d	=	6.008
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	24.197
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.218	1.575	5.665
6.583	0.435	3.152	4.088
9.583	0.597	4.319	2.921
→ 13.583	0.773	5.597	1.643
20.583	0.967	7.004	0.236

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

04-11-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 32 CHECKER - _____ PAGE_____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

GUTTER FLOW HYDRAULICS 100yr flow + 5.3 cfs bypass flow from upstream inlet #31
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.940
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	11.760
SPREAD-Ft.--T	=	17.752
Average Velocity-V-fps	=	3.686
FLOW in Gutter-CFS--Q	=	2.597
% Flow in Gutter-CFS	=	22.082
Velocity of Flow in Gutter-fps	=	4.973
Depth at Curb Line-Inches--d	=	4.924

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	11.760
Gutter Velocity at INLET-fps	=	5.660
GUTTER FLOW at INLET-CFS--Q	=	3.521
Depth at INLET Curb Line-Inches--d	=	6.770
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	32.788
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.163	1.915	9.845
6.583	0.332	3.904	7.856
9.583	0.463	5.448	6.312
→13.583	0.618	7.270	4.490
20.583	0.831	9.774	1.986

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

04-11-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 33 CHECKER - _____ PAGE_____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

GUTTER FLOW HYDRAULICS 10 yr flow + 1.64 cfs bypass flow from upstream inlet # 32
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.700
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	4.910
SPREAD-Ft.--T	=	13.417
Average Velocity-V-fps	=	2.669
FLOW in Gutter-CFS--Q	=	1.436
% Flow in Gutter-CFS	=	29.238
Velocity of Flow in Gutter-fps	=	3.595
Depth at Curb Line-Inches--d	=	3.883

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	4.910
Gutter Velocity at INLET-fps	=	4.216
GUTTER FLOW at INLET-CFS--Q	=	2.076
Depth at INLET Curb Line-Inches--d	=	5.671
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	17.859
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.289	1.419	3.491
6.583	0.563	2.764	2.146
9.583	0.750	3.680	1.230
→13.583	0.924	4.535	0.375
20.583	1.000	4.910	0.000

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

04-11-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 33 CHECKER - _____ PAGE_____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

GUTTER FLOW HYDRAULICS 100yr flow + 4.49 cfs bypass flow from upstream inlet #32
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.700
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	9.430
SPREAD-Ft.--T	=	17.260
Average Velocity-V-fps	=	3.125
FLOW in Gutter-CFS--Q	=	2.142
% Flow in Gutter-CFS	=	22.718
Velocity of Flow in Gutter-fps	=	4.215
Depth at Curb Line-Inches--d	=	4.805

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	9.430
Gutter Velocity at INLET-fps	=	4.811
GUTTER FLOW at INLET-CFS--Q	=	2.923
Depth at INLET Curb Line-Inches--d	=	6.646
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	26.956
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.196	1.852	7.578
6.583	0.396	3.733	5.697
9.583	0.546	5.153	4.277
→13.583	0.717	6.760	2.670
20.583	0.925	8.727	0.703

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

05-02-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 39 CHECKER - _____ PAGE _____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

10 yr flow

GUTTER FLOW HYDRAULICS
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.650
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	3.240
SPREAD-Ft.--T	=	11.570
Average Velocity-V-fps	=	2.351
FLOW in Gutter-CFS--Q	=	1.096
% Flow in Gutter-CFS	=	33.827
Velocity of Flow in Gutter-fps	=	3.159
Depth at Curb Line-Inches--d	=	3.440

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	3.240
Gutter Velocity at INLET-fps	=	3.766
GUTTER FLOW at INLET-CFS--Q	=	1.639
Depth at INLET Curb Line-Inches--d	=	5.186
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	13.482
Capture Ratio -- CURB OPENING	=	0.800

	LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
	3.083	0.373	1.210	2.030
	6.583	0.701	2.270	0.970
→	9.583	0.893	2.893	0.347
	13.583	1.000	3.240	0.000
	20.583	1.000	3.240	0.000

ARIZONA DEPARTMENT OF TRANSPORTATION
DRAINAGE DESIGN SECTION

05-02-2006

PROJECT NAME- ASU Scottsdale TRACS NO.- _____
HIGHWAY NAME- _____ DESIGNER - _____
LOCATION - Area 39 CHECKER - _____ PAGE____
Ver 3.40: December 1995

CURB OPENING INLET -- ON GRADE

GUTTER FLOW HYDRAULICS 100 yr flow
GUTTER DESCRIPTION

Roadway Grade-% Per cent--G	=	0.650
Roadway Cross-Slope-Ft./Ft.--Sx	=	0.020
Shoulder Width-Ft.--	=	2.000
Shoulder Slope-Ft./Ft.--Ss	=	0.020
Gutter Width-Ft.--W	=	1.417
Gutter Slope-Ft./Ft.--Sw	=	0.059
Gutter Depression-Inches--	=	1.003
Manning's 'N	=	0.015
Flow-CFS--Q	=	4.890
SPREAD-Ft.--T	=	13.590
Average Velocity-V-fps	=	2.593
FLOW in Gutter-CFS--Q	=	1.412
% Flow in Gutter-CFS	=	28.868
Velocity of Flow in Gutter-fps	=	3.492
Depth at Curb Line-Inches--d	=	3.925

CURB OPENING--ADOT STD. C-15.20

Flow-CFS--Q	=	4.890
Gutter Velocity at INLET-fps	=	4.089
GUTTER FLOW at INLET-CFS--Q	=	2.035
Depth at INLET Curb Line-Inches--d	=	5.716
Local Gutter Depression-Inches	=	2.000
Length of opening: TOTAL Intercept--Ft.	=	17.563
Capture Ratio -- CURB OPENING	=	0.800

LENGTH	Efficiency	Q(Captured)	Q(By-Pass)
3.083	0.294	1.435	3.455
6.583	0.571	2.790	2.100
→ 9.583	0.758	3.708	1.182
13.583	0.931	4.552	0.338
20.583	1.000	4.890	0.000

Sump Catch Basin Orifice Calculation

ASU SCOTTSDALE CENTER

6/21/2006

WP Job No. 052562

For ponding depths 6" and over...

Known values and Equations

$Q\ (cfs)^{(1)} = C_o h L (2g d_o)^{1/2}$ $d_i^{(3)}\ (ft) =$ 0.66

$C_o =$ 0.67 $d_o\ (ft) =$ $d_i - h/2$

$h\ (ft) =$ 0.46 $d_o\ (ft) =$ 0.43

See Drainage Map for Drainage Sub Area. See Infrastructure Plans for exact location of Catch Basins.

Drainage Sub Area #	$Q_{10}^{(2)}$ (cfs)	Number of Catch Basins	Clogging Factor	Required Catch Basin Length (ft)	Catch Basin Type	Design Catch Basin Length (ft)
34	3.7	1	0.80	2.9	M-1 L=6'	9
37	5.3	1	0.80	4.1	M-1 L=6'	9
38	4.5	1	0.80	3.5	M-1 L=6'	9

Notes

(1) Per FCDMC Drainage Design Manual, Volume II, Hydraulics, equation 3.10.

(2) Catch basin design based on the 10-year peak discharge. Also includes any bypassed flow from upstream inlets.

(3) City of Phoenix Det. P1569-2 includes a 2" local depression which when added to a 6" curb height produces a total depth of 8".

Sump Catch Basin Orifice Calculation

ASU SCOTTSDALE CENTER

6/21/2006

WP Job No. 052562

For ponding depths 6" and over...

Known values and Equations

Q (cfs)[1]	$=C_o h L(2gd_o)^{1/2}$	**d_i[3] (ft)=**	0.66
C_o=	0.67	**d_o (ft)=**	d_i-h/2
h (ft)=	0.46	**d_o (ft)=**	0.43

See Drainage Map for Drainage Sub Area. See Infrastructure Plans for exact location of Catch Basins.

Drainage Sub Area #	Q_{100}[2] (cfs)	Number of Catch Basins	Clogging Factor	Required Catch Basin Length (ft)	Catch Basin Type	Design Catch Basin Length (ft)
34	7.7	1	0.80	5.9	M1, L=6'	9
37	8.0	1	0.80	6.2	M1, L=6'	9
38	6.8	1	0.80	5.2	M1, L=6'	9

Notes

(1) Per FCDMC Drainage Design Manual, Volume II, Hydraulics, equation 3.10.

(2) Catch basin design based on the 100-year peak discharge.

(3) City of Phoenix Det. P1569-2 includes a 2" local depression which when added to a 6" curb height produces a total depth of 8".

Weir/Orifice Flow Capacities of MAG 537 'G'

Project : ASU Scottsdale
Date 06/21/06

Weir EQ. $Q_i = C_w P d^{1.5} (C_f)$ **Orifice EQ.** $Q_i = C_o A (2gd)^{0.5} (C_f)$

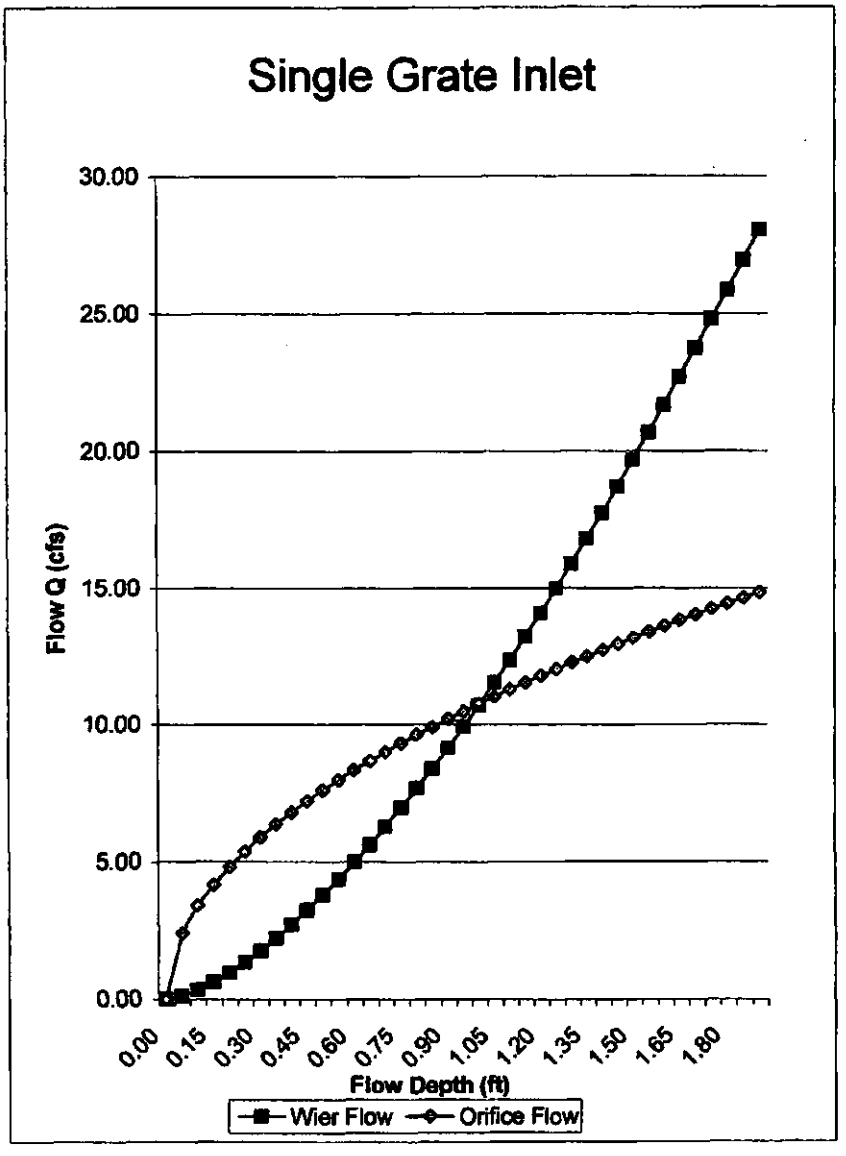
Where: $C_w = 3.0$, $C_o = 0.67$, and C_f = clogging factor = 0.5

Single Grate (MAG 537 - type G)

P =	**7.14**	**ft**
A =	**4.00**	**sq.ft.**

where,
P = Perimeter of Catchbasin minus
area of longitudinal & lateral bars
A = Total area of grate minus
area of longitudinal & lateral bars

Depth (ft)	Weir Qi (cfs)	Orifice Qi (cfs)
0.00	0.00	0.00
0.05	0.12	2.40
0.10	0.34	3.40
0.15	0.62	4.16
0.20	0.96	4.81
0.25	1.34	5.38
0.30	1.76	5.89
0.35	2.22	6.36
0.40	2.71	6.80
0.45	3.23	7.21
0.50	3.79	7.60
0.55	4.37	7.97
0.60	4.98	8.33
0.65	5.61	8.67
0.70	6.27	9.00
0.75	6.96	9.31
0.80	7.66	9.62
0.85	8.39	9.91
0.90	9.14	10.20
0.95	9.92	10.48
1.00	10.71	10.75
1.05	11.52	11.02
1.10	12.36	11.28
1.15	13.21	11.53
1.20	14.08	11.78
1.25	14.97	12.02
1.30	15.87	12.26
1.35	16.80	12.49
1.40	17.74	12.72
1.45	18.70	12.95
1.50	19.68	13.17
1.55	20.67	13.39
1.60	21.68	13.60
1.65	22.70	13.81
1.70	23.74	14.02
1.75	24.79	14.23
1.80	25.86	14.43
1.85	26.95	14.63
1.90	28.05	14.82



Weir/Orifice Flow Capacities of MAG 535 'F'

Project : ASU Scottsdale
Date 06/21/06

Weir EQ. $Q_i = C_w P d^{1.5} (C_f)$ **Orifice EQ.** $Q_i = C_o A (2gd)^{0.5} (C_f)$

Where: $C_w = 3.0$, $C_o = 0.67$, and C_f = clogging factor = 0.5

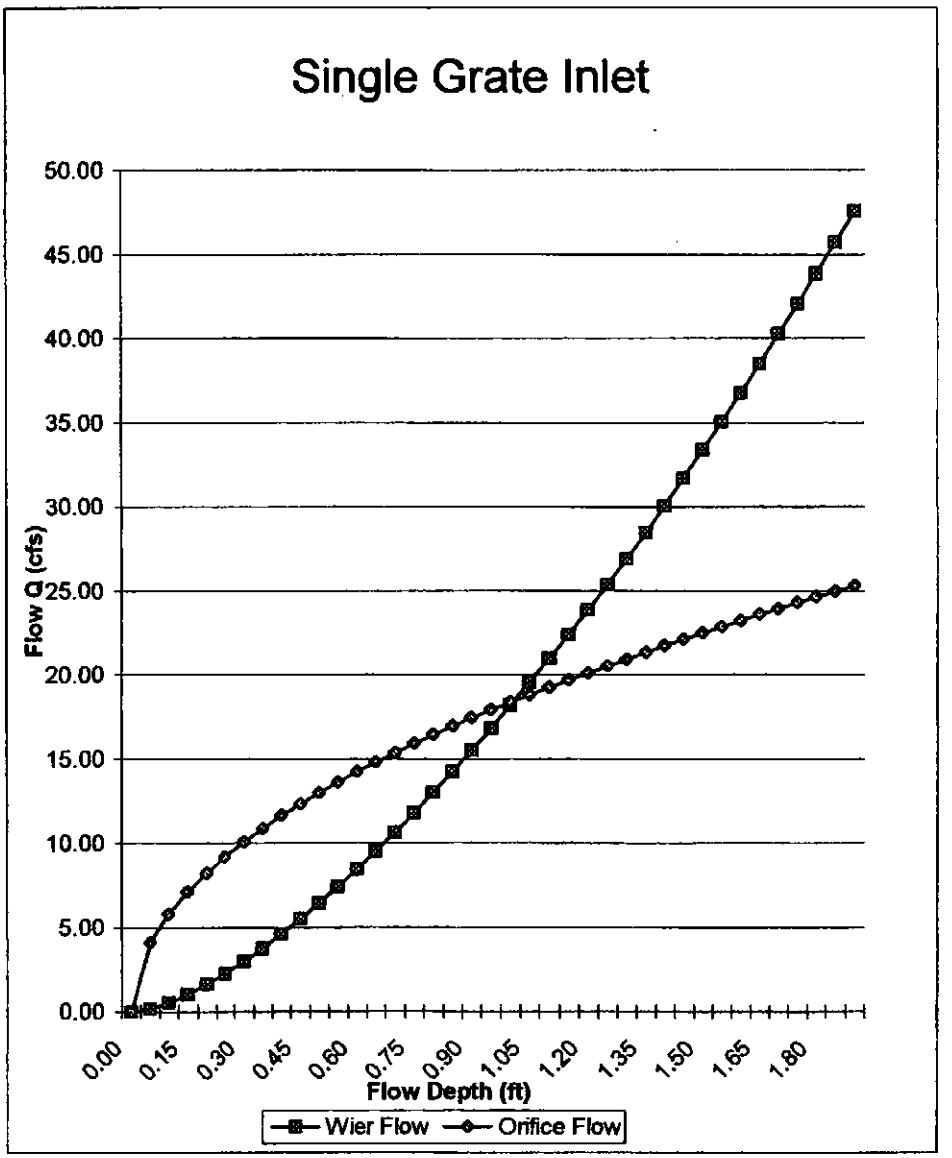
Single Grate (MAG 535 - type F)

P = 12.11 ft

A = 6.83 sq.ft.

where,
P = Perimeter of Catchbasin minus
area of longitudinal & lateral bars
A = Total area of grate minus
area of longitudinal & lateral bars

Depth (ft)	Weir Qi (cfs)	Orifice Qi (cfs)
0.00	**0.00**	0.00
0.05	**0.20**	4.11
0.10	**0.57**	5.81
0.15	**1.06**	7.11
0.20	**1.62**	8.22
0.25	**2.27**	9.19
0.30	**2.98**	10.06
0.35	**3.76**	10.87
0.40	**4.60**	11.62
0.45	**5.48**	12.32
0.50	**6.42**	12.99
0.55	**7.41**	13.62
0.60	**8.44**	14.23
0.65	**9.52**	14.81
0.70	**10.64**	15.37
0.75	**11.80**	15.91
0.80	**13.00**	16.43
0.85	**14.24**	16.94
0.90	**15.51**	17.43
0.95	**16.82**	17.91
1.00	**18.17**	18.37
1.05	19.54	**18.82**
1.10	20.96	**19.27**
1.15	22.40	**19.70**
1.20	23.88	**20.12**
1.25	25.39	**20.54**
1.30	26.92	**20.95**
1.35	28.49	**21.34**
1.40	30.09	**21.74**
1.45	31.72	**22.12**
1.50	33.37	**22.50**
1.55	35.05	**22.87**
1.60	36.76	**23.24**
1.65	38.50	**23.60**
1.70	40.26	**23.95**
1.75	42.05	**24.30**
1.80	43.87	**24.65**
1.85	45.71	**24.99**
1.90	47.57	**25.32**



Weir/Orifice Flow Capacities of Double Grate Inlet

Weir EQ. $Q_i = C_w P d^{1.5}$ **Orifice EQ.** $Q_i = C_o A (2gd)^{0.5}$

Where: $C_w = 3.0$ **and** $C_o = 0.67$

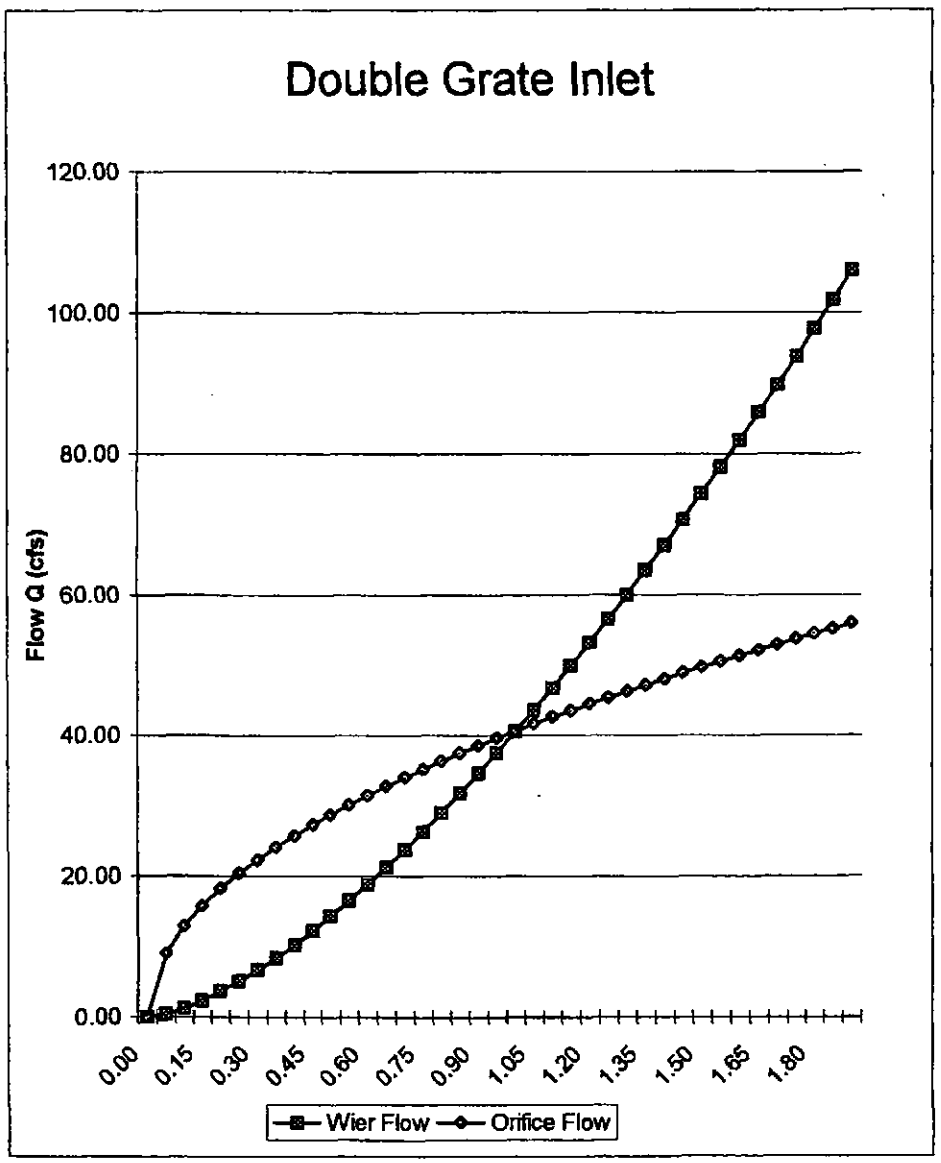
Double Grate

P = 13.50 ft

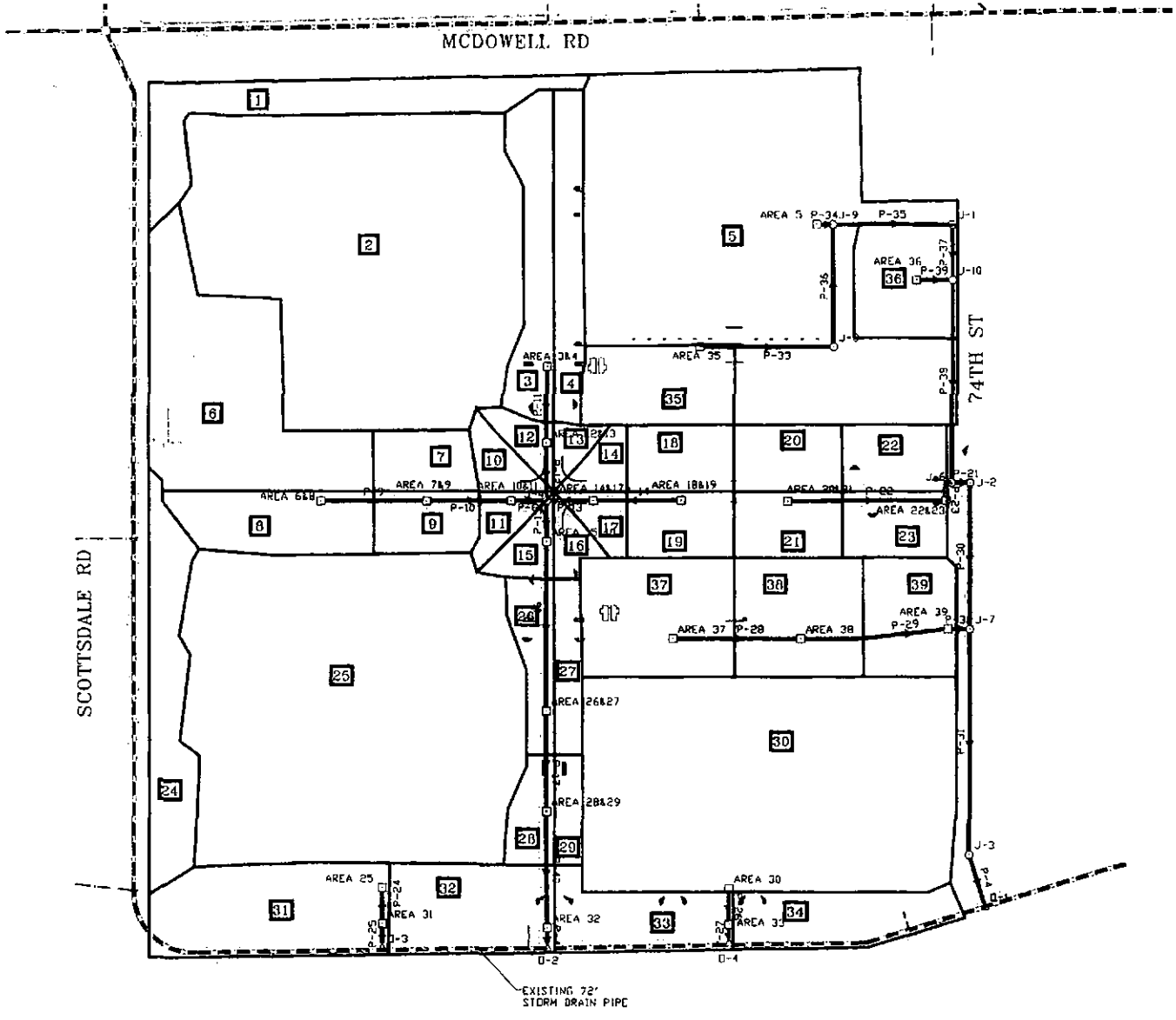
A = 7.56 ft^2

Grate Opening

Depth (ft)	Weir Qi (cfs)	Orifice Qi (cfs)
0.00	0.00	0.00
0.05	0.45	9.09
0.10	1.28	12.85
0.15	2.35	15.74
0.20	3.62	18.18
0.25	5.06	20.32
0.30	6.65	22.26
0.35	8.39	24.05
0.40	10.25	25.71
0.45	12.23	27.27
0.50	14.32	28.74
0.55	16.52	30.15
0.60	18.82	31.49
0.65	21.22	32.77
0.70	23.72	34.01
0.75	26.31	35.20
0.80	28.98	36.36
0.85	31.74	37.48
0.90	34.58	38.56
0.95	37.50	39.62
1.00	40.50	40.65
1.05	43.58	41.65
1.10	46.72	42.63
1.15	49.95	43.59
1.20	53.24	44.53
1.25	56.60	45.45
1.30	60.03	46.35
1.35	63.53	47.23
1.40	67.09	48.10
1.45	70.71	48.95
1.50	74.40	49.78
1.55	78.15	50.61
1.60	81.97	51.42
1.65	85.84	52.21
1.70	89.77	53.00
1.75	93.76	53.77
1.80	97.81	54.54
1.85	101.91	55.29
1.90	106.07	56.03



Maximum Depth = 1.14 ft. Maximum Inlet capacity = 0.5*43.4 = 21.7 cfs



ASU SCOTTSDALE CENTER

STORMCAD EXHIBIT

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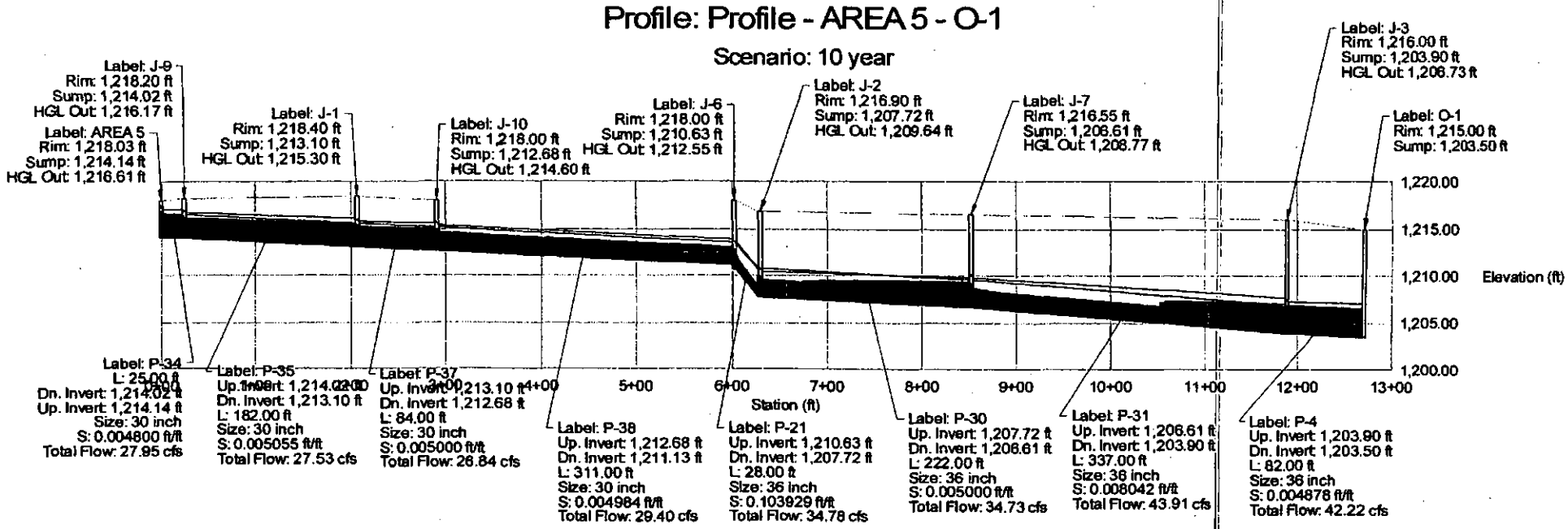
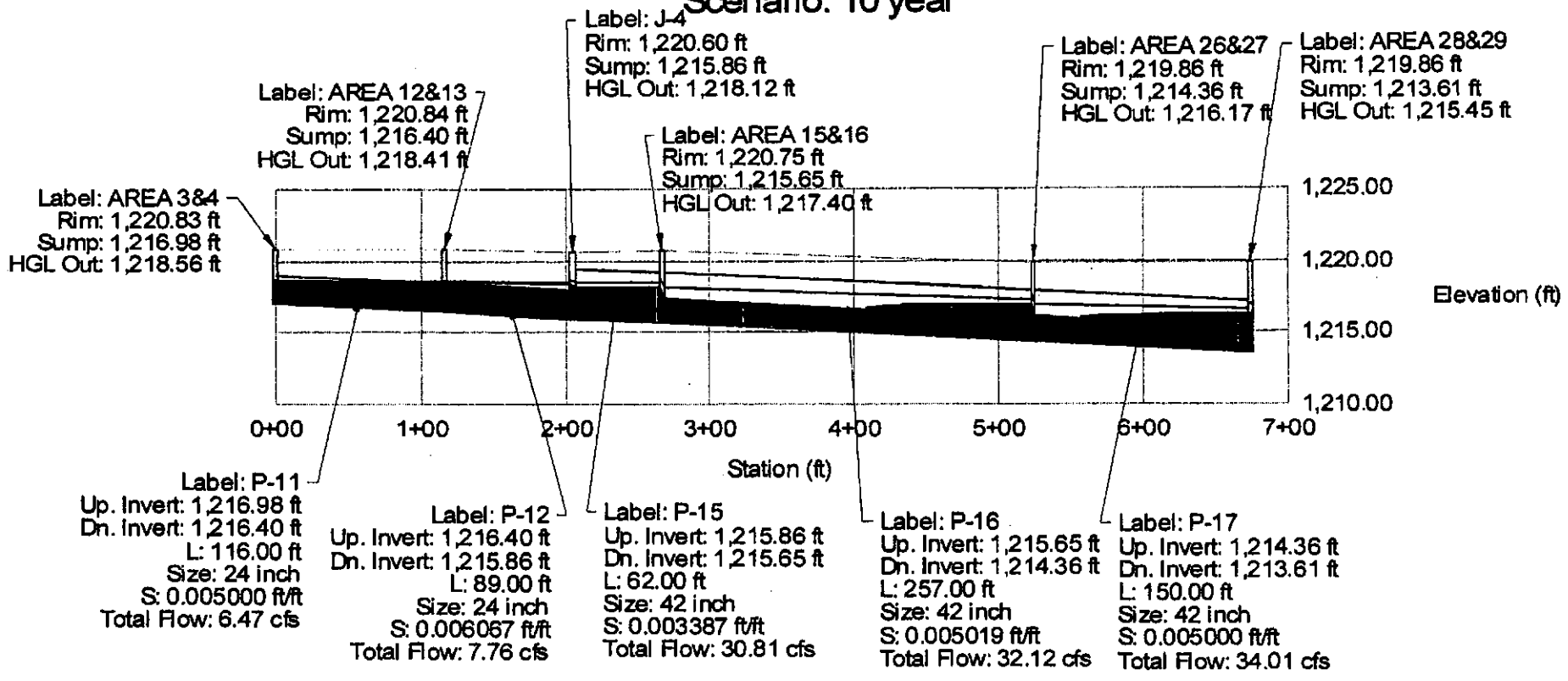
DESIGNER	J. HEYWOOD
CAD TECHNICIAN	D. SAYRE
SCALE (HORZ)	SCALE: HORZ
SCALE (VERT)	SCALE: VERT
DATE	1-21-2006
JOB NUMBER	052362
SHEET	1 OF 1

Profile
Scenario: 10 year



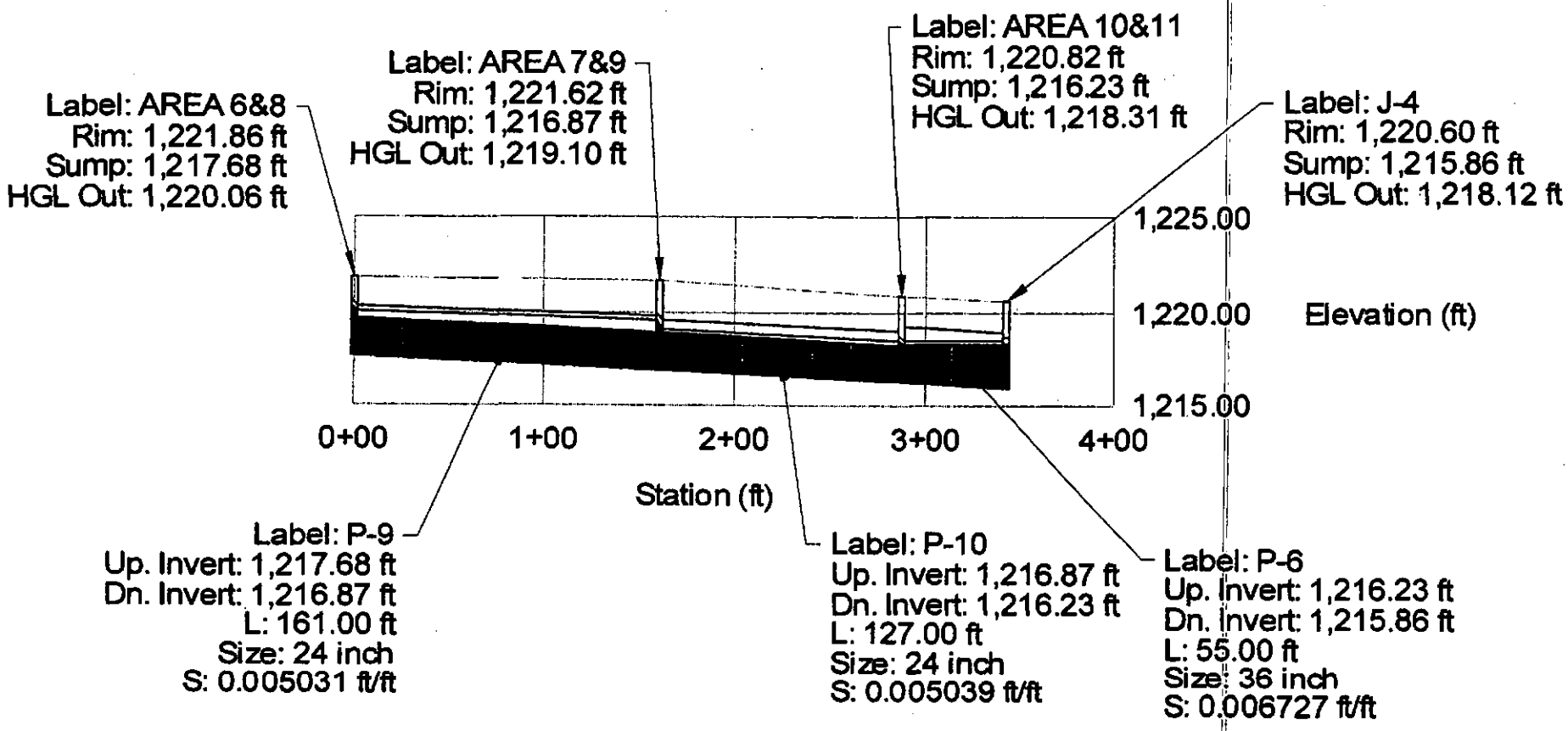
Profile: Profile - AREA 3 - O-3

Scenario: 10 year



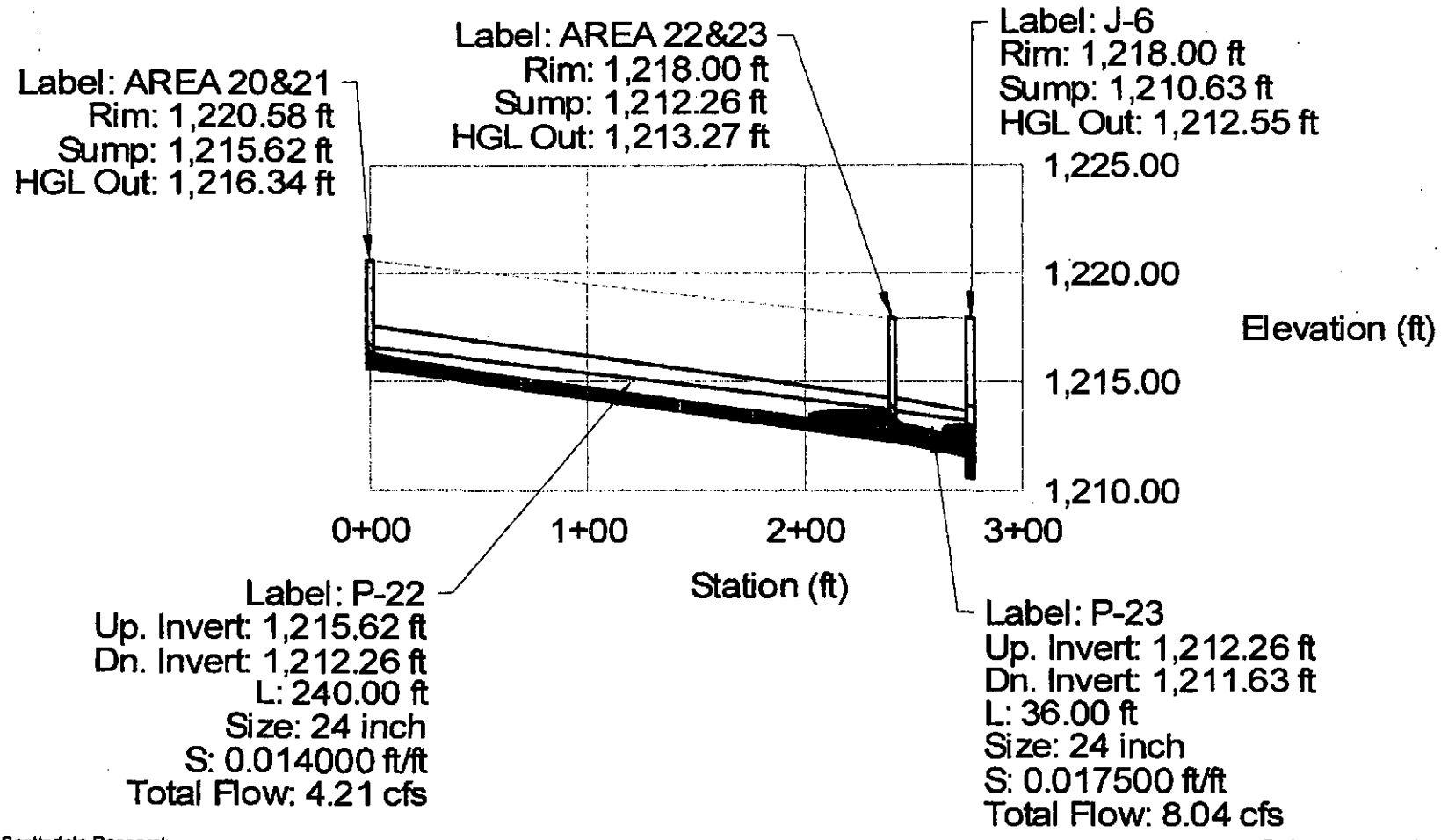
Profile: Profile - AREA 6 - J4

Scenario: 10 year



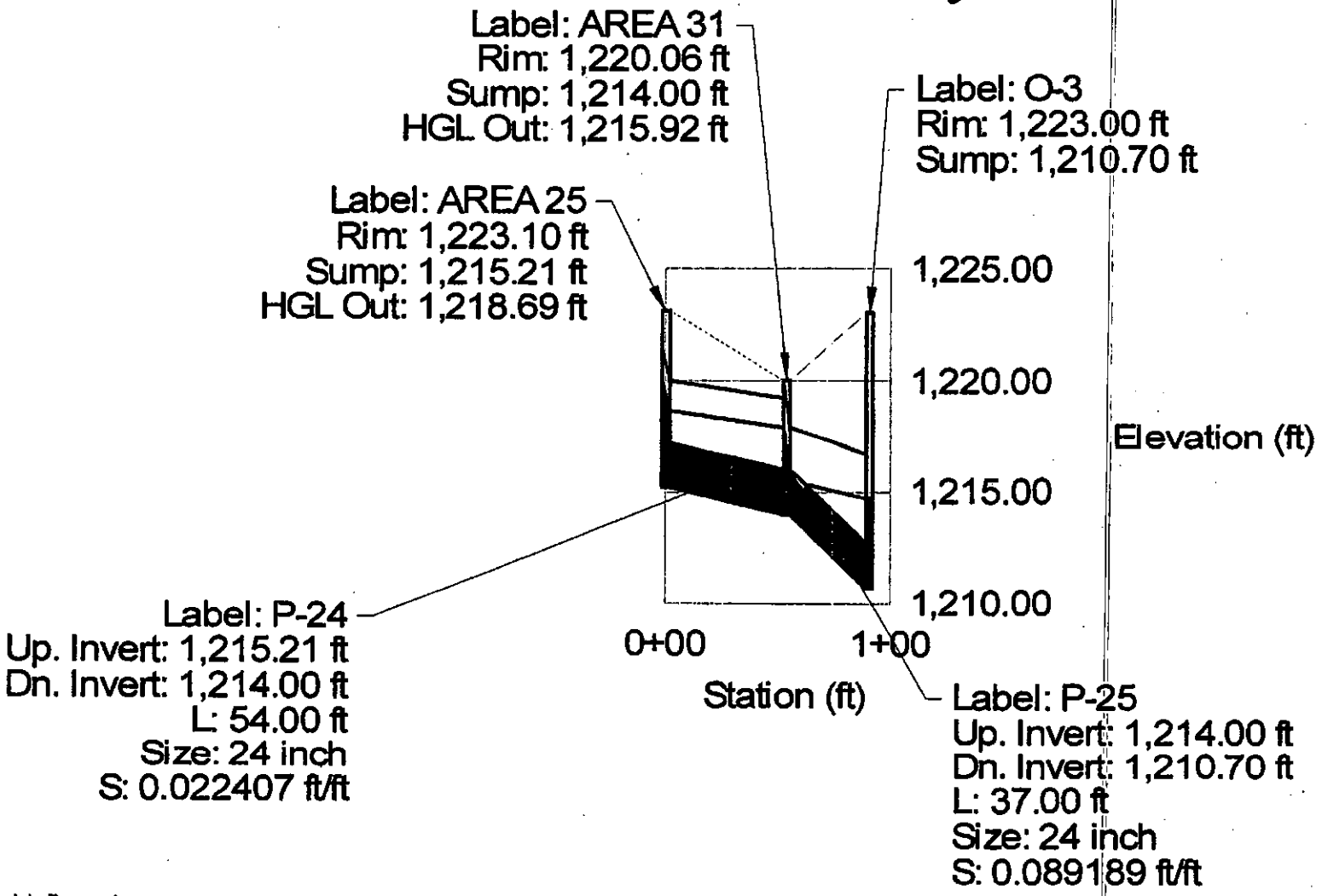
Profile: Profile - AREA 21 - J6

Scenario: 10 year



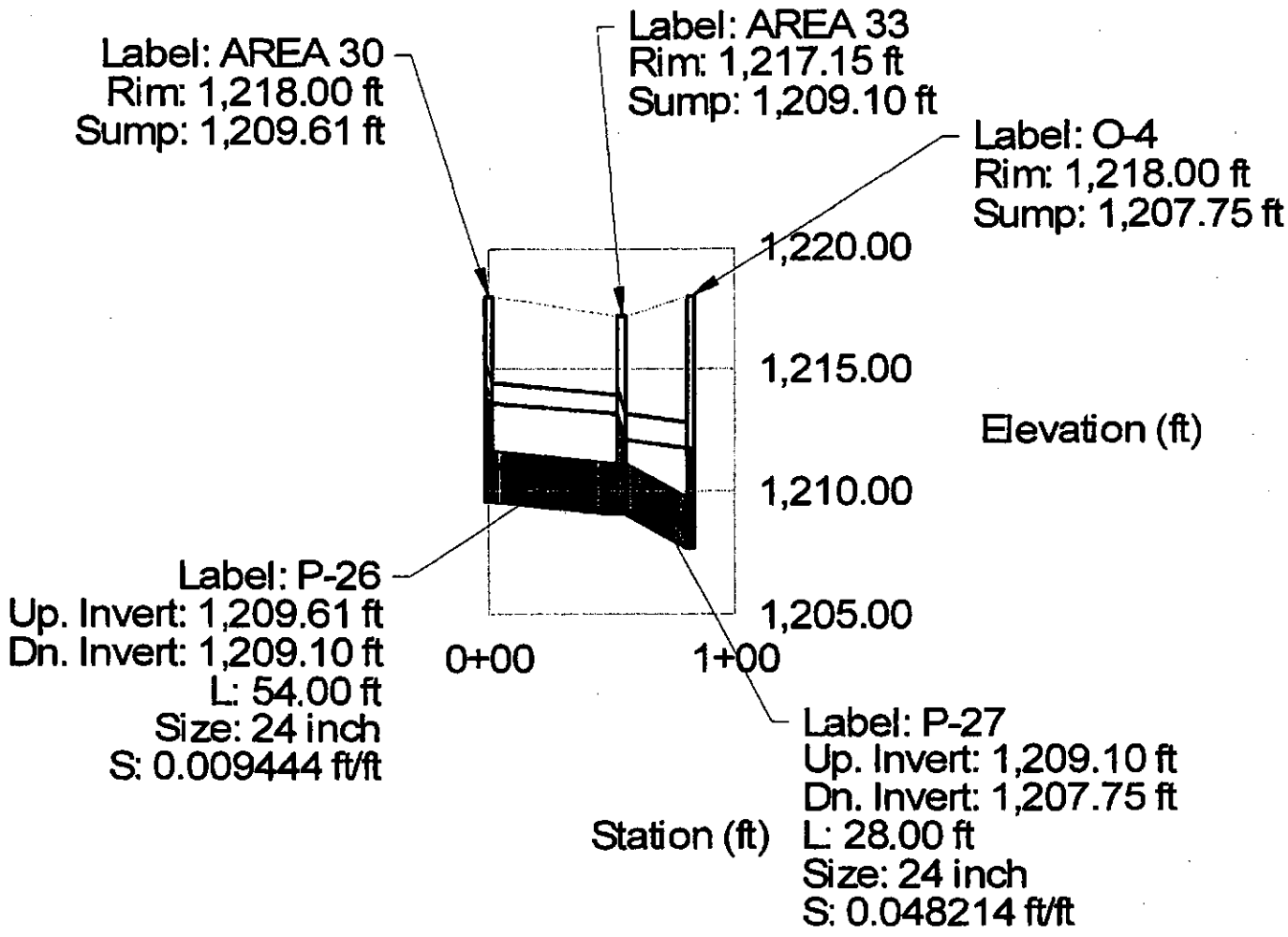
Profile: Profile - AREA 25 - O3

Scenario: 10 year



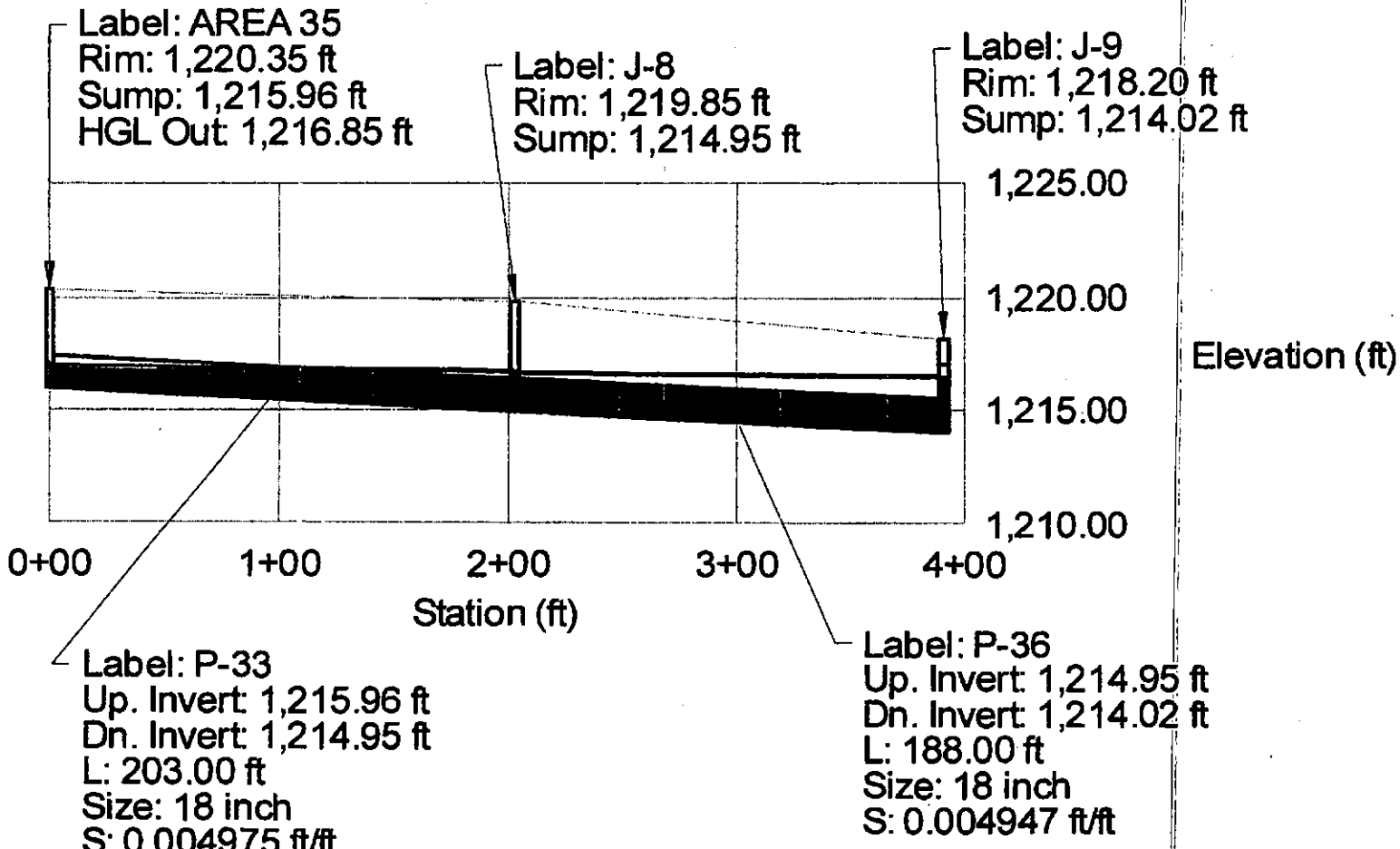
Profile: Profile - AREA 30 - O4

Scenario: 10 year



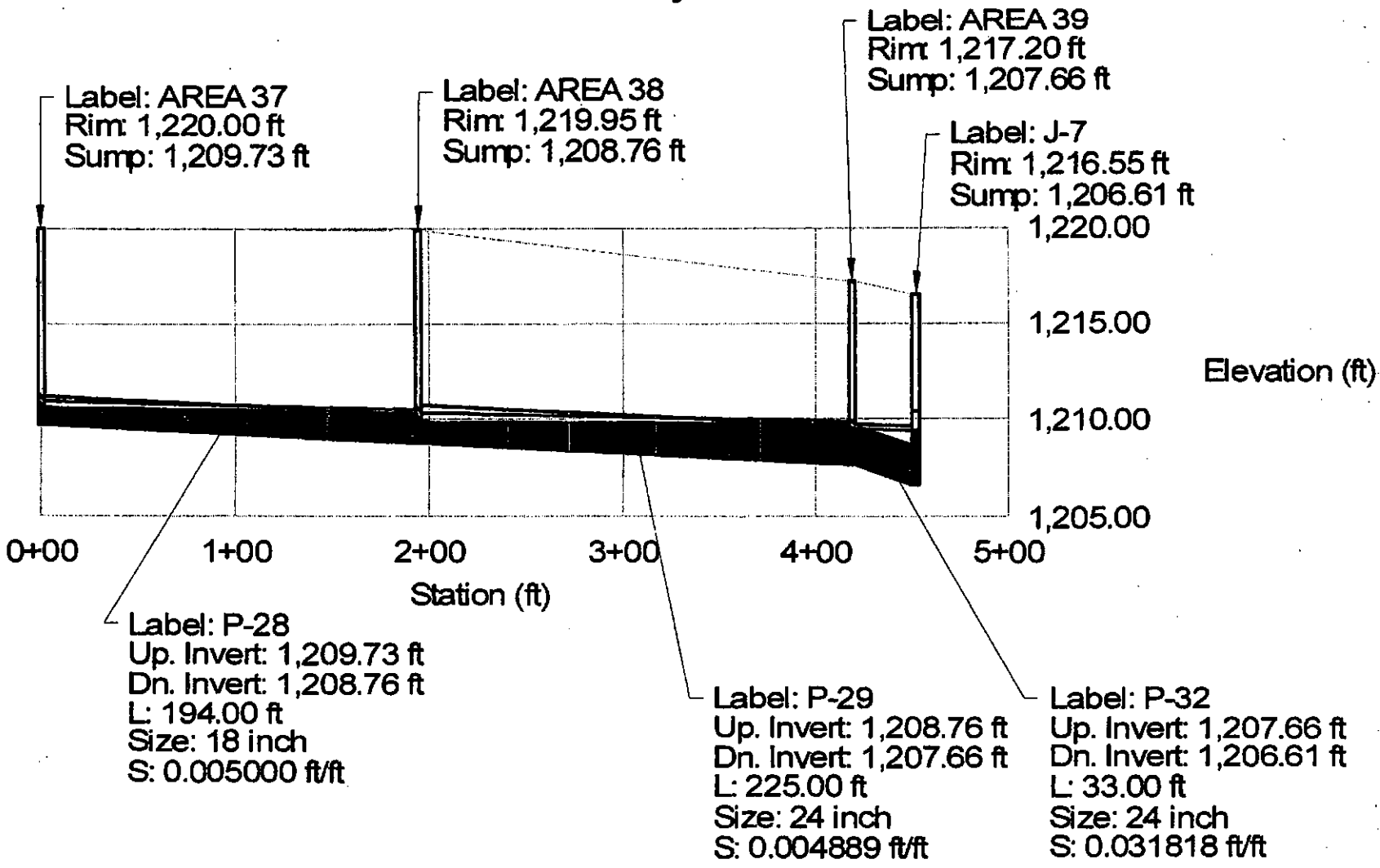
Profile: Profile - AREA 35 - J9

Scenario: 10 year



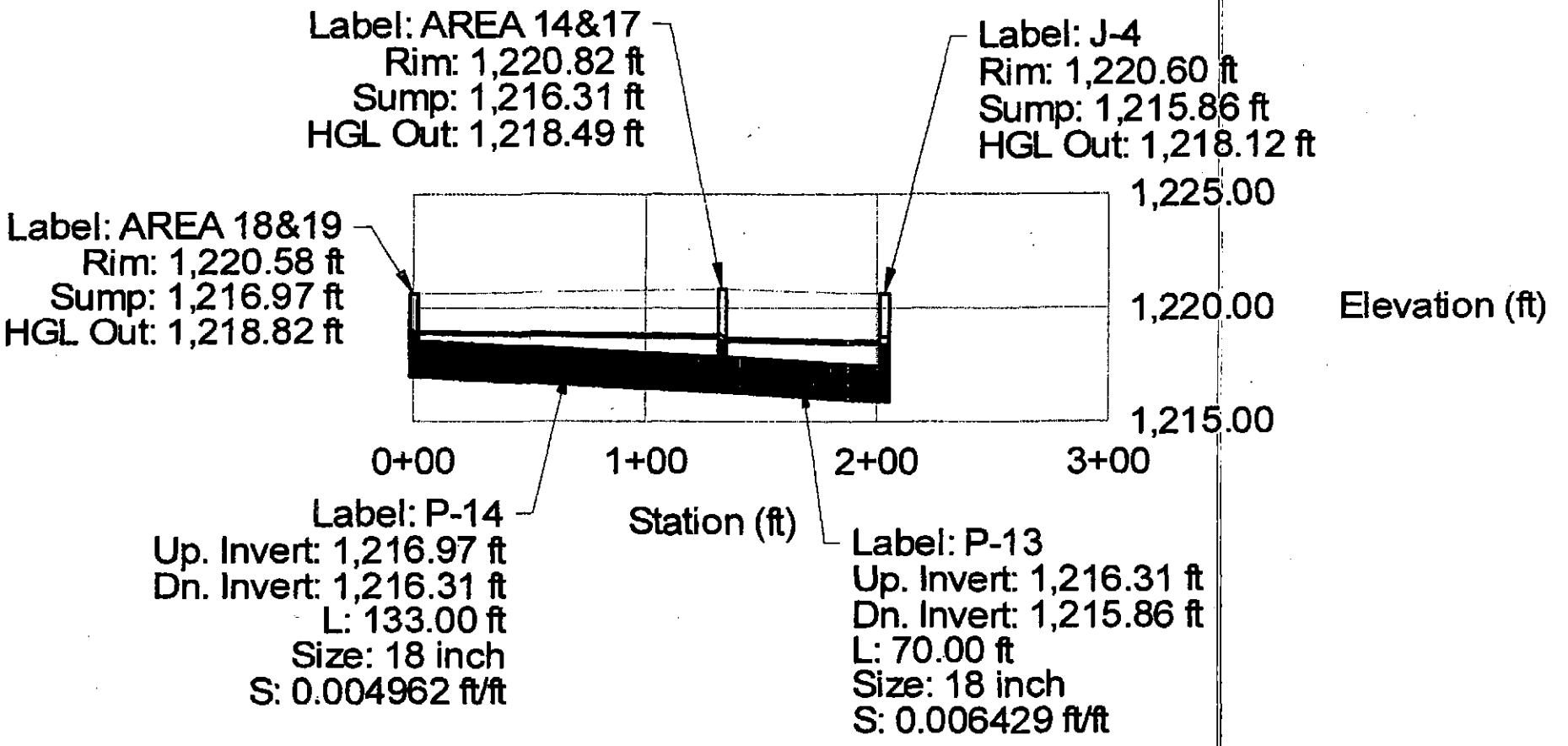
Profile: Profile - AREA 37 - J7

Scenario: 10 year



Profile: Profile - AREA18 - J4

Scenario: 10 year



Wood Patel & Associates Inc
37 Brookside Road Waterbury, CT 06708 USA +1-203-755-1666

Scenario: 10 year

Inlet Report

Label	Sump Elevation (ft)	Rim Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)	Energy Grade Line In (ft)	Energy Grade Line Out (ft)	Intercepted Tc (min)	Inlet C	Intercepted Rational Flow (cfs)	Intercepted Intensity (in/hr)	System Flow Time (min)	Total Flow (cfs)
AREA 3&4	1,216.98	1,220.83	1,218.65	1,218.56	1,218.74	1,218.65	5.00	0.90	6.47	6.10	5.00	6.47
AREA 5	1,214.14	1,218.03	1,217.12	1,216.61	1,217.62	1,217.12	5.00	0.90	27.95	6.10	5.00	27.95
AREA 6&8	1,217.68	1,221.86	1,220.35	1,220.06	1,220.65	1,220.35	5.00	0.90	13.72	6.10	5.00	13.72
AREA 7&9	1,216.87	1,221.62	1,219.55	1,219.10	1,220.00	1,219.55	5.00	0.90	3.71	6.10	5.61	16.87
AREA 10&11	1,216.23	1,220.82	1,218.50	1,218.31	1,218.69	1,218.50	5.00	0.90	1.94	6.10	6.01	18.34
AREA 12&13	1,216.40	1,220.84	1,218.51	1,218.41	1,218.60	1,218.51	5.00	0.90	1.44	6.10	5.38	7.76
AREA 14&17	1,216.31	1,220.82	1,218.64	1,218.49	1,218.79	1,218.64	5.00	0.90	1.66	6.10	5.94	5.52
AREA 15&16	1,215.65	1,220.75	1,218.09	1,217.40	1,218.78	1,218.09	5.00	0.90	1.72	6.10	6.47	32.12
AREA 18&19	1,216.97	1,220.58	1,218.90	1,218.82	1,218.99	1,218.90	5.00	0.90	4.15	6.10	5.00	4.15
AREA 20&21	1,215.62	1,220.58	1,216.61	1,216.34	1,216.87	1,216.61	5.00	0.90	4.21	6.10	5.00	4.21
AREA 22&23	1,212.26	1,218.00	1,213.67	1,213.27	1,214.06	1,213.67	5.00	0.90	4.10	6.10	5.61	8.04
AREA 25	1,215.21	1,223.10	1,220.03	1,218.69	1,221.37	1,220.03	5.00	0.90	29.16	6.10	5.00	29.16
AREA 26&27	1,214.36	1,219.86	1,216.88	1,216.17	1,217.60	1,216.88	5.00	0.90	3.27	6.10	7.03	34.01
AREA 28&29	1,213.61	1,219.86	1,216.19	1,215.45	1,216.92	1,216.19	5.00	0.90	2.21	6.10	7.36	35.31
AREA 30	1,209.61	1,218.00	1,214.46	1,213.62	1,215.29	1,214.46	5.00	0.90	23.02	6.10	5.00	23.02
AREA 31	1,214.00	1,220.06	1,217.93	1,215.92	1,219.93	1,217.93	5.00	0.90	6.25	6.10	5.10	35.24
AREA 32	1,212.74	1,219.90	1,215.28	1,214.56	1,216.01	1,215.28	5.00	0.00	0.00	0.00	7.73	34.52
AREA 33	1,209.10	1,217.15	1,213.15	1,212.07	1,214.23	1,213.15	5.00	0.90	3.32	6.10	5.12	26.17
AREA 35	1,215.96	1,220.35	1,217.01	1,216.85	1,217.18	1,217.01	5.00	0.90	3.54	6.10	5.00	3.54
AREA 36	1,213.72	1,217.25	1,215.20	1,215.14	1,215.26	1,215.20	5.00	0.90	3.43	6.10	5.00	3.43
AREA 37	1,209.73	1,220.00	1,211.00	1,210.63	1,211.36	1,211.00	5.00	0.90	5.37	6.10	5.00	5.37
AREA 38	1,208.76	1,219.95	1,210.31	1,209.87	1,210.76	1,210.31	5.00	0.90	4.54	6.10	5.66	9.56
AREA 39	1,207.66	1,217.20	1,209.69	1,209.42	1,209.96	1,209.69	5.00	0.90	3.27	6.10	6.33	12.25

Scenario: 10 year

Combined Pipe\Node Report

Label	Upstream Node	Downstream Node	Total System Flow (cfs)	Length (ft)	Section Size	Constructed Slope (ft/ft)	Upstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Invert Elevation (ft)	Downstream Ground Elevation (ft)	Hydraulic Grade Line In (ft)	Hydraulic Grade Line Out (ft)	Energy Grade Line In (ft)	Energy Grade Line Out (ft)
P-4	J-3	O-1	31.66	82.00	36 inch	0.004878	1,203.90	1,216.00	1,203.50	1,215.00	1,205.73	1,205.22	1,206.49	1,206.11
P-6	AREA 10&11	J-4	18.34	55.00	36 inch	0.006727	1,216.23	1,220.82	1,215.86	1,220.60	1,218.31	1,218.32	1,218.50	1,218.46
P-9	AREA 6&8	AREA 7&9	13.72	161.00	24 inch	0.005031	1,217.68	1,221.86	1,216.87	1,221.62	1,220.06	1,219.55	1,220.35	1,219.85
P-10	AREA 7&9	AREA 10&11	16.87	127.00	24 inch	0.005039	1,216.87	1,221.62	1,216.23	1,220.82	1,219.10	1,218.50	1,219.55	1,218.95
P-11	AREA 3&4	AREA 12&13	6.47	116.00	24 inch	0.005000	1,216.98	1,220.83	1,216.40	1,220.84	1,218.56	1,218.51	1,218.65	1,218.57
P-12	AREA 12&13	J-4	7.76	89.00	24 inch	0.006067	1,216.40	1,220.84	1,215.86	1,220.60	1,218.41	1,218.32	1,218.51	1,218.42
P-13	AREA 14&17	J-4	5.52	70.00	18 inch	0.006429	1,216.31	1,220.82	1,215.86	1,220.60	1,218.49	1,218.32	1,218.64	1,218.47
P-14	AREA 18&19	AREA 14&17	4.15	133.00	18 inch	0.004962	1,216.97	1,220.58	1,216.31	1,220.82	1,218.82	1,218.64	1,218.90	1,218.72
P-15	J-4	AREA 15&16	30.81	62.00	42 inch	0.003387	1,215.86	1,220.60	1,215.65	1,220.75	1,218.12	1,218.09	1,218.46	1,218.38
P-16	AREA 15&16	AREA 26&27	32.12	257.00	42 inch	0.005019	1,215.65	1,220.75	1,214.36	1,219.86	1,217.40	1,216.88	1,218.09	1,217.17
P-17	AREA 26&27	AREA 28&29	34.01	150.00	42 inch	0.005000	1,214.36	1,219.86	1,213.61	1,219.86	1,216.17	1,216.19	1,216.88	1,216.50
P-21	J-6	J-2	33.77	28.00	36 inch	0.103929	1,210.63	1,218.00	1,207.72	1,216.90	1,212.52	1,210.09	1,213.33	1,210.58
P-22	AREA 20&21	AREA 22&23	4.21	240.00	24 inch	0.014000	1,215.62	1,220.58	1,212.26	1,218.00	1,216.34	1,213.67	1,216.61	1,213.72
P-23	AREA 22&23	J-6	8.04	36.00	24 inch	0.017500	1,212.26	1,218.00	1,211.63	1,218.00	1,213.27	1,213.00	1,213.67	1,213.19
P-24	AREA 25	AREA 31	29.16	54.00	24 inch	0.022407	1,215.21	1,223.10	1,214.00	1,220.06	1,218.69	1,217.93	1,220.03	1,219.27
P-25	AREA 31	O-3	35.24	37.00	24 inch	0.089189	1,214.00	1,220.06	1,210.70	1,223.00	1,215.92	1,214.70	1,217.93	1,216.66
P-26	AREA 30	AREA 33	23.02	54.00	24 inch	0.009444	1,209.61	1,218.00	1,209.10	1,217.15	1,213.62	1,213.15	1,214.46	1,213.98
P-27	AREA 33	O-4	26.17	28.00	24 inch	0.048214	1,209.10	1,217.15	1,207.75	1,218.00	1,212.07	1,211.75	1,213.15	1,212.83
P-28	AREA 37	AREA 38	0.00	194.00	18 inch	0.005000	1,209.73	1,220.00	1,208.76	1,219.95	1,209.73	1,208.94	1,209.73	1,208.94
P-29	AREA 38	AREA 39	0.00	225.00	24 inch	0.004889	1,208.76	1,219.95	1,207.66	1,217.20	1,208.94	1,208.94	1,208.94	1,208.94
P-30	J-2	J-7	33.73	222.00	36 inch	0.005000	1,207.72	1,216.90	1,206.61	1,216.55	1,209.61	1,208.94	1,210.41	1,209.45
P-31	J-7	J-3	32.82	337.00	36 inch	0.008042	1,206.61	1,216.55	1,203.90	1,216.00	1,208.47	1,206.19	1,209.26	1,206.69
P-32	AREA 39	J-7	0.00	33.00	24 inch	0.031818	1,207.66	1,217.20	1,206.61	1,216.55	1,208.94	1,208.94	1,208.94	1,208.94
P-33	AREA 35	J-8	0.00	203.00	18 inch	0.004975	1,215.96	1,220.35	1,214.95	1,219.85	1,216.39	1,216.39	1,216.39	1,216.39
P-34	AREA 5	J-9	27.95	25.00	30 inch	0.004800	1,214.14	1,218.03	1,214.02	1,218.20	1,216.46	1,216.39	1,217.00	1,216.91
P-35	J-9	J-1	27.86	182.00	30 inch	0.005055	1,214.02	1,218.20	1,213.10	1,218.40	1,215.95	1,215.48	1,216.68	1,216.00
P-36	J-8	J-9	0.00	188.00	18 inch	0.004947	1,214.95	1,219.85	1,214.02	1,218.20	1,216.39	1,216.39	1,216.39	1,216.39
P-37	J-1	J-10	27.25	84.00	30 inch	0.023452	1,213.10	1,218.40	1,211.13	1,218.00	1,215.08	1,214.95	1,215.75	1,215.43
P-38	J-10	J-6	27.09	311.00	30 inch	0.004984	1,212.68	1,218.00	1,211.13	1,218.00	1,214.47	1,213.00	1,215.28	1,213.74
P-39	AREA 36	J-10	0.00	55.00	18 inch	0.018909	1,213.72	1,217.25	1,212.68	1,218.00	1,214.95	1,214.95	1,214.95	1,214.95
P-40	AREA 28&29	AREA 32'	35.31	175.00	42 inch	0.004971	1,213.61	1,219.86	1,212.74	1,219.90	1,215.45	1,215.28	1,216.19	1,215.63
P-41	AREA 32'	O-2	34.52	31.00	42 inch	0.177097	1,212.74	1,219.90	1,207.25	1,220.08	1,214.56	1,213.25	1,215.28	1,213.45

Scenario: 10 year

DOT Report

Label	-Node- Upstream Downstream	Upstream Inlet Area (acres)	Upstream Inlet CA (acres)	Upstream Calculated System CA (acres)	System Flow Time (min)	System Intensity (in/hr)	Total Flow (cfs)	-Ground- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)	Section Discharge Capacity (cfs)	-Section- Shape Size	Length (ft)	Average Velocity (ft/s)
P-11	AREA 3&4	1.17	1.05	1.05	5.00	6.10	6.47	1,220.83	1,218.56	6.47	Circular	116.00	5.12
	AREA 12&13							1,220.84	1,218.51	17.33	24 inch		
P-34	AREA 5	5.05	4.55	4.55	5.00	6.10	27.95	1,218.03	1,216.46	27.95	Circular	25.00	7.10
	J-9							1,218.20	1,216.39	30.78	30 inch		
P-9	AREA 6&8	2.48	2.23	2.23	5.00	6.10	13.72	1,221.86	1,220.06	13.72	Circular	161.00	4.37
	AREA 7&9							1,221.62	1,219.55	17.38	24 inch		
P-10	AREA 7&9	0.67	0.60	2.84	5.61	5.90	16.87	1,221.62	1,219.10	16.87	Circular	127.00	5.37
	AREA 10&11							1,220.82	1,218.50	17.40	24 inch		
P-6	AREA 10&11	0.35	0.32	3.15	6.01	5.78	18.34	1,220.82	1,218.31	18.34	Circular	55.00	7.39
	J-4							1,220.60	1,218.32	59.26	36 inch		
P-12	AREA 12&13	0.26	0.23	1.29	5.38	5.98	7.76	1,220.84	1,218.41	7.76	Circular	89.00	2.47
	J-4							1,220.60	1,218.32	19.09	24 inch		
P-13	AREA 14&17	0.30	0.27	0.95	5.94	5.80	5.52	1,220.82	1,218.49	5.52	Circular	70.00	3.13
	J-4							1,220.60	1,218.32	9.12	18 inch		
P-16	AREA 15&16	0.31	0.28	5.66	6.47	5.63	32.12	1,220.75	1,217.40	32.12	Circular	257.00	7.66
	AREA 26&27							1,219.86	1,216.88	77.22	42 inch		
P-14	AREA 18&19	0.75	0.68	0.68	5.00	6.10	4.15	1,220.58	1,218.82	4.15	Circular	133.00	2.35
	AREA 14&17							1,220.82	1,218.64	8.02	18 inch		
P-22	AREA 20&21	0.76	0.68	0.68	5.00	6.10	4.21	1,220.58	1,216.34	4.21	Circular	240.00	6.57
	AREA 22&23							1,218.00	1,213.67	29.00	24 inch		
P-23	AREA 22&23	0.74	0.67	1.35	5.61	5.91	8.04	1,218.00	1,213.27	8.04	Circular	36.00	8.56
	J-6							1,218.00	1,213.00	32.42	24 inch		
P-24	AREA 25	5.27	4.74	4.74	5.00	6.10	29.16	1,223.10	1,218.69	29.16	Circular	54.00	9.28
	AREA 31							1,220.06	1,217.93	36.68	24 inch		
P-17	AREA 26&27	0.59	0.53	6.19	7.03	5.45	34.01	1,219.86	1,216.17	34.01	Circular	150.00	7.76
	AREA 28&29							1,219.86	1,216.19	77.07	42 inch		
P-40	AREA 28&29	0.40	0.36	6.55	7.36	5.35	35.31	1,219.86	1,215.45	35.31	Circular	175.00	7.82
	AREA 32'							1,219.90	1,215.28	76.85	42 inch		
P-26	AREA 30	4.16	3.74	3.74	5.00	6.10	23.02	1,218.00	1,213.62	23.02	Circular	54.00	7.33
	AREA 33							1,217.15	1,213.15	23.82	24 inch		
P-25	AREA 31	1.13	1.02	5.76	5.10	6.07	35.24	1,220.06	1,215.92	35.24	Circular	37.00	23.08
	O-3							1,223.00	1,214.70	73.19	24 inch		
P-41	AREA 32'	0.78	0.00	6.55	7.73	5.23	34.52	1,219.90	1,214.56	34.52	Circular	31.00	28.04
	O-2							1,220.08	1,213.25	458.65	42 inch		
P-27	AREA 33	0.60	0.54	4.28	5.12	6.06	26.17	1,217.15	1,212.07	26.17	Circular	28.00	8.33

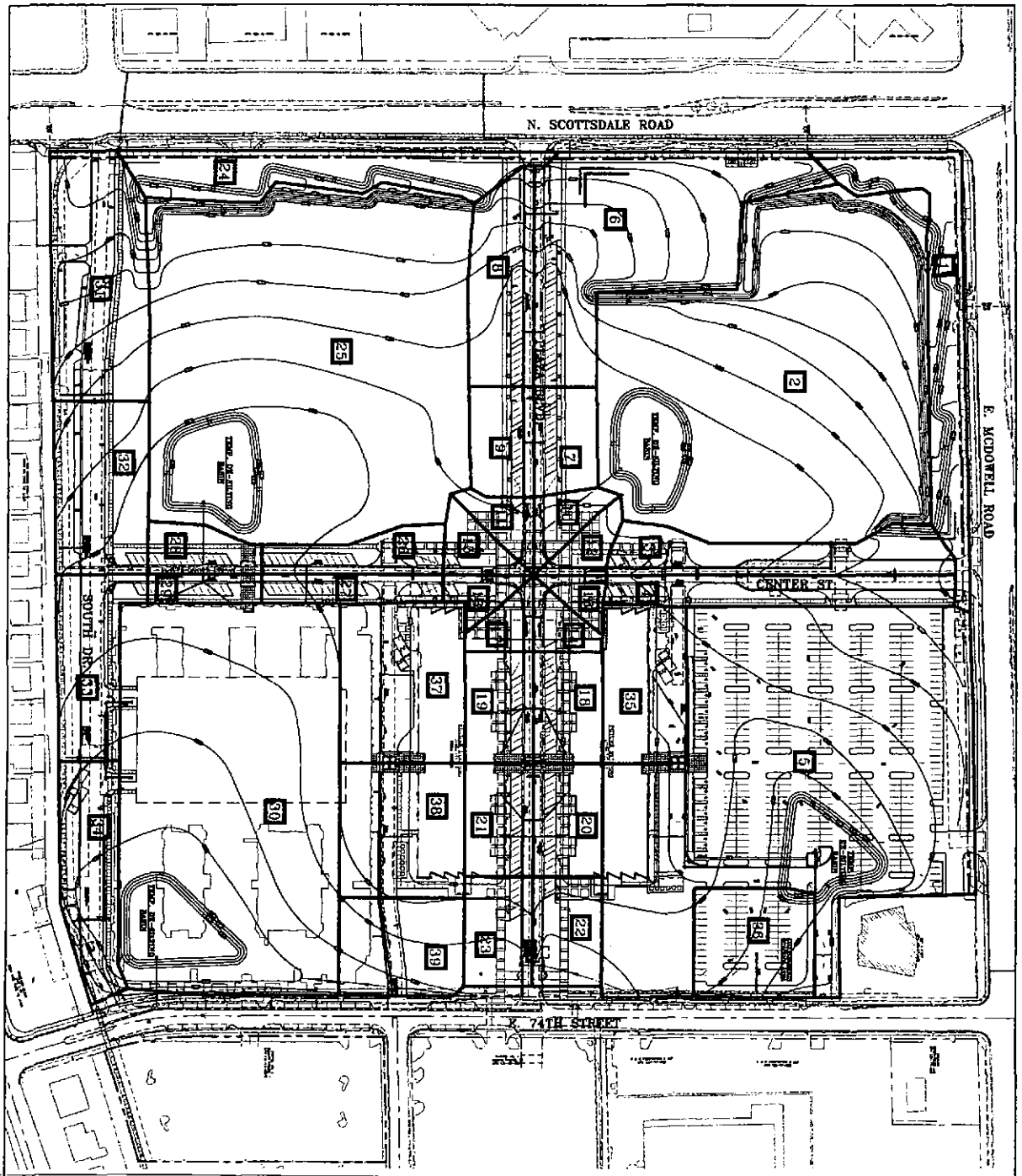
Scenario: 10 year

DOT Report

Label	-Node- Upstream Downstream	Upstream Inlet Area (acres)	Upstream Inlet CA (acres)	Upstream Calculated System CA (acres)	System Flow Time (min)	System Intensity (in/hr)	Total Flow (cfs)	-Ground- Upstream (ft)	Downstream (ft)	-HGL- Upstream (ft)	Downstream (ft)	Section Discharge Capacity (cfs)	Section Shape Size	Length (ft)	Average Velocity (ft/s)
	O-4							1,218.00		1,211.75		53.81	24 inch		
P-33	AREA 35	0.64	0.00	0.00	0.00	0.00	0.00	1,220.35		1,216.39		0.00	Circular	203.00	0.00
	J-8							1,219.85		1,216.39		8.03	18 inch		
P-39	AREA 36	0.62	0.00	0.00	0.00	0.00	0.00	1,217.25		1,214.95		0.00	Circular	55.00	0.00
	J-10							1,218.00		1,214.95		15.65	18 inch		
P-28	AREA 37	0.97	0.00	0.00	0.00	0.00	0.00	1,220.00		1,209.73		0.00	Circular	194.00	0.00
	AREA 38							1,219.95		1,208.94		8.05	18 inch		
P-29	AREA 38	0.82	0.00	0.00	0.00	0.00	0.00	1,219.95		1,208.94		0.00	Circular	225.00	0.00
	AREA 39							1,217.20		1,208.94		17.13	24 inch		
P-32	AREA 39	0.59	0.00	0.00	0.00	0.00	0.00	1,217.20		1,208.94		0.00	Circular	33.00	0.00
	J-7							1,216.55		1,208.94		43.71	24 inch		
P-37	J-1	N/A	N/A	4.55	5.48	5.95	27.25	1,218.40		1,215.08		27.25	Circular	84.00	13.09
	J-10							1,218.00		1,214.95		68.05	30 inch		
P-30	J-2	N/A	N/A	5.89	6.32	5.68	33.73	1,216.90		1,209.61		33.73	Circular	222.00	7.72
	J-7							1,216.55		1,208.94		51.09	36 inch		
P-4	J-3	N/A	N/A	5.89	7.41	5.33	31.66	1,216.00		1,205.73		31.66	Circular	82.00	7.54
	O-1							1,215.00		1,205.22		50.46	36 inch		
P-15	J-4	N/A	N/A	5.38	6.32	5.68	30.81	1,220.60		1,218.12		30.81	Circular	62.00	6.54
	AREA 15&16							1,220.75		1,218.09		63.43	42 inch		
P-21	J-6	N/A	N/A	5.89	6.30	5.68	33.77	1,218.00		1,212.52		33.77	Circular	28.00	23.47
	J-2							1,216.90		1,210.09		232.93	36 inch		
P-31	J-7	N/A	N/A	5.89	6.80	5.52	32.82	1,216.55		1,208.47		32.82	Circular	337.00	9.20
	J-3							1,216.00		1,206.19		64.79	36 inch		
P-36	J-8	N/A	N/A	0.00	0.00	0.00	0.00	1,219.85		1,216.39		0.00	Circular	188.00	0.00
	J-9							1,218.20		1,216.39		8.00	18 inch		
P-35	J-9	N/A	N/A	4.55	5.06	6.08	27.86	1,218.20		1,215.95		27.86	Circular	182.00	7.26
	J-1							1,218.40		1,215.48		31.59	30 inch		
P-38	J-10	N/A	N/A	4.55	5.58	5.91	27.09	1,218.00		1,214.47		27.09	Circular	311.00	7.19
	J-6							1,218.00		1,213.00		31.37	30 inch		

APPENDIX 5

Drainage Map



ASU SCOTTSDALE CENTER

INFRASTRUCTURE PLAN

DRAINAGE MAP

APPENDIX 6

Memorandum by EEC Dated April 19, 2005

Engineering and Environmental Consultants, Inc.
3003 North Central Avenue, Suite 600, Phoenix, Arizona 85012-2905
Tel: (602) 248-7702 Fax: (602)248-7851

MEMORANDUM

To: William Haas

Date: April 19, 2005

Copy:

From: Lloyd Vick

Project No. 305002.02

Project: ASU Scottsdale Center for New Technology and Innovation

Subject: Drainage Design Memorandum for Re-development of the Los Arcos Mall Site

This memorandum includes a brief description of the historic Los Arcos Mall Drainage patterns and a recommendation for drainage design for the re-development of this site.

History and Description of the Los Arcos Mall site

The site consists of approximately 37-acres and is located at the southeast corner of Scottsdale and McDowell Roads. The site is bounded by Scottsdale Road on the west, McDowell Road on the north, 74th Street on the east, and an alley adjoining a multi-family residential complex on the south. The site slopes generally to the east toward Indian Bend Wash.

Until the time of its demolition, Los Arcos Mall had been located on the site for more than 30 years. The mall was located in the center of the site with customer parking around the perimeter. The parking lots drained to the adjacent streets.

Los Arcos Mall Drainage

The Los Arcos Mall site did not include a storm drain system or any measurable storm water storage facilities. The site was developed before any storm water retention requirements were in effect. From aerial photos and contours of the site, there appears to have been three general outfalls. These are: Scottsdale Road to the west, McDowell Road to the north, and 74th Street to the east. Storm water runoff from the buildings and parking lots would surface flow across the site and discharge into the adjacent streets. The following table is based upon rational method calculations of the discharge to each of these outfalls.

Table 1 Approximate Peak Discharges from Los Arcos Mall Site

discharge to:	Drainage Area [acres]	10-year [cfs]	100-year [cfs]
Scottsdale Road	8.8	48	91
McDowell Road	7.8	43	81
74th Street	20.4	103	196

The City storm drain system includes 1) a 6-foot by 6-foot box culvert in McDowell Road from Scottsdale Road east to the outfall in Indian Bend Wash, 2) a 60-inch storm drain in Scottsdale Road that runs from McDowell Road to the southwest corner of the Los Arcos Mall site and, 3) a 72-inch storm drain from the southwest corner of Los Arcos Mall to 74th Street. The 72-inch pipe continues east to Miller Road where it increases to a 78-inch diameter and runs south to Roosevelt Street, then east to it's outfall in Indian Bend Wash.

According to the *City of Scottsdale–Storm Water Master Plan and Management Program*, prepared by KVL Consultants Inc., the 72-inch storm drain has sufficient capacity to accept the 10-year flow from the Los Arcos Mall site. The KVL report assumed that Los Arcos Mall would discharge to the pipe at the southeast corner of the site where it crosses 74th Street. From runoff data included in the KVL report, the 10-year peak discharge that was assumed to discharge from the site, into the 72-inch pipe, was 122 cfs.

The City has planned a new 42-inch storm drain in Scottsdale Road. This new storm drain is part of the City's 2005 C.I.P. program. The storm drain will begin at the southwest corner of the Los Arcos Mall site in Scottsdale Road and runs to the south to McKellips Road, then east to Indian Bend Wash. This new storm drain could potentially be considered as an additional outfall for storm water runoff from the western portion of the site.

Storm Water Storage Requirements

The City's standard storm water storage requirement is the runoff from the 100-year, 2-hour storm. Using a runoff coefficient of 0.9 and rainfall of 2.82 inches, the 37-acre site has a storm water storage requirement of approximately 7.8 acre-feet. A *Request for Stormwater Storage Waiver Form* should be processed to reduce or eliminate the storage requirement. The justification for this waiver request is that the pre-existing Los Arcos Mall site did not provide any appreciable storm water storage. Furthermore, the Mall site was nearly all impervious building rooftops and parking lots. Therefore, any new storm water detention and/or open space built into the re-development of the site will be an improvement and will represent a reduction in runoff leaving the site.

The City is considering a new requirement for storage of the "first flush" to improve storm water quality. The County and other municipalities have adopted this requirement and the City is anticipating doing the same. When this happens, there will be an additional requirement for storage of the first 0.5-inches of runoff. For this particular site, the "first flush" storage requirement would amount to approximately 1.4 acre-feet.

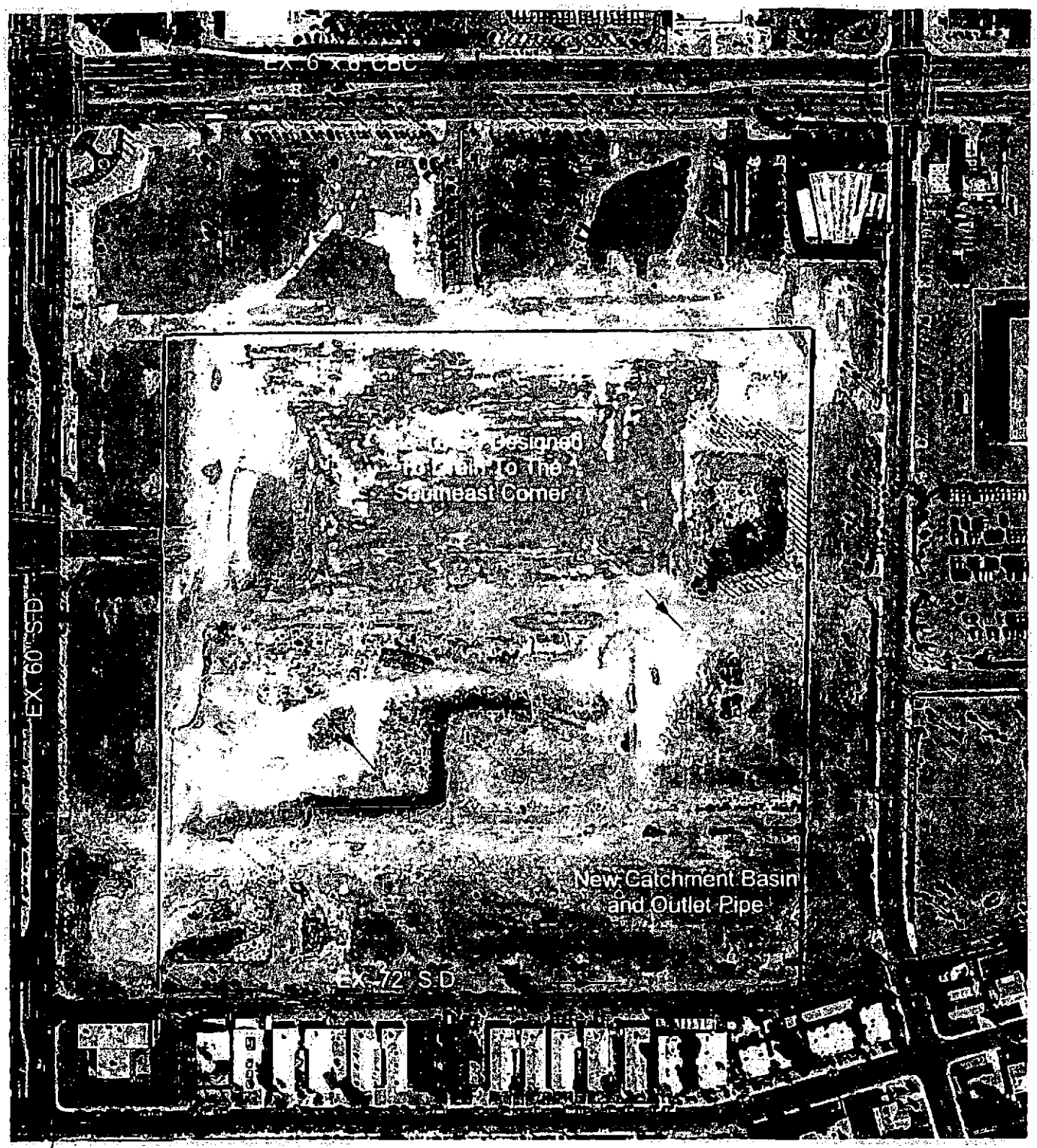
Drainage Design Recommendations

1. Design the site to collect and convey the 10-year peak flow from the parking lots and buildings to a new catchment basin located at the southeast corner of the site.

2. The catchment basin at the southeast corner of the site is to drain to the existing City owned 72-inch storm drain at a rate not to exceed 120 cfs.

3. The 100-year peak discharges from the site shall not exceed the 100-year runoff from the pre-existing Los Arcos Mall site.

If you have any questions regarding this drainage memorandum please contact Lloyd Vick at 602.248.7702.



Planned 42" S.D.
(Scottsdale 2005 C.I.P.)

ASU SCOTTSDALE CENTER FOR NEW TECHNOLOGY AND INNOVATION

CITY OF SCOTTSDALE
APRIL 2005
EXHIBIT 1
SCALE: 1" = 200'