

Eden Landscaping

A Case Study in System Design

by Alan Paradise

Goal of this Case Study

Provide students with practical, “hands on” experience in system design in order to further supplement the “theoretical” knowledge gained through classroom lectures, textbook and lab exercises. The information contained in this document will provide you with an understanding of the practices of a hypothetical business. Your role as a consultant will be to evaluate the information given and create a database design to meet the company's requirements.

Although the assignment will focus on a subset of the information provided, make sure to thoroughly review Eden Landscaping's business. Pay particular attention to the forms used by this business as these will dictate the information you will need to capture in your design.

Case Study Simulation/Scenario

You have been retained to help Frank from Eden Landscaping about his operation and the issues he has keeping up with his store's inventory data. Since your first conversation, you (and your associates) have visited Eden several times, collected a lot of information about their business and have interviewed the key Eden players. You have collected copies of various business documents, lists of providers, and equipment. Anything that may be used in managing the inventory efficiently.

Eden Landscaping, Inc. is a small, privately owned business that provides a variety of commercial and residential lawn and landscaping services. Services include turf maintenance, retaining wall installation, tree trimming and removal, irrigation systems, and various landscaping specialties: tree and shrub planting, mulching, landscape design and installation, paver walkways and patios, decks and fences.

Eden prides itself on top quality service and materials. They are completely dedicated to 100% customer satisfaction. They accomplish this goal by providing personal attention to all their customers, from large commercial clients down to the individual homeowner. They always strive to listen carefully to understand precisely what the customers need.

Current Situation

Frank is struggling to keep up with all the demand. He is frustrated by his schedule. He likes to work on the landscaping crews because he likes to be face-to-face with his customers before, during and after the job. He is a very strong believer in 100% customer satisfaction. He still does all the bids himself.

If you asked Frank to describe his biggest concerns at this time, you would hear:

- Frustration at the unavailability of reliable workers
- He struggles to keep track of his inventory of live stock and materials
- He has trouble scheduling work crews and equipment
- Bad weather frequently wreaks havoc on his carefully planned work schedules
- He loses time and money due to rework and replacing plantings

Staffing

Frank Paradise

Owner, president. Part “gentleman farmer”, part aging hippie, part soldier. Likes to stay involved in every aspect of the landscaping business. Doesn’t get involved much in the retail store. Estimates bids. Loves to spend time with his customers. Likes to operate the Bobcat and he wields a mean chainsaw (but not at the same time of course.)

Anne Marie Paradise

Manages the retail store. Loves plants. A plant whisperer with two green thumbs. Spends all the time she can tinkering in the greenhouse. She depends a lot on Tom to keep the store running smoothly. During weekdays when he’s at school things in the store can get a little disorganized.

Sid “Sun Dog” Sondag

Landscaping Crew Chief. Looks like an old surfer – sun-bleached ponytail, tanned, leathery skin, occasional whiskers. Lots of wrinkles when he smiles. A weekend biker (Harley.) Strong as an ox and a very hard worker. One of the gentlest, kindest men you’ll ever meet. Demands respect, courtesy and hard work from his crew. His crew (and Cheryl’s) is assembled by each job from a pool of seasonal help (including Sam Paradise, Frank & Anne Marie’s son) and several full-time professionals – Sarge, Deke, old Fred and Roxanne.

Cheryl Winterman

Landscaping Crew Chief. Anne Marie’s brother’s wife. Rugged and independent. She loves plants too. She is great with the customers. Petite. Wears jeans, work boots and an old baseball cap. Lives in an old farmhouse on 5 acres with enough room for her two horses. Drives a pickup.

Vince Bono

Stock Manager. Been with the company for two years, having been the Lawn & Garden manager at a local “big box” store. Didn’t like the “big store” mentality. He got out because he wanted more freedom to call his own shots. He orders all replenishments for live nursery stock and all landscaping materials. Vince has 4 part-time “stock hands” in the yard. They are seasonal – only one is around over the winter, and then only part-time. They help customers with purchases of plants and materials. They water the nursery stock, unload shipments, and help the crews load trucks for jobs.

Rachel Marshall

Full time office manager. Has been with Frank for over ten years. Rumors have been flying about her imminent retirement, but she says she loves her job and isn’t ready just yet. She takes care of payroll (outsourced), accounts payable, customer invoicing, filing, cash and credit. She has a nice PC in her office, that she uses for her business and accounting operations which are all handled by the YellowPear accounting suite. Rachel also uses the computer to submit weekly orders to the regional distributor for the Best Value Hardware franchise chain. Rachel’s uses this computer to print out an order confirmation that Tom uses to check against the bill of lading when a shipment from Best Value arrives.

Tom Flynn

Assistant store manager. He is a full-time high school math teacher. He works full-time in the store whenever school is out. He’s really good with the high-school and college kids who work part-time in the store. Even when school is in session, Tom comes in evenings and Saturdays. Stays until closing (9:00 p.m.) The store is closed on Sundays. He manages 9 other employees: 1 full time clerk, and 4 part-time clerks. They help customers, stock shelves, answer questions, unload incoming shipments, apply price tags, etc. Tom also manages the cashiers – one full-time (Sarah), and 3 part-time (including Beth Paradise, Frank & Anne Marie’s daughter who is also going to school at a local community college.)

Employee Skills List

Frank - Landscaping Crew Chief, Bob Cat, Customer Bids, Driver Sid - Landscaping

Crew Chief, Back Hoe, Bob Cat, Driver Cheryl - Landscaping Crew Chief, Stone

Work, Customer Bids, Driver Deke - Mowing Crew Chief, Deck & Timber

Carpentry, Driver Sarge - Stone Work, Back Hoe, Bob Cat, Driver

Fred - Mowing Crew Chief, Back Hoe, Bob Cat, Driver Enrico - String Trimmer

Josh - Tree Trimming, Stone Work, Driver

Roxanne - Mowing Crew Chief, Driver

Sam P. - Stone Work, Driver

Eduardo - Heavy Lifting

Equipment Inventory

Rachel's books show purchase price and annual depreciation amounts.

Landscaping Equipment Inventory

- 1 Case backhoe with scoop
- 2 Hyster forklifts (propane)
- 1 Bobcat with scoop
- 3 flatbed equipment trailers (1 large, 2 medium)
- 1 200 gallon spray system (w/ compressor, hose)
- 2 Ford F250 pickup trucks 4WD
- 2 GMC 2-ton flatbed stake trucks w/dump bed
- 4 Pulan chainsaws
- 1 30' aluminum extension ladder
- 2 24' aluminum extension ladders
- 1 10' step ladder
- 2 8' step ladders
- 2 Snapper dual blade 10 hp riding mowers
- 2 Snapper walk-behind 5 hp mowers w/bag
- 2 Homelite gas string trimmers
- 2 Honda gas blowers
- 1 Armstrong Chipper
- 1 Chevy ¾ ton pickup with box shell for chipper various hand tools
(shovels, axes, picks, hoes, hammers)
- 2 Scotts rotary fertilizer spreaders
- 3 Hudson pressure sprayers
- 1 Toro Power Rake
- 1 Toro Power Aerator

Retail Equipment Inventory

- 1 Dell Optiplex 3050 desktop PC w Intel® Core™ i3-7100T Dual Core 3.4GHz with 17" LCD
monitor with 2GB RAM and 1TB internal solid state drive
- 1 TI 855 dot matrix impact printer w/ continuous feed green-bar paper 1
HP LaserJet printer
- 2 NEC Cash Registers w/ CC scan and dial-up validation unit

Supplier List

Mulch A.A. "Buck" Jones & Assoc, Inc Grayson, GA 34217 Telephone:(770)-963-8227 Fax:(770)-339-0899	Gravel Dirt Cheap Landscape 2900 N Highway 7 Hot Springs Village, AR 71909-9543 Phone: (501) 623-5099 Fax:(501)-412-3562
Sod (zoysia) Earth & Turf Company New Holland, PA 36548 Telephone:(717)-355-2446 Fax:(717)-355-2879	Live Stock Basler Tree Farm & Nursery 2953 Yaeger Rd Saint Louis, MO 63129-2121 Phone: (314) 487-4698
Topsoil Garick Corporation Cleveland, OH 44595 Telephone:(216)-581-0100 Fax:(216)-581-4712	Live Stock Baxter Farms & Nurseries 3411 Crève Coeur Mill Rd Saint Louis, MO 63146-2121 Phone: (314) 542-9400
Mulch & Topsoil Mulch Scapes LTD. Roseville, MN 74312 Telephone:(888)-326-2033 Fax:(651)-633-2666	Live Stock Deutschmann Florists & Inc 12217 Manchester Rd Saint Louis, MO 63131-4314 Phone: (314) 966-3592
Live Stock Penn State Seed Compa Dallas, PA 32197 Telephone:(717)-675-8585 Fax:(717)-675-6562	Topsoil Fendler Nursery & Garden 1803 Lemay Ferry Rd Saint Louis, MO 63125-2412 Phone: (314) 892-1150
Trees Pike Family Nurseries , Inc. Norcross, GA 34807 Telephone:(770)-921-1022 Fax:(770)-638-6941	Annuals Gateway Seed Co 511 Bittner St Saint Louis, MO 63147-2405 Phone: (314) 381-8501
Stone & Brick Garick Corporation Cleveland, OH 59763 Telephone:(216)-581-0100 Fax:(216)-581-4712	Annuals Primescape Products Deerfield, IL 60032 Telephone:(800)-872-4361 Fax:(847)634-4112
Insecticides & Herbicides Security Products Company Phoenix, AZ 87895 Telephone:(602)-285-1660 Fax:(602)-207-2183	

Live Stock (short list)

<p>Trees</p> <p>American Tulip, 6', 8'</p> <p>American Walnut, 6'</p> <p>Balsam Fir, 4', 6', 8'</p> <p>Black Ash, 6', 8', 10'</p> <p>Black Gum, 6', 8'</p> <p>Colorado Blue Spruce, 6', 8'</p> <p>Dogwood, Pink, 4', 6', 8'</p> <p>Dogwood, White, 4', 6', 8'</p> <p>Flowering Crab, Pink, 4', 6', 8'</p> <p>Flowering Crab, White, 4', 6', 8'</p> <p>Honey Locust, 6', 8', 10'</p> <p>Japanese Maple, 2', 4'</p> <p>Japanese Maple, Dwarf, 2', 4'</p> <p>Little Leaf Linden, 6', 8', 10'</p> <p>Mimosa, pink, 4', 6', 8'</p> <p>Normandy Spruce, 6', 8', 10'</p> <p>Red Maple, 6', 8', 10'</p> <p>Redbud, 4', 6'</p> <p>River Birch, 4', 6', 8', 10'</p> <p>Shortleaf Pine, 2 needle, 4', 6', 8', 10'</p> <p>Silver Maple, 6', 8', 10'</p> <p>Sweet Gum, 6', 8', 10'</p> <p>Weeping Cherry, 2', 4'</p> <p>White Ash, 6', 8', 10'</p> <p>White Birch, 6', 8'</p> <p>White Pine, 5 needle, 4', 6', 8', 10'</p>	<p>Shrubs</p> <p>American Holly, 2', 4'</p> <p>Azalea 'Clemson Variegated'</p> <p>Azalea 'Hosoba Fukurin'</p> <p>Azalea 'Iveyi'</p> <p>Azalea 'Red Bells'</p> <p>Azalea 'Maculata'</p> <p>Camellia 'Anticipation'</p> <p>Camellia 'Barbara Clark'</p> <p>Camellia sinensis 'Blushing Maiden'</p> <p>Camellia sinensis 'Tea Breeze'</p> <p>Corylopsis 'Winterthur'</p> <p>Corylopsis sinensis var. sinensis 'Spring Purple'</p> <p>Corylopsis sinensis var. willmottiae</p> <p>Corylus avellana 'Fuscorubra'</p> <p>Corylus avellana 'Contorta'</p> <p>Forsythia</p> <p>Honeysuckle 'Majorie'</p> <p>Honeysuckle 'Trumpet'</p> <p>Japanese Yew,</p> <p>Mock Orange</p> <p>Mugo Pine, 2', 4'</p> <p>Rhododendron Escallonia 'Red Dream'</p> <p>Rhododendron Escallonia 'Slieve Donard'</p> <p>Rhododendron Escallonia rosea</p> <p>Rhododendron Eucryphia glutinosa 'Nana'</p>
<p>Perennials</p> <p>Euonymus alatus 'Monstrosus'</p> <p>Euonymus alatus var. striatus</p> <p>Euonymus bungeanus</p> <p>Euonymus europaeus</p> <p>'Aldenhamensis'</p> <p>Euonymus europaeus 'Red Ace'</p> <p>Fortunearia sinensis</p> <p>Hydrangea 'Le Cygne'</p> <p>Hydrangea 'Madame Baardse'</p> <p>Hydrangea 'Mandschurica'</p> <p>Hydrangea 'Masja'</p> <p>Hydrangea arborescens</p> <p>Hydrangea aspera [Kawakamii]</p> <p>Hydrangea aspera ssp. robusta</p> <p>Hydrangea aspera ssp. strigosa</p> <p>Jamesia americana</p> <p>Jasminum humile</p> <p>Jasminum nudiflorum</p>	<p>Perennials (cont)</p> <p>Laurus nobilis 'Aurea'</p> <p>Laurus nobilis angustifolium</p> <p>Osmanthus decorus 'Baki</p> <p>Kasapligil'</p> <p>Osmanthus fragrans var. aurantiaca</p> <p>Osmanthus heterophyllus 'Kembu'</p> <p>Osmanthus heterophyllus</p> <p>'Variegatus'</p> <p>Osmanthus heterophyllus 'Goshiki'</p> <p>Osmanthus heterophyllus</p> <p>'Purpureus'</p> <p>Rosa 'Eddie's Jewel'</p> <p>Rosa 'Paul's Himalayan Musk'</p> <p>Rosa 'Snowcarpet'</p> <p>Rosa brunonii</p> <p>Rosa roxburghii - Judy Young</p> <p>Rosa soulieana</p> <p>Rosa villosa</p> <p>Rosa wichuraiana</p>

Landscape Materials

<i>Gravel</i> Barn Red Quaker Blend Ocean Pebbles White Silica Pebbles Marble Chips Eastern Sunrise Empire Black	<i>Mulch</i> Coarse Hardwood Fine Hardwood Hardwood Bark Pine Bark, Coarse Pine Bark, Med. Pine Bark, Fine
<i>Fabricated Stone</i> Crowne hill stone Diamond Windsor Keystone Versa-Lok Hercules	<i>Natural Stone</i> Natural Limestone Boulders Cobblestones Flagstones
<i>Precast Patio Pavers</i> Cobble Classic Diamondstone Holland Stone Plaza Stone Symmetry Uni-Decor Uni-Stone	<i>Timbers</i> Used Railroad Ties (8x8x8) Pressure Treated Oak 4x4x8, 6x6x8 Pressure Treated Yellow Pine, 3x4x8, rounded
<i>Topsoil</i>	<i>Sand (construction grade)</i>

Eden Landscaping Advertisement

Eden Landscaping, Inc.
8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Eden Landscaping is a full service company that performs commercial and residential lawn and landscaping services.

Services include:

Complete Turf Maintenance

- mowing, trimming edging
- granular fertilization
- granular & liquid weed & insect control
- core aeration
- dethatching
- seed & sod

Retaining Wall Installation

- railroad ties
- block, keystone, versa-lock, etc.
- natural stone

Irrigation System

- Installation
- Maintenance

Landscaping

- Complete design & installation
- Flowers, Trees & Shrub Planting
- Mulching
- Paver Walkways & Patios
- Decks, Fences and Arbors

Tree Care

- Pruning
- Trimming
- Spraying
- Feeding

Leaf Removal

Gutter Cleaning

Snow Removal

Eden Landscaping Advertisement

Eden Landscaping, Inc.
8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Eden Landscaping is owned and operated by Frank Paradise. Frank grew up in St. Louis, and has been working in the local lawn care and landscaping business for over thirty years.

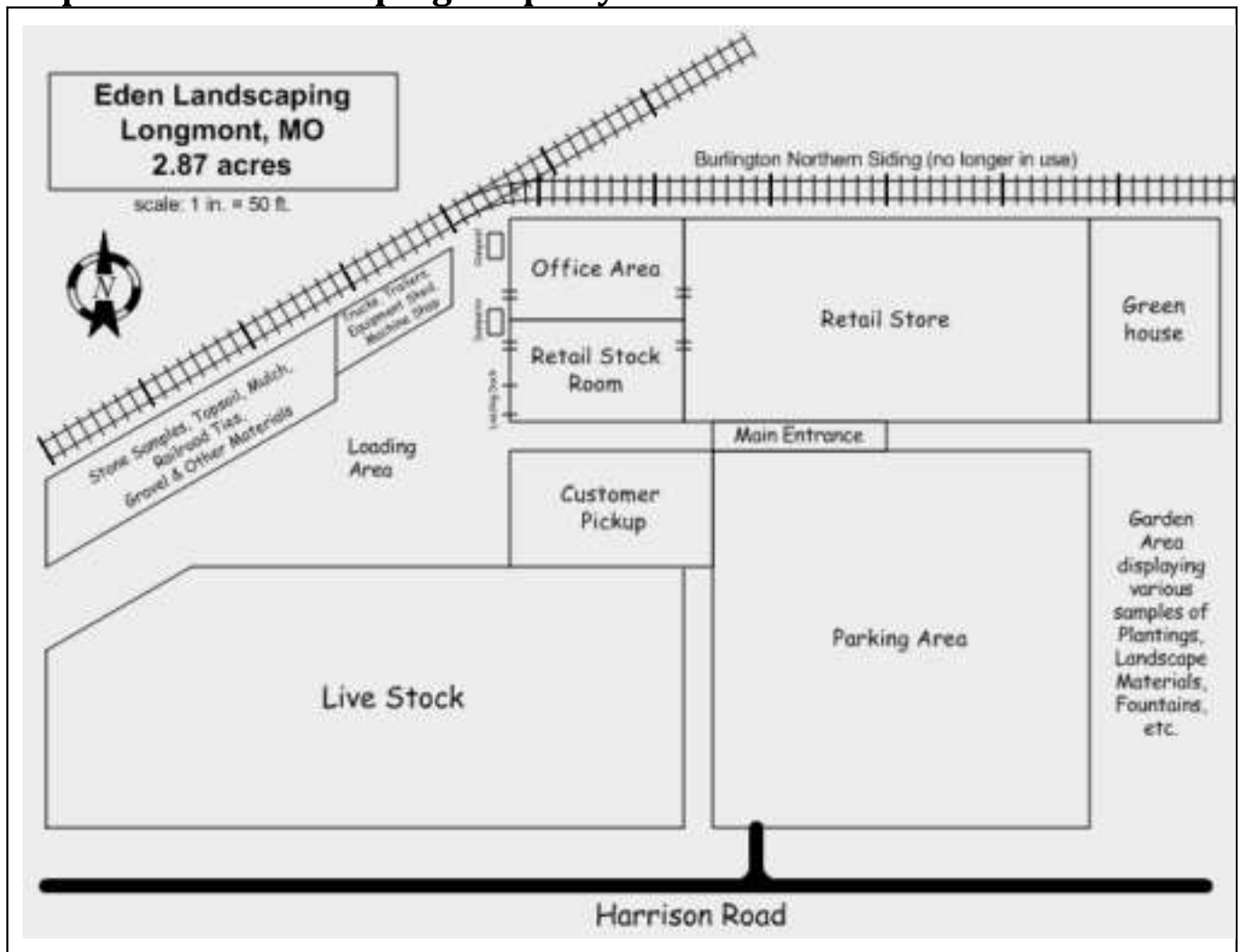
Eden Landscaping is a member of the Professional Lawn Care Association of Mid-America. We operate two lawn mowing crews and two landscaping crews. All employees are covered by Workers' Compensation Insurance. Eden also carries \$2,000,000 of Public Liability Insurance.

We make every attempt to provide top quality services and materials in order to meet our customers' expectations at the most reasonable prices. We accomplish this goal by providing personal attention and listening carefully to what our customers' needs are. We use state-of-the-art equipment and the finest craftsmanship to make sure that all our jobs, big and small, are completed beautifully and professionally.

We want to be sure that you, our customers, are 100% satisfied.

If it's not right, we will do whatever it takes to make it right.

Map of Eden Landscaping Property



Business Forms

- Bid for Landscaping Job
- Bill of Lading
- Customer Form
- Supplier Form
- Customer Invoice
- Order Log
- Retail Sales Ticket

Bid for Landscaping Job

DATE: _____

Eden Landscaping, Inc.

8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Member ASLA

Proposal Submitted To: _____

Job Description: _____

NAME:
ADDRESS:

CITY, ST, ZIP:

PHONE

NUMBER:
DESCRIPTION:

CUSTOMER CONTACT:

Angled Turf Mowing, Trimming & Blowing:

Turf shall be cut at a standard height of 3" and will be performed weekly in order to remove 1/3 of grass leaf or less per mowing, barring inclement weather. Mower blades on all equipment will be kept sharp to prevent tearing of grass leaves. All areas of grass adjacent to buildings, sidewalks, driveways, trees, borders and other stationary objects will be trimmed to the same height as the surrounding turf. Grass clippings will be blown from all hard surfaces. Due to lower demand for turf mowing on Mondays and Tuesdays, discounts are available for these days.

MONDAY or TUESDAY MOWING

\$ _____

WEDNESDAY through SATURDAY MOWING

\$ _____

Granular Fertilization Program:

First Application (Early Spring)

Pre-emergent Crabgrass Control (early germinating)

Balanced Fertilizer (green-up)

Second Application (Mid Spring)

Pre-emergent Crabgrass Control (late germinating)

Balanced Fertilizer (steady growth)

Third Application (Early Summer)

Broadleaf Weed Control (post emergent)

Balanced Fertilizer (slow release)

Fourth Application (Early Fall)

Broadleaf Weed Control (post-emergent, as needed)

Insect Control (grubs, sod webworms, as needed)

Balanced Fertilizer (slow release)

Final Application (Late Fall)

Broadleaf Weed Control (post-emergent, as needed)

Insect Control (grubs, sod webworms, as needed)

High Nitrogen Fertilizer (winterizer)

PRICE PER APPLICATION

\$ _____

Ornamental Tree & Shrub Care Program:

Dormant Spray (oil-based treatment to control over-winter scale, aphids & mites, Nov - April) \$ _____

Insect Control (Aphids, sawflies, bagworms, leafhoppers, caterpillars, April - May) \$ _____

Insect Control (Aphids, Mites, scale crawlers, Japanese Beetles, bagworms, June-July) \$ _____

Insect Control (Webworms, mites, lacebugs, aphids, July - Sept) \$ _____

Deep Root Feeding (spikes, early spring) \$ _____

PRICE PER APPLICATION

\$ _____

Additional Services:

Core Aeration \$ _____

Power Edging \$ _____

Shrub Pruning \$ _____

Tree Pruning \$ _____

Seeding \$ _____

Dethatching \$ _____

Annual Flowers \$ _____

Snow Removal \$ _____

Gutter Cleaning \$ _____

Gypsum \$ _____

Leaf Removal \$ _____

Mulching \$ _____

Edge & Cultivate Beds \$ _____

Winterize Irrig. System \$ _____

StartUp Irrig. System \$ _____

Irrig. System Install \$ _____

Curb Leaf Vac \$ _____

Other, Description: _____

TOTAL FOR ADDITIONAL SERVICES

\$ _____

Thank You for the Opportunity to Serve You. Frank Paradise, Eden Landscaping

Terms: Monthly Invoicing. Net Payment due by the 28th of each month. 1.0% interest charged on all outstanding balances.

Note: This proposal may be withdrawn if not accepted within 10 days. Acceptance: The above prices, specifications, and conditions are satisfactory and are hereby accepted. Work to be completed by "Due Date".

Customer: _____
Accept Date: _____

Authorized: _____
Due Date: _____

Bill of Lading

CIMARRON VALLEY TREE FARM
So. Hiway 19
OKLAHOMA CITY, OK 73118

Shopper Number:

Bill of Lading

Ship To Customer:

CUSTOMER NUMBER:

NAME _____

ACKNOWLEDGMENTS

QTY, ST, DIF.

PHONE

INVOICE NO:

INVOICE DATE:

CASE NO.:

ORDER DATE:

CONTROL:

[illegible]**PHONE**

SPECIAL INSTRUCTIONS:

NUMBER OF ITEMS:

NUMBER OF PIECES:

This is NOT an Invoice. Do not submit payment with this document.

Customer Form

Eden Landscaping, Inc.
8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Customer Record

Name	_____	<div>Mowing <input type="checkbox"/></div> <div>Landscaping <input type="checkbox"/></div> <div>Other <input type="checkbox"/></div>
Address 1	_____	
Address 2	_____	
City, State, ZIP	_____	
Phone 1	_____	Phone 2 _____
Referred By	_____	Customer Since _____
Notes	_____	

Supplier Form

Eden Landscaping, Inc.

8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Supplier Record

Category _____

Name _____

Preferred ☐

Address 1 _____

Address 2 _____

City, State, ZIP _____

Phone (Orders) _____

Contact _____ Contact Phone _____

Shipping & Billing Terms _____

Notes _____

Customer Invoice

DATE:

Eden Landscaping, Inc.
8624 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Member ASLA

Customer Invoice

Bill To Customer:

NAME:
ADDRESS:
CITY, ST, ZIP:
PHONE

Total Amount Now Due: \$

Amount Remitted \$

Please detach and return this portion with your payment.

Date	Services Rendered, Materials Delivered	Charges	Credits
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

TOTAL CUSTOMER CHARGES / CREDITS

Prior Balance	\$ <input type="text"/>
Total New Charges	\$ <input type="text"/>
Taxes	\$ <input type="text"/>
Total Credits	\$ <input type="text"/>
Total Amount Due	\$ <input type="text"/>

Invoice is Due Upon Receipt

Thank You for the Opportunity to Serve You. Frank Paradise, Eden Landscaping

Order Log

Order Log

[illegible]

Retail Sales Ticket

DATE:

Eden Landscaping, Inc.

8674 Harrison Rd.
Longmont, MO 63030
(314) 842-2561

Member ASLA

Retail Sales Ticket

Customer:

NAME:

ADDRESS:

CITY, ST, ZIP:

PHONE:

Sold By:

Quantity	Item SKU	Description	Unit Price	Total Price
----------	----------	-------------	------------	-------------

I

Delivery
Sales Tax

TOTAL

Special Instructions: _____

Thank You for the Opportunity to Serve You. Frank Paradise, Eden Landscaping