Lindsay
All-America City

City of Lindsay
DEPARTMENT OF CITY SERVICES
P.O. Box 369 — Lindsay, California 93247 — 150 North Miraqe Ave.
559 • 562 • 7102 Option 4
559 • 562 • 5748 fax

Enterprise Zone

August 8, 2024

Olive Bowl/Kaku Park Expansion – Revision No. 2

Addendum/Clarification No. 2

The following additions and/or corrections shall become part of the Specifications for the subject project:

1. **Question/Clarification.**
   a. Question: Can the city provide a detailed bid item description of each bid item similar to what was provided on the first 2 bids in order to clarify what is contained in each bid item?
   Answer: Will be addressed in Addendum No. 3

   b. Question: Please confirm that the contractor is only responsible for the SWPPP BMPs shown on the plans and the city will be responsible for the required jobsite inspections and filing of all the required paperwork with appropriate government agencies.
   Answer: Contractor is responsible for preparing, implementing and upholding the SWPPP and the outlined BMPs site recommendations. Contractor will be responsible for; Prepare Notice of Intent (NOI) and all required Permit Registration Documents (PRDs) including, but not limited to, the Risk Assessment and Post-Construction Water Balance as required to the State, for owner/Legally Responsible Person (LRP); Assist the LRP in electronically filing the NOI and PRDs online using the State's Storm Water Multi-Application & Reporting System (SMARTS); Prepare a Storm Water Pollution Prevention Plan (SWPPP) outlining Best Management Practice (BMP) site recommendations for both Pre and Post Construction activities. Provide two hard copy SWPPP Manual to the City. Contractor to provide a Qualified SWPPP Developer (QSD) services, required site inspections, and coordination with the State Water Resources Control Board.

   City will be responsible to pay for the SWPPP state project registration fee and will provide a Qualified SWPPP Practitioner (QSP).

   c. Question: Can the city provide the original plans and calculations for the existing shade structure that is to be removed and relocated? If not, how will the contractor be able to determine the size of the footings? Who will be responsible for the engineering? Will a building permit be required to be pulled?
   Answer: Please refer to the following attachments:
      i. Existing Shade Structure Plan Signed
      ii. Existing Shade Structure Plan
      iii. Existing Shade Structure-Structural Cals.

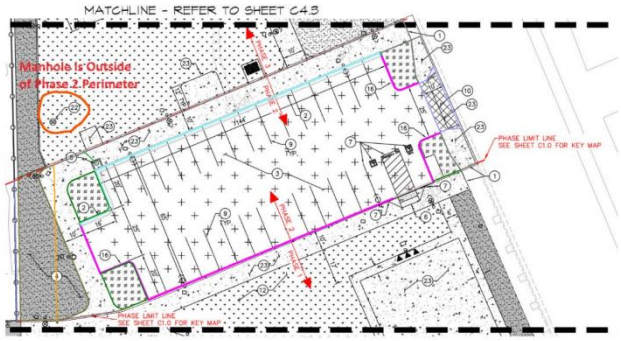
d. Question: On the BID SCHEDULE (Revision No. 2) Item 22 calls out “Safety Net 20' high @ Field #1”. Plans call out this netting to be 30’ high. Please verify height of netting at Field 1.
Answer: Use 30’ high details

e. Question: Note 1, Detail C on Sheet LD-6 states, “SAFETY NETTING POLES TO ALIGN WITH 8’ CLF. CLF SHALL USE SAFETY NETTING POLES FOR CONNECTION AS NECESSARY.” Chain link posts are spaced at 10’ OC. Typically, netting poles are spaced considerably further. Will the owner consider substitutions for an engineered netting system with increased pole spacing?
Answer: Refer to detail ‘F’, sheet LD-6 for Chainlink Schedule. Chainlink fence posts shall be spaced at 8’ on center max. Per detail ‘C’, sheet LD-6 the safety netting posts shall be spaced at 25’ max. Space chainlink fence posts evenly within 25’ netting post span to provide an in-line continuous system.

f. Question: Is there an engineer’s estimate for this project?
Answer: The Engineer’s estimate is as follows:
Base Bid-Phase $7,315,000
Additive Alternates
Alternate A-Phase 3 $1,109,000
Alternate B-Phase 2 $370,000

g. Question: What is the General Warranty Period for the Project?
Answer: 1-year general standard warranty.

h. Question: Can you please clarify the Phase limits on the Project. Plan Sheet C4.2 (Phase 2) has a redline showing the limits of Phase 2 and the beginnings of Phase 1 & Phase 3. In keeping within the redline of the Phase 2 limits, the quantities and items included in the Bid Schedule for Phase 2 seem off. For Instance, the 4” dugout Pavement areas as shown on the Bid Schedule (Alt B Phase 2) Item 9 shows 4,273 SF. After Completing our Take-offs, we come up with less than half of that amount. It also has a Sewer Manhole included in Phase 2 (Bid Item 8) but in the drawing below, you can see that the Sewer Manhole is outside of the Phase 2 Limits.



Answer: The phase limits shown on sheet C4.2 are correct. Line Item #9 for 4” Concrete Paving on the Add Alt B Ph 2 Parking Lot Improvements Bid Schedule should be corrected to 2,852 SF. For the manhole in the question below (this is a storm drain manhole not sewer manhole), it will need to be constructed in Add Alt A - Phase 3. Please omit the line item #9 for the Sewer Manhole in Additive Alt B – Phase 2 – Parking Lot Improvements.

i. Question: Will the Bio Retention Basin require a bio soil mix and/or aggregate base? If so, can you provide a detail or spec providing the depth & mix?
Answer: Bioretention basin detail shown on sheet C8.1, detail 3.

j. Question: Should the decomposed granite areas be constructed based on the plan detail or specs (02547)? The detail shows only a DG layer, while the specs request a base underneath.
Answer: Install per detail at 4" depth

k. Question: Landscape Planting (02900) spec lists two different hydroseed mixes, "Turf Seed Mix" and "Native Plant Seed Mix". Can you clarify which mix shall be used on this project?
Answer: Native plant seed mix is not required.

l. Question: City is providing and installing wood mulch for trees and shrubs?
Answer: Yes, they will be provided and installed by others.

m. Question: Do all Trees, Turf and DG areas receive mulch in basin?
Answer: All basin areas are to receive turf hydroseed only. No mulch is required. All trees, shrubs, and associated mulch will be provided and installed by others.

n. Question: do you have plan holder lists?
Answer: Yes, see attached

o. Question: Since the city will install trees, is the contractor responsible for root barrier?
Answer: Yes, the contractor will only be responsible for the irrigation

p. Question: The irrigation specifications 02810 Irrigation System is missing from the bid package specs. Please provided specification section 02810 irrigation system as noted, for bidding purposes.
Answer: Specification section 02810 – Irrigation System has been provided within. See attached.

q. Question: There is a new 3" water meter as a secondary source per note 8 sheet L3.1. Does the city of Lindsay perform their own hot taps and service connections? If so are there any fees for the city to perform the hot tap and service connection, If not is the contractor responsible for this work?
Answer: Per the city fee schedule for water connection and installation, the city will only provide the meter, and the developer will connect, trench, and pave.

r. Question: Is there a city detail or any detail for the contractor to reference when bidding for this 3" water meter?
Answer: The City of Lindsay has a 1" Water service detail in their development standards. See attached City of Lindsay Standard detail.

s. Question: Is it possible to get a one-week extension on the Bid Date? While we know that there are some very real time constraints on the project, we still have some items to finalize and await revised quotes. The additional time will allow us to capture the most cost-effective options to help ensure we meet the project budgets.
Answer: We will be moving the bid opening date to August 20, 2024, at 11:30 am

t. Question: Plant material legend on planting plan sheets L4.1 through L4.4, show turf hydroseed with celebration bermuda available from Ag Sod. But specs section 02900 landscape planting Note G. Turf Seed Mix says to use rye grass, bluegrass, and bermuda grass mix? Which is correct for hydroseeding turf? Celebration bermuda is typically sold in rolls (sod).
Answer: Will be address in Addendum 3

2. **Attachments:**
    a. Plan holders list
    b. Specification section 02810 – Irrigation System
    c. Existing Shade Structure- Structural Calcs
    d. Existing Shade Structure Plan
    e. Existing Shade Structure Plan Signed
    f. City of Lindsay Water Service Standard Detail

3. **Bid Opening:**
    a. Bid opening date is moved to August 20, 2024 at 11:30 am
    b. Last day to submit RFI's is August 14, 2024 at 11:30 am.

4. **Contractor License.**
    a. The contractor must be duly licensed in the State of California and must possess a Class "A" General Engineering Contractor License and/or Class "B" General Building Contractor License.

5. **Bid Schedule-Base Bid-Phase 1-Ballfield Park Improvements Bid Item No. 64-Restroom/Concession/Storage Building;** Building will be purchased and furnished by the City of Lindsay. The contractor will be responsible for delivery coordination, installing utilities point of connection, and final utility connection to ensure all fixtures are in a working condition as required per the construction plan. A revised bid schedule and detailed bid item description of each bid item will be provided in Addendum No. 3.

This completes the items included in this Addendum/Clarification No. 2 for the City of Lindsay, **Olive Bowl/Kaku Park Expansion – Revision No. 2**. This Addendum cover page shall be signed and submitted with bid proposal.

Contractor Date

Olive Bowl/Kaku Park Expansion - Revision No. 2

ENGINEER'S OPINION OF PROBABLE COST

OPEN BIDS August 14 at 3:00 PM

Base Bid-Phase 1 $7,315,000
Additive Alternates
Alternate A-Phase 3 $1,109,000
Alternate B-Phase 2 $370,000

DATE	COMPANY NAME	ADDRESS	PHONE	EMAIL	#OF SETS	ELECTRONIC COPY	ADDENDUM NO. 1	ADDENDUM NO. x	ADDENDUM NO. x	ADDENDUM NO. x	MAIL	IF MAIL, PLEASE PROVIDE EITHER FEDEX OR UPS ACCOUT #	FORM OF PAYMENT
7/9/2024	American Paving Co. (Ross Jenkins)	P.O. Box 27587 Fresno CA 93729	Ph: 559-268-9886 ext. 5103 Fax: 559-268-2908 Cell: 559-994-0176	RJenkins@americanpavingco.com	1	X	X						
7/10/2024	Lyell Leap, Estimator STOCKBRIDGE GENERAL CONTRACTING, INC. ELITE TEAM OFFICES, INC.	2972 Larkin Ave. Clovis, CA 93612	O: (559) 292-7760 F: (559) 476-1780 D: (559) 547-2890 C: (559) 862-5161	stevenc@eliteteamoffices.com	1	X	X						
7/15/24	Kalynne Allers, USA Shade	1085 N. Main Street, Suite C Orange, CA 92867	Office 1 714.427.6981 Direct 1 714.241.5516	kalynne.allers@usa-shade.com	1	X	X						
7/15/2024	Carla Kraus, Public Restroom Company	2587 Business Parkway. Minden, NV 89423	P: 888-888-2060 Ext 112 F: 888-888-1448	carla@publicrestroomcompany.com	1	X	X						
7/16/2024	Javier Garcia Dorfmeier Mansonry, Inc		559-255-9760	javierg.dmi@gmail.com	1	X	X						
7/17/2024	Cherie Layton Unified Field Services Corporation	6906 Downing Avenue Bakersfield, Ca. 93308	(661) 858-8223 Office (661) 978-4879 Cell	cherie_layton@ufsc.us	1	X	X						
7/18/2024	Sierra Construction & Excavation, Inc	10417 Meacham Road Bakersfield, CA 93312	PH: 661-558-5124	Bid Contact- Jeff Jarman jeff@sierracei.com	1	X	X						
7/26/2024	Superior Construction	4241 E Brundage Lane Bakersfield, CA 93307		Darrell Ward dward@bakersfieldbuilder.com	1	X	X						

SECTION 02810 - IRRIGATION SYSTEM

I. GENERAL

The provisions of the Standard Specifications for Public Works Construction (SSPWC), latest Edition, Section 212 apply, except as modified herein.

A. Work Included in this Section:

Landscape Irrigation System, including all work materials, appliances, tools, equipment, facilities, transportation, services necessary, and all operations in connection with and reasonably incidental to install the complete irrigation system.

Record drawings.

Irrigation work shall be coordinated with all other trades.

Irrigation demolition and modification

Sleeving for irrigation piping and wiring.

Procurement of applicable licenses, permits, and fees.

Coordination of Utility Locations ("Call Before you Dig").

Furnishing and installing a backflow prevention device

Services of factory field service person to supervise the assembly, installation, and start-up of the pumping system, the training of maintenance staff, and provision of O & M manual.

Furnishing and installing a prefabricated, booster type pumping system including pumps, motors, electrical controls, and other items as specified on the drawings and specs.

Connection of electrical power supply to the irrigation booster pumping system.

Maintenance Period.

B. Work Not Included in this Section:

Grading
Landscaping

C. Related Work Specified Elsewhere:

Cutting and Patching, Section 01045.

D. Quality Assurance:

Permits: Obtain and pay for all permits and inspections required by outside agencies.

Ordinances and regulations: Local, municipal, and state laws and rules and regulations governing or

relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the Contractor. Ordinances and regulations include but are not limited to the following: California Code of Regulations, Title 24 (Latest Edition) Part 3 - California Electrical Code and Part 5 - California Plumbing Code; California Health & Safety Code, Section 116800-1162820; Los Angeles County Code.

Anything contained in the specifications shall not be construed to conflict with any of these rules and regulations or requirements of the same. However, when the specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by these rules and regulations, the provisions of the specifications and drawings shall take precedence.

Protection: Erect and maintain barricades, warning signs and lights and provide guards as necessary or required to protect all persons on the site.

Underwriters Laboratories: Electrical wiring, controls, motors, and devices shall be U.L. listed and so labeled.

Installer qualifications (for solvent and rubber gasket joints): Each person shall be trained by the manufacturer's representative in techniques for making correct joints prior to performing work on the site.

Work of this Section which is allied with the work of other trades shall be coordinated as necessary.

Superintendent: A superintendent satisfactory to the Agency's Representative shall be always present on the site during the progress of the work. The Superintendent shall not be changed, except with the consent of the Agency's Representative. The Superintendent shall be authorized to represent the Contractor

Discrepancies: When discrepancies exist between drawings and specifications, and no specific interpretation is issued prior to bidding, the decision regarding this interpretation will rest with the Agency's Representative. The Contractor will be compelled to act on this decision as directed. In the event the installation deviates from the directions given, it shall be corrected at the Contractor's expense.

Manufacturer's directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturers used in this Contract furnish directions covering points not shown in the drawings and specifications.

Work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.

The Contractor shall not install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in equipment usage or area dimensions exist that might have been considered in the engineering. Such obstructions or differences shall be brought to the attention of the Agency's authorized representative. In the event this notification is not performed, the Contractor shall assume full responsibility for any revision necessary at no cost to the Agency.

Coordination: Complete sleeve installation (not otherwise provided) in coordination with paving and other concrete pours; Coordinate to ensure that an electrical power source is in place; Coordinate

system installation work specified in other Sections and coordinate with landscape installer to ensure plant material is uniformly watered in accordance with intent shown on drawings.

Contractor is responsible for damage to site amenities during construction. Replace damaged items with identical materials of equal value to match existing conditions. Make replacements at no additional cost to contract price.

All electrical control panels with controls must be built in accordance with N.E.C., U.L. and E.T.L. standards. The electrical components and enclosure must be labeled as a complete U.L. listed assembly with manufacturer's U.L. label applied to the door. All equipment and wiring must be mounted within the enclosure and labeled for proper identification.

Provide single source responsibility for the manufacture, warranty, service, operation, and installation of a prefabricated, skid mounted, fully automatic constant speed pumping system as described in contract documents. Pumping system must conform to the following specifications in all respects. This specification covers the minimum requirements; however, it should not be construed as all inclusive.

E. Submittals (Product Data):

Materials List and Manufacturer's Catalogs. Within 15 days after award of contract, submit four (4) copies of a complete materials list, including manufacturer's name and number covering all material required under this Division, together with four (4) copies of descriptive literature. Furnish information in 3-ring binder with table of contents and index sheet. Index sections for different components and label with specification section number and name of component. Furnish submittals for components on material list. Indicate which items are being supplied on catalog cut sheets when multiple items are shown on one sheet. Incomplete submittals will be returned without review.

Materials List: Include sleeving, pipe, fittings, mainline components, sprinkler and bubbler components, drip irrigation components, control system components, shop drawings and other components shown on drawings and installation details or described herein. Include pipe sealant, wire, wire connectors, ID tags, and other miscellaneous items. Quantities of materials need not be included.

Manufacturers' Data: Submit manufacturers' catalog cuts, specifications, and operating instructions for equipment shown on materials list.

Shop Drawings: Submit shop drawings called for in installation details. Show products required for proper installation, their relative locations, and critical dimensions. Note modifications to installation detail.

The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and notes. No substitutions will be allowed without prior written approval by Engineer.

Equipment or materials installed or furnished without prior approval of the Engineer may be rejected and the Contractor may be required to remove such materials from the site at his own expense.

Manufacturer's warranties shall not relieve the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

Engineered Booster Pump Assembly: Materials List: Include pipe, fittings, pumps and motors, control system components, and electrical equipment. Quantities of materials need not be included; Manufacturers' Data: Submit manufacturers' catalog cuts, performance curves, specifications, and operating instructions for equipment shown on the materials list. Submit complete instructions for installation, operation, and recommended maintenance of the pump system and components; Submit shop drawings of proposed pump system. Show products required for proper installation, their relative locations, and critical dimensions. Submit technical data sheets, electrical schematics, sequence of operation, UL listing authorization form, and schematics of irrigation pump system within the proposed building with critical dimensions noted. Note any modification to the construction documents; The station must be completely wired, piped, hydraulically, electrically, and flow tested to full station capacity at factory prior to shipment to job site; Documentation of testing report must include name of test, date of test, name of the individual completing the test, name of the company completing the test, and a summary of the test results. If system fails any test, document any and retest until system passes test; Testing report must be verified by Owner prior to pump station shipment.

F. Water Meters:

Water meters are existing. See Plans for size and location.
Contractor shall pay for all fees required to make connection to meter and water costs during construction and maintenance.

G. Point of Connection:

Make connection of irrigation system main line at PVC Main, in approximate locations shown. See Plans for details.

H. Electrical Meters:

Electrical meters are existing.

I. Drawings:

The drawings are diagrammatic only. It is the intent of the plans and specifications that the irrigation system shall efficiently and uniformly irrigate all areas according to horticultural and soil requirements, and that it shall be complete in every respect and shall be ready for operation to the satisfaction of the Agency.

Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. Carefully investigate the structural and finished conditions affecting all of this work and plan this work, accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and architectural features.

J. Record Drawings:

Record dimensioned locations and depths for each of the following:

Point of connection.

Sprinkler pressure line (mainline) routing. (Provide dimensions for each 100 lineal feet [maximum] along each routing and for each change in direction.)

Flow meters.

Gate valves.

Sleeves/Conduits.

Remote control valves.

Quick coupling valves.

Fertilizer injection system.

Control wire routing.

Other related items as may be directed by the Agency representative.

Locate all dimensions from two permanent points (buildings, monuments, sidewalks, curbs, or pavements).

Record all changes which are made from the Contract Drawings, including changes in the pressure and non-pressure lines.

Record all required information on a set of blackline prints of the drawings. Do not use these prints for any other purpose.

Maintain information daily. Keep drawings at the site at all times and available for review by the Agency representative.

When record drawings have been approved by the Agency representative, transfer all information to a set of reproducible prints using permanent India ink. Changes using ballpoint pens are not acceptable.

Make dimensions accurately at the same scale used on original drawings or larger. If photo reduction is required to facilitate controller chart housing, notes or dimensions must be a minimum 1/4 inch in size.

Reproducible prints (5 maximum) will be furnished by the Agency representative at cost for printing and handling.

Use appropriate eradicating fluid for removing original lines and dimensions where changes are made. Completed reproducible shall be equal to the original drawings.

Controller Charts. On the inside surface of the cover of each automatic controller, the Contractor shall prepare and mount a chart showing the valves and sprinkler heads serviced by that particular controller. All valves shall be numbered to match the operation schedule and the drawings. Only those areas controlled by that controller shall be shown. This chart shall be a plot plan, entire or partial, showing building, walks, roads, and walls. A photostatic print of this plan, reduced as necessary, and legible in all details, shall be made to size that will fit into the controller cover. Do not prepare charts until record drawings have been approved by the Agency's Representative. Provide one controller chart for each automatic controller installed. Identify the area of coverage of each remote-control valve, using a distinctly different pastel color, drawn over the entire area of coverage. Charts must be completed and approved prior to final review of irrigation system. This print shall be approved by the Campus representative and shall be hermetically sealed in 20 mil plastic (2-10 mil Pieces). This shall then be secured to the inside of the cover. Show controller designation on each chart.

K. Miscellaneous Items to be Furnished by Contractor:

Provide the following tools as a part of this contract:

Six (6) wrenches for disassembling each type of sprinkler head used;
Two (2) operating keys suitable to operate each type of valve used;
Six (6) quick coupler valve keys to fit type of couplers used (complete with hose bibb);
Six (6) quick coupler lock type cover keys;
One (1) set of automatic controller cabinet keys for each controller used;

Provide all required and necessary descriptive material in complete detail and sufficient quantity properly prepared in three (3) individually bound copies. Describe the material installed in sufficient detail to permit qualified operating personal to understand, operate and maintain all equipment. Each manual shall include the following: Index sheet, stating Contractor's address and telephone number; Duration of guarantee period with guarantee forms; List of equipment with names and addresses of manufacturer's local representative; Complete operating and maintenance instructions on all major equipment; Spare parts list and related manufacturer information for all equipment.

Present in hardback three-ring binders.

L. Checklist:

Provide a signed and dated checklist and deliver to the Agency's Representative prior to final review of the work.

Use the following format:

Confirmation of service pressure: psi, by whom and date.

Plumbing permits: if none required, so noted.

Materials approvals: approved by and date.

Pressure line tests: by whom and date.

Record drawings: received by and date.

Controller charts: received by and date.

Materials furnished: received by and date.

Operation and maintenance manuals: received by and date.

System and equipment operation instructions: received by and date.

Manufacturer's warranties if required: received by and date.

Written guarantee: received by and date.

Lowering of heads in lawn areas: if incomplete, so state.

M. Delivery, Storage, Stockpiling, and Handling:

Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws if applicable.

Handling of PVC Pipe and Fittings: The Contractor is cautioned to exercise care in handling, loading, unloading, and storing of PVC fittings. All PVC pipe shall lie flat so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping. Pipe and fittings shall not be stored in direct sunlight.

Bulk Materials: Do not dump or store bulk materials near structures, utilities, walkways, and pavements, or on existing turf areas or plants; Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways

N. Project Conditions:

Site Inspections - Contractor must verify construction site conditions and note irregularities affecting work of this section. Report irregularities in writing to Engineer prior to beginning work; Commencement of work implies acceptance of existing site conditions.

Utility Locates ("Call Before You Dig") - Arrange and coordinate Utility Locates with local authorities prior to construction; Repair underground utilities that are damaged during construction. Make repairs at no additional cost to contract price.

Interruption of Existing Services or Utilities - Do not interrupt services or utilities to facilities occupied by the City of Downey or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated: Notify

Engineer no fewer than two days in advance of proposed interruption of each service or utility; Do not proceed with interruption of services or utilities without the City of Downey's written permission.

O. Guarantee:

A letter of guarantee from each manufacturer shall be submitted to the Agency guaranteeing his materials for a period of one year against material defects and workmanship. In cases where longer guarantees are required by these specifications, such guarantees shall be submitted.

II. MATERIALS

A. Specifying by Name:

Whenever any material is specified by name and number thereof, such specifications shall be deemed to be used for the purpose of facilitating a description of the materials and established quality and shall be deemed and construed to be followed by the words "or approved equal". No substitution will be permitted which has not been submitted for approval to the Agency within 30 days after the contract has been awarded. Three (3) copies of descriptive literature, including pressure loss curves, nozzle performance characteristics, etc., shall be furnished for any materials submitted as "equal" substitutes. No item will be considered as "equal" if it is constructed of different materials or alloy or is of a different principle of operation. Piping, tubing, conduit, valve, or any device through which the flow of water must pass shall not cause a greater resistance, turbulence, or pressure loss due to friction than that material as engineered and designed into this system.

Pressure loss curves shall be certified by an impartial commercial testing laboratory with all costs for tests and reports being paid for by the Contractor wishing to make the substitution.

Contractor shall submit letter (with material list) stating his reasons for any substitution and showing amount of credit offered if substitution should be acceptable.

B. General:

All materials shall be new and of size and type as called out on the drawings. All materials of like kind shall be of one manufacture.

C. Valve Boxes for Main Shut-Off Valves:

Size and type as called out on the drawings and specifications.

D. Backflow Preventer

Size and type as called out on the drawings.

E. Red Brass Pipe:

Shall be Federal Specification No. WW-P-351 medium weight, IPS, with threads to conform to ASA

Specification B2. Fittings shall be medium pattern, banded, threaded with standard taper pipe threads.

F. Fittings - Steel:

150 lb. galvanized malleable iron, banded.

G. Unions - Steel:

Galvanized steel with brass to iron seat, minimum 300 lb. WOG, ground joint.

H. Risers - Ferrous Metal:

Shall be galvanized steel pipe (to strainer assembly). Material for sprinkler head risers shall be as called out on the drawings.

I. Pipe Wrap:

Galvanized steel pipe to strainer assemblies shall be field wrapped as detailed or to 6 inches above finished grade. Use ten mil PVC tape, two layers (half-lapped) to equal forty mil thick total wrapping. Clean surfaces and prime with solution required by manufacturer of tape. Field wrap all joints with same materials leaving identification marks visible, re-apply wrap as recommended by tape manufacturer. All wrapping to be tested in the presence of the Agency Representative using approved detector.

J. PVC Pipe (General):

All pipe to be permanently and continuously marked with manufacturer's name, pipe size (IPS) and schedule (D-1785-68 for schedule pipe), manufacturer's lot number and NSF approval. Pipe with dents, ripples, wrinkles, die, or heat marks is not acceptable. Pipe shall be delivered to the site in 20-foot lengths.

K. Tracer Wires:

A No. 12. Green Type TW plastic-coated copper tracer wire shall be installed with non-metallic main lines.

L. Threaded PVC Nipples:

Schedule 80, Type 1, 3-inch minimum length, except where detailed otherwise on drawings. PVC domestic main to drinking fountains shall be PVC Schedule 80 solvent welded plastic pipe: gray in color, meeting ASTM D-1785.

M. PVC Mainline:

Shall be 1120/1220 normal impact, 2" through 12" use Schedule 40 with integrally thickened bell ends, solvent weld type meeting ASTM D-1785, 2 through 22", use Class 315, solvent weld type meeting ASTM D-1785, 3" and larger use Class 200 O-ring gasketed pipe. All pressure supply lines

under vehicular paving shall be installed in a PVC Schedule 40 sleeve.

N. PVC Laterals (Non-Pressure Piping):

Normal impact, Schedule 40, solvent weld type meeting ASTM D-1785.

O. Fittings - PVC:

For make-up shall be of same chemical compound as pipe on which it is installed. Use Schedule 40 medium-wall fittings for any "all socket" connections. Use Schedule 40 heavy-wall fittings for all fittings with one or more threaded outlets. Fittings for ring-type connections shall be compatible with the pipe on which they are used. Sealing rings shall be procured from the Manufacturer of the pipe and meet configuration of grooves and diameters provided.

P. Fitting for 0-Ring Gasketed Pipe:

Fitting shall be ductile iron, slanted, deep bell, gasketed style make in accordance with ASTM A-536, Grade 65-45-12. Fittings shall have four lugs to accommodate joint restraints and other fittings. Bell section shall allow 5-degree freedom of pipe deflection within the bell end. Gasket design shall be re-enforced “U-Cup” configuration to seal and assist in restraining pipe at all pressures. Fittings shall be as manufactured by Leemco, Inc. or approved equal.

Q. P.V.C. Pipe Compound:

Plastic pipe and threaded fittings: Assemble using teflon tape applied to male threads only.

R. Primer:

For PVC solvent weld connections shall be as recommended by the manufacturer of the PVC pipe. Primer shall be chemically compatible with the pipe, fittings, and solvent. No primer need be used if "Christy's Red Hot Blue Glue" is used as solvent material.

S. Solvent:

For PVC solvent weld connections shall be as recommended by the manufacturer of the PVC pipe. Solvent shall be chemically compatible with the pipe, fittings, and primer.

T. Sprinkler Risers:

The riser shall be PVC Schedule 80 to fit sprinkler opening in swing joint assembly and proper length as detailed on the drawings.

U. Valves:

1. Ball Valve:

2 2 inches and smaller bronze ball valve (unless otherwise noted on drawings); ASTM B-584 Alloy-844, 150 PSI saturated steam-600 WOG rating. 2-piece body, chrome plated ball, blowout-proof stem UL listed.

2. Check Valves:

Swing check valve, 2 inches and smaller on non-pressure lines: bronze or plastic construction, 100-pound S.W.P. female i.p.s.

Swing check valves, 2-1/2 inches and larger on pressure lines: cast iron, 150-pound class with no-slam feature.

3. Couplers:

Same manufacturer as quick coupling valve; cast bronze, machined shank, coupler to include operating handle. Top of coupler equipped with 3/4" hose swivel.

4. Gate Valves:

2 2 inches and smaller (unless otherwise noted on drawings): ASTM B62 brass body, 150-pound saturated steam rated; with screwed joints; non-rising stem; screwed bonnet solid disc. Provide with brass or bronze handwheel.

3 inches and larger (unless otherwise noted on Drawings): ASTM A-126 class B, iron body 150-pound W.O.G. with flanged joints, non-rising stem; bolted bonnet and double disc, equipped with operating nut, or as otherwise approved.

6. Remote Control Valves:

All bronze globe type, contamination proof, slow closing, 150 lb.; electrically operated, 24-volt, epoxy encapsulated waterproof, solenoid to be an integral part of the unit; throttling device with cross arm on top; manual operated to cause valve to open and close without use of electricity. Manual operator shall be provided by the factory and not fabricated by the Contractor. Valves shall be of same manufacture as automatic controller unless noted otherwise. Valves shall have one-year manufactures warranty.

7. Master Valve:

As provided with pre-manufactured Booster pump.

V. Sprinkler Heads:

Make, size, type and performances as called out on the drawings.

W. Automatic Controller:

X. Valve Boxes:

Valve boxes unless otherwise noted shall be fabricated from a durable plastic material resistant to weather, sunlight, and chemical action of soils. They shall be green in color. The cover shall be secured with a stainless-steel bolt mechanism. The cover shall be capable of sustaining a load of 1500 PSI. Valve box extensions shall be by the same manufacturer as the valve box. All valve boxes shall be as manufactured by Brooks, Carson or an approved equal.

Quick coupling valve boxes shall be round. The cover shall be heat branded with the letters "QCV," 2" high.

Gate valve boxes shall be round. The cover shall be heat branded with the letters "GV," 2" high.

Remote control valves shall be 12" X 18". The cover shall be heat branded with the letters "RCV" and the valve number in characters 2" high.

Splice boxes shall be 12" X 18". The cover shall be heat branded with the letters "SB," 2" high.

Valve boxes for moisture sensing stations shall be 12" X 18". The cover shall be heat branded with the letters "MSS," two inches high.

Traffic area boxes: concrete cast iron lid designed for vehicular traffic use.

Y. Booster Pump Assembly - General Requirements:

The pumping system shall conform to the following specifications in all respects. This specification covers the minimum requirements; however, it should not be construed as all inclusive. It is the successful vendor's responsibility to include all necessary appurtenances to provide for a complete, automatic, smooth operating, and reliable pumping system. The manufacturer shall supply a complete set of general arrangement drawings, electrical power schematics, and control schematics in the operations and service manual.

The pumping system must automatically maintain a constant discharge pressure regardless of varying flow demands within the station rating. The prefabricated pumping station must have a capacity as shown on the construction documents and a station discharge pressure downstream of all pump system components as shown on the construction documents.

The station shall be completely piped, wired, hydraulically and electrically tested on a structural steel skid before shipment to the job site.

Construction must include skid assembly to support all components during shipping and to serve as the installed mounting base. Base must be of sufficient size and strength to resist twisting and bending from hydraulic forces and support the full weight of pumps and motors. Skip welding is not acceptable during fabrication of the skid.

All pump station components shall be supplied by and be the responsibility of one manufacturer, even though some components were manufactured by others.

The pump station and related equipment shall meet all the general and technical specifications; shall be designed, fabricated, and installed in a workmanlike manner; and shall be delivered within schedules negotiated between Contractor and manufacturer. The entire station must be U.L. Listed.

All components of the pumping system must be designed to function in an outdoor environment exposed to all of the elements. Furnish protective enclosures and covers as required for proper operation of the system.

Provide a factory-trained technician to supervise the installation of the pump station, pumps, and motors: In addition to the time required for installation supervision, the technician must provide a minimum of 1 day of training for the Owner’s staff in the operation, maintenance, and programming

of the pumping system; Acceptable Manufacturers: WATERTRONICS, P.O. Box 530, Hartfield, WI 53029. Contact Phil Vangene, Sales, (925) 250-5885, email pvagene@gte.net.

Z. Booster Pump Assembly:

Station Performance:

Power Requirement:

Model Description:

Not Included: Crane To Off-Load and Set Pump Station

Shipment: A firm delivery date will be established and transmitted to purchaser when non-stocked material deliveries are confirmed. If no delays, estimated 6-7 weeks after receipt of signed submittal and drawing.

Delivery and Set-Up (Installer Responsibility)

1. All reasonable efforts will be made to meet the requested delivery date after the receipt of a signed submittal; however, Watertronics will not be liable for delays in delivery.
2. Pump station components shipped separately from the station, at the Customer's request, may incur additional freight charges, payable by the Customer.
3. Customer will be responsible for having job site readily accessible for station delivery.
4. Customer will provide the equipment and personnel required to unload and/or set the pump station.
5. Station Set-up: not included.
6. Customer will be responsible for electrical permit if required.
7. Customer will be responsible for primary electrical hookup to pump station.
8. Customer will be responsible for making all piping connections.
9. Customer will be responsible for building modifications if required for installation.
10. Customer will be responsible for wet well, slab, or concrete work.

Start-Up:

Warranty:

Power Supply:

Change Orders:

AA. Electrical Requirements to Booster Pump - (240 v):

Service to booster pump existing and final hook up shall be provided by electrical subcontractor.

Electrical equipment installed outside shall be NEMA 4 type.

All connections between electrical services and equipment shall be in rigid galvanized electrical

conduit, with conduit and wiring size as required.

To be complete in every respect to City Electrical Code, ready for use and in accordance with manufacturer's requirements. Provide separate power shut-off switch at panel for each controller. All wiring in galvanized conduit and fittings from source provided under the electrical section. No running threads accepted; use nipples. Conduit system shall be 660-volt insulation, NEC standard annealed copper wire and shall be minimum AWG #12 TW or RW. Protect each controller by a code approved ground connection. Supply to be 120 volts, 60 cycle, single phase, one amp. Use only galvanized steel fasteners in securing controllers in position. Install new controller as detailed on drawings.

BB. Electrical Requirements from Automatic Controllers (24 volts):

1. Control and Common Wire

To remote control valves wires shall be U.F. type, U.L. approved, AWG number 14 solid strand copper wire with minimum 4/64" PVC coating, 600-volt, 75 C. "Common" wire to be white coated. Each controller to have a different color pilot wire where more than 2 controllers are on a site.

3. Wire Connectors for Direct Burial Conductors (24 volt):

Splices, where permitted, shall be waterproofed using Rain Bird or Pen-Tite Connectors.

4. Di-Electric Isolation:

Provide between all connections joining ferrous and non-ferrous metals, or old (existing) ferrous and new ferrous metals. Submit for approval type intended for use.

III. INSTALLATION

A. General:

All work shall be performed by competent, experienced workmen and in a manner to coincide with methods as set forth by the manufacturers of the equipment to be used and as acceptable to the Agency Representative. No consideration will be given to any design changes unless called for by the Agency Representative.

Contractor shall be responsible for damages caused during his operations to any existing underground utility lines including existing irrigation control wires, storm sewers, sanitary sewer systems, gas lines, potable water lines, irrigation lines, telephone cables, gasoline or oil lines, electrical cables, or any other systems (buried or overhead). If such damage should occur, Contractor shall immediately notify Landscape Architect, Agency, and department affected by such damages and shall pay all ensuing costs.

Where it is necessary to excavate adjacent to existing trees, use all possible care to avoid injury to trees and tree roots. Excavation in areas where 2 inches and larger roots occur shall be done by hand. Roots 2 inches and larger in diameter, except directly in the path of pipe or conduit, shall be tunneled under and shall be heavily wrapped in burlap, to prevent scarring or excessive drying. Where a ditching machine is run close to trees having roots smaller than 2 inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making clean cuts through. Roots 1 inch and larger in diameter shall be painted with two coats of Tree Seal, or equal. Trenches adjacent to trees would be closed within 24 hours. Where this is not possible, the side of the trench adjacent to the tree shall be kept shaded with burlap or canvas.

Comply with all governing construction and plumbing ordinances for all work under this contract.

All work shall be assembled to conform to details and notes on the drawings, whether or not mentioned in the specifications.

B. Site Reviews:

Before any work commences, a conference shall be held with the Agency's Representative and Contractor regarding general requirements of this work.

Prior to trenching, Contractor shall be responsible for verifying existing pressure at point of connection. If pressure varies from what is indicated on drawings, the Contractor shall immediately notify Agency representative.

Contractor's responsibility:

Examine surfaces for conditions that will adversely affect execution, permanence, and quality of work.

Verify that grading has been completed and the work of this section can properly proceed.

Exercise extreme care in excavating and working near existing utilities. Contractor is responsible for damages to utilities which are caused by his operations or neglect. Check existing utility drawings for locations.

Notify the Agency's Representative in writing, describing unacceptable conditions.

Do not proceed with work until unacceptable site conditions are corrected or existing utilities are located.

C. Preparation:

Exercise care in excavation and working near existing utilities. Check existing utility locations. Contractor shall be responsible for damages to utilities which are caused by his operations or neglect.

Coordinate installation of the sprinkler irrigation materials, including pipe, so there shall be no interference with the utilities or other construction or difficulty in planting trees, shrubs, and ground covers.

Do not proceed with work until unacceptable site conditions are corrected or existing utilities are located and/or marked out in field.

Protection: Provide barricades, coverings, warning signs, lights and other protection required by local code or OSHA to prevent damage to existing improvements to remain and protect the public; Protect improvements on adjoining areas as well as those on the project site; Restore any improvements damaged by this work to original condition, as acceptable to Engineer or other parties or authorities having jurisdiction; Protect existing trees and other vegetation to remain against damage. Do not stockpile construction or excavated materials within drip lines.

D. Verification of Dimensions:

Verify all horizontal and vertical site dimensions prior to staking of heads. Do not exceed spacings shown on drawings for any given area. If such modified spacings demand additional or less materials than shown on the drawings, notify Architect before commencing work.

E. Irrigation System Refurbishment:

The contractor shall abandon irrigation lines in place and remove and dispose of all sprinkler heads and remote control valves within the areas of the proposed improvements. During the duration of the construction, the contractor shall be responsible for maintaining the remaining portions of the existing irrigation system in operation and supporting the livelihood of the existing plantings which are or may be affected by the project at all times. The Agency does not have accurate information as to the exact layout of construction of the affected irrigation systems to be removed. The contractor shall expose all points of connection, of the new system to the existing system prior to the start of construction of each sprinkler system.

The contractor shall submit a new layout for the locations of the new locations of the sprinkler heads and supply lines for approval by the Landscape Architect. The submitted layout shall be per the following:

1. New irrigation lines shall be complete with risers, double swing joints on all irrigation heads and irrigation or sprinkler heads.

2. New irrigation line shall match the size and kind of the existing irrigation line to be abandoned.

3. The new layout shall be connected to the existing line, such that the existing control setup shall be utilized.

4. Existing control wiring shall be used.

5. Sprinkler and irrigation heads shall be spaced as per the manufacturer's recommendation and/or as directed by the Landscape Architect.

The contractor shall preserve and protect all pipe that is not to be removed and shall preserve and protect all existing control wiring in operation.

No work shall be done on the installation of the new supply lines and sprinkler or irrigation heads until the contractor has staked the line and location of the proposed new supply lines and sprinkler or irrigation heads and obtained the approval of the Landscape Architect. the installation of all sprinkler and irrigation materials, including pipes and risers, shall be coordinated with the submitted layouts to avoid interfering with the trees, shrubs, or other plantings.

F. Manufacturer's Requirements:

Manufacturer's requirements for installation of products shall apply:

1. When no other direction is given.

2. When it is a more stringent requirement than the Standard Specifications and these Special Provisions.

G. Workspace:

The Contractor shall erect fences or guards as are required for the protection of the public and protection of construction materials and maintain same in good repair until the completion of the work under the contract.

H. Drawings of Record:

Obtain blueline ozalid prints from the Agency Representative and maintain daily records showing every change from the contract drawings of all locations of main lines, buried valves, conductors, quick coupler valves, and plugged or capped outlets. Locate each item from two points of architectural permanence, i.e., curbs, walls, light standards, etc. Do not dimension from sprinkler heads or other parts of the irrigation system. Keep record drawings on site for daily observation by the Agency Representative. All dimensions to be taken prior to backfill. On date of final observation, deliver corrected drawings to the Agency Representative. Final drawings shall be prepared by the Contractor on sepia prints obtained from the Agency Representative, showing all field notes in India ink finalized by a competent draftsperson. Delivery of prints does not relieve the Contractor of responsibility for providing any information that may be omitted from the prints.

I. Trenching:

Do all excavation for installation of all work included in contract. Mechanical trenching machines shall be type to cut trenches with straight, parallel sides. Trenches to be only wide enough as may be required to lay the pipe and control wires. "Pulling" of main line pipe and/or control wires will not be permitted. Contractor shall use all possible care to protect existing trees and plants during trenching. Roots 2" or larger shall be tunneled under and wrapped with wet burlap to prevent scarring with two coats of approved sealer manufactured for this purpose. Cover all trenches in root areas (only while open) with wet burlap and backfill within 24 hours after opening the trench. Obtain Agency Representative's approval before cutting any root over one-inch diameter. All trenching in such areas shall be done by hand.

J. Backfill:

After the work has been installed to depths as detailed on the drawings, flushed, tested, and proven tight in the presence of the Agency Representative, backfill with fine granular materials as approved by the Agency representative. Allow no rocks or other objects larger than one-inch diameter to fall in the first 6" of cover. Backfill carefully and tamp properly to avoid any voids. Flooding of trenches shall be done only with the approval of the Agency Representative; however, all sandy soils shall be flooded during the backfill-compaction operation.

After compacting backfill over all pipelines to equal density of adjoining undisturbed soils, Contractor shall remove all remaining debris caused by his operation from the site and dispose of same in legal manner. All trenches shall be left flush to the adjoining undisturbed grades. Any work covered prior to field observations by the Agency Representative shall be uncovered at the expense of the Contractor to allow for such observations.

If settling occurs and subsequent adjustments in pipe, valves, sprinkler heads, lawn planting, or other construction are necessary, the Contractor shall make all required adjustments without cost to the City.

Under no circumstances shall truck wheels be used to compact soil

K. Laying of Lines:

Lines shall be staked and installed in the locations shown on the drawings. Discrepancies between drawings and site shall be brought to the attention of the Agency Representative prior to trenching. Do not exceed maximum spacings shown on drawings, nor exceed the GPM on the pipe sizes shown. Assemble all pipes free from dirt and scale; ream and deburr. Piping and electrical sleeves under concrete shall be set in place prior to paving work. If pipe must be laid after paving is in place, it shall be done by jacking, boring, or hydraulic driving.

If cutting or breaking of any paving is necessary, it shall be done and replaced with like material at the expense of the Contractor. Obtain approval of Agency Representative prior to any cutting or breaking. Hydraulic driving will not be permitted under asphalt paving. All sleeves set in place under paving shall extend 18" minimum beyond such paving and be capped hand tight. No fittings, including couplings, will be permitted under surfaces to be paved except where the length of the line under the paving exceeds 20 feet or where lines are encased in sleeves.

Unless installed in a PVC sleeve, all pipes under pavement surface to be installed a minimum of 24 inches below A.C. paving with a 6-inch bedding and a 6-inch cover of sand backfill.

Replace and restore all surfaces to original condition, including grade and landscaping.

Restoration work shall match the original work in every respect, including type, strength, texture, and finish.

In new paved areas, coordinate installation of piping and wires under paved areas with General Contractor.

If the only piping installed is over 20 feet long, pressure testing is required for that section at the time of installation. Upon completion of piping installation, the entire system must be tested.

If wire under paved areas cannot be continuous, all splices shall be enclosed in an approved box.

L. Assembly of Metal Pipe:

Do not bend or spring pipe; make all offsets or changes in direction with fittings. Cut threads with sharp, clean dies to conform to ASA specifications B2. Make up joints by applying oil base compound to male threads only. Remove excessive compound after makeup.

M. Assembly of PVC Pipe:

Handle with care when loading, unloading, transporting, and storing to avoid damage. Store pipe and fittings under cover before using. Transport in vehicle with bed of sufficient length to carry pipe flat and fully supported. Store pipe in same manner. Notify Agency Representative when each pipe and fittings shipment reach the site, for observation. Rejected materials shall be immediately removed from the site and replaced with new shipment of different batch number.

General: Maintain a minimum horizontal distance of 3’-0” between control valves that are installed side by side; Maintain a minimum 1’-6” distance between fittings installed in main line; Crossing fittings are not allowed.

Generally, piping under existing walks is done by jacking, boring or hydraulic driving; where only cutting or breaking of sidewalks and/ or concrete is necessary, it shall be done and replaced by the Contractor as part of the contract cost. Permission to cut or break of sidewalks and/or concrete shall be obtained from the Engineer. No hydraulic driving will be permitted under concrete paving or A.C. paving.

Carefully inspect all pipe and fittings before installation, removing dirt, scale, and burrs and reaming; install pipe with all markings up for visual inspection and verification.

Exercise care in handling, loading, unloading, and storing plastic pipe and fittings; store plastic pipe and fittings under cover until ready to install; transport plastic pipe on a vehicle with a bed long enough to allow the pipe to lay flat, avoid undue bending and any concentrated external load.

Remove all dented and damaged pipe sections.

Contractor shall install concrete thrust blocking at all changes of direction and terminal points of pressure pipe.

All lines shall have a minimum clearance of 6 inches from each other and 12 inches from lines of other trades.

Parallel lines shall not be installed directly over one another.

In solvent welding, use only the specified primer and solvent cement and make all joints in strict accordance with the manufacturer's recommended methods; allow solvent welds at least 15 minutes setup time before moving or handling and 24 hours curing time before filling. 360-degree applicators shall be used to apply primer and solvent on sizes 2-1/2 inches and larger.

Center-load pipe with approved backfill to anchor pipe before testing to prevent pipe from moving under pressure. Do not cover couplings and fittings.

All threaded plastic-to-plastic connections shall be assembled using Teflon tape.

For plastic-to-metal connections, work the metal connections first. Use a non-hardening pipe dope on all threaded plastic-to-metal connections, except where noted otherwise.

N. Joining by Ring Seals:

Provide for expansion and contraction at each end. Use rubber ring and lubricate with non-toxic lubricant. Center load, leaving all connections exposed. Do not lay pipe in trench containing water or at less than 32 degrees F.

O. Joint Restraints:

Ductile iron joint restraints shall be installed on all fittings and gate valves for all IPS-Size, ring joint PVC pipe. The joint restraint shall be capable of securing the PVC pipe directly to the lugs on the Leemco and HARCO deep bell ductile iron fittings without the use of bolts, links, and adapters. The joint restraint shall be capable of securing PVC pipe to PVC pipe and PVC pipe to ring joint gate valves without the use of threaded linkages.

All ductile iron fittings shall be secured to full-length pipes and on all bends and tee branches, the next joint of the pipe shall be secured. At least two full lengths of pipe must be secured when attached to bends and tee branched 8” and larger, and at least three full lengths when attached to a fitting shall also be secured.

The joint restraint must be similar in all respects to the joint restraints as manufactured by Leemco, Corona, California.

P. Joining by Solvent Weld:

Use non-synthetic brush to spread primer and solvent using no larger than pint-sized cans. Clean and refill cans each day. Cut pipe square, ream, chamfer outside end at 10 degrees. Clean and dry pipe and fitting socket. PVC solvent weld connections shall be made as recommended by the manufacturer of the PVC pipe. Bottom the pipe in socket and turn 90 degrees. Hold joint together 30 seconds. Wipe off excess solvent. Allow to set 30 minutes before moving. Snake pipe side to side in trench bottom, keeping 4" horizontal clearance between two pipes in same trench. Do not lay pipe in trench containing water or at less than 32 degrees F. Center load immediately leaving joints exposed.

Q. Locating Assemblies and Valves:

Install backflow assemblies in shrub areas at minimum height permitted by local code. Paint assemblies with 2 coats of flat black enamel.

Hose bibbs: Locate bibbs in shrub areas within 12 inches of header or hardscape.

Quick coupling valves: Unless otherwise indicated, locate valves within 12 inches of hardscape.

Remote control valves: Locate as indicated on Drawings within 12 inches of hardscape, with access sleeve, unless otherwise noted.

Fill area under valve box with minimum 3 cubic feet of pea gravel before box is installed.

R. Flushing of Lines:

Mains shall be flushed before attaching remote control valves, quick coupler valves and with pipe center loaded. All water being discharged shall be temporarily piped up and out of the trenches. Trenches to be kept dry for pressure tests to follow. Install all valves after approval of flushing procedure by the Agency Representative.

Laterals shall be flushed before sprinkler heads are in place. Cap all risers, apply pressure, remove caps in sequence starting at the control valve. Replace caps before removing caps to follow. Continue to end of each lateral. Flush until all foreign matter and mud is cleared of the system. Contractor to provide all materials required for flushing operations.

S. Operational and Coverage Test:

Activate each remote-control valve in sequence from controller. Provide either one additional personal with radio or use handheld remote to activate remote control valves from controller. Manually activating remote control valve using manual bleed mechanism at remote control valve is not an acceptable method of activation. Engineer will visually observe operation, water application patterns, and leakage. All irrigation sprinklers systems and sub-surface drip systems must provide 100% head-to-head (emitter to emitter) coverage. Any areas not receiving head-to-head (emitter to emitter) coverage shall be corrected and retested per the Engineer.

Replace defective remote-control valve, solenoid, wiring, or appurtenance to correct operational deficiencies.

Replace, adjust, or move water emission devices to correct operational or coverage deficiencies.

Replace defective pipe, fitting, joint, valve, sprinkler, or appurtenance to correct leakage problems. Cement or caulking to seal leaks is prohibited.

Repeat test(s) until each lateral passes all tests. Repeat tests, replace components, and correct deficiencies at no additional cost to LACC.

All heads must be adjusted to prevent over spray to buildings, walks, streets, etc. (See adjusting the system section).

U. Engineered Booster Pump Testing:

Notify the Owner's Representative three days in advance of testing.

On completion of assembly of the pumping station, all discharge pipe and valves must be hydrostatically tested at 150% of the maximum pump shutoff head.

Bump manual motor starter controls to prove correct rotation and secure local inspection/approval.

Test, verify, and demonstrate to the Owner's Representative the proper operation of all control and safety shut off devices.

Verify flow and discharge pressure from the pump system and demonstrate to the Owner's Representative system performance based on the specified values.

All costs, including travel expenses and site visits by the Engineer, for any additional reviews that may be required due to non-compliance with the Construction Documents are the sole responsibility of the Contractor.

Coordinate water availability with the Owner’s Representative.

Verify proper operation and set points of the pressure relief valves.

Acceptance Test Prior to Final Inspection:

Upon completion of construction and prior to Final Inspection, an Acceptance Test must be passed.

Coordinate start of Acceptance Test with the Owner’s Representative.

During the Acceptance Test, the pumping system must be fully operational. The pumping system must operate with no faults for 14 consecutive days. If at any time during the 14-day test period, a system fault occurs, the source of the fault must be determined and corrected, and the 14-day evaluation period will start again. If a system fault occurs, make repairs within 24 hours of notification from Owner’s Representative. Document any faults in the proof of test report listing date of fault, fault, cause of the fault and the corrective action taken.

When the system has operated for 14 days without fault, contact the Owner’s Representative to schedule Final Inspection.

V. Pumps and Motors:

Shipping, off-loading and the technical start up shall be furnished by the pump station manufacturer. Location and mounting details shall be furnished to the Contractor by the pump station manufacturer.

Electrical connection by others shall consist of a single conduit with conductors from the electrical service disconnect to the pump station main disconnect.

Provide technical start up procedures by the pump station manufacturer including: Station start up and pressurization; Pressure, flow, and programming adjustments; Monitoring of park irrigation cycle when possible. Technician will instruct operations personnel as to the operation, adjustment, and maintenance of the pump station.

W. Pressure Tests:

Do not backfill over any line more than is necessary for testing until it has been inspected, tested, and approved.

Perform all hydrostatic tests in presence of the Agency Representative after flushing lines. Maintain 125 psi on main lines for four (4) hours with all air expelled from line without quick coupler and control valves in place. All leaks shall be corrected in mechanical manner without use of epoxy fillers or other filler compounds. Provide all equipment for tests including force pump and pressure gauges. No pressure test shall be required for lateral lines unless otherwise noted.

If pressure tests are noted, lateral lines shall be pressure tested at 100 psi for two (2) hours where they are providing water to street trees only and will be primarily buried under concrete or asphalt paving. Swing joints do not need to be tested.

X. Laying of Control Wires (24 volt):

Lay wires in common trench with main lines unless otherwise approved. Splicing allowed only every 500 feet. Provide 2 feet expansion loop at splice. Use concrete electrical junction box with bolt down lid at each splice point. White coated common wire in junction boxes to be tagged with 1/4" wide embossed plastic labeling tape showing controller designation. Use plastic electrical tape and bind all control wires in bundles at 10-foot intervals. All approved splices, including splices at remote control valves, shall be waterproof and enclosed in an acceptable box. Install PVC sleeve where wire is not installed with main lines.

Y. Laying of Tracer Wires:

Tracer wire shall be placed on bottom of trench under vertical projection of pipe, paved carefully to avoid stress from backfilling, and shall be continuous throughout length of pipe with spliced joints soldered and covered with insulation type tape.

Tracer wire shall follow main line pipe and branch lines and terminate in yard box with gate valve that controls these main irrigation lines. Provide enough length of wire to reach surface grade, bend back end of wire to make a loop and attach a Dyno-tape plastic label with designation of ATracer Wire@.

Location of tracer and its termination shall be recorded on Project Record Documents.

Tracing wire Test: Pass current through wire and demonstrate that wire is capable of locating the pipe; If wire will not pass current, locate break and test until tracing wire works in accordance with its intended use.

AA. Pipe Sleeving and Boring:

All sleeving shall be 2 times the diameter of the pipe used. Sleeving for control wires shall be 2 inches in diameter minimum.

All trenches for sleeving must be compacted to 95% compaction using manual or mechanical taping device.

Contractor shall be responsible for the installation of all sleeves required for the irrigation system not listing in the drawings.

Bore for sleeves under obstructions that cannot be removed. Employ equipment and methods designed for horizontal boring.

BB. Thrust Blocks:

Use thrust blocks for fittings on pipe greater than or equal to 3-inch diameter.

Size, orient, and place cast-in-place concrete against undisturbed soil as shown on installation details.

Wrap fitting or component with plastic to protect fitting from concrete. Do not bury fitting or component in concrete.

Commercially delivered concrete requires a 3,000 PSI mix.
If pre-mix bags are used, mix per manufacturer's recommendations (maximum 1 gallon of water to 80-pound bag of pre-mix).

Contractor is responsible for performing a slump test (minimum of 2-inches to a maximum of 4-inches) if requested by Engineer.

CC. Sprinkler Heads:

Install the sprinkler heads as designated on the drawings. Sprinkler heads to be installed shall be equivalent in all respects to those itemized on plans and details.

Spacing of heads shall not exceed the maximum indicated on the drawings. In no case shall the spacing exceed the maximum recommended by the manufacturer.

Irrigation heads along walks, curbs, paving, etc. shall be set flush with finish grade of paved areas. Irrigation heads in turf areas shall be positioned 1/2" above finish grade in seed and 1-1/2" inches above finish grade in sod.

All sprinkler heads shall be set perpendicular to finish grades.

Sprinkler Analyzer Kit: Use a pitot tube pressure gauge at the furthest rotor sprinkler assembly from the respective remote-control valve. Adjust pressure at each rotor remote control valve to provide an operating pressure as specified in the legend at the worst-case rotor sprinkler. Typically, the worst-case sprinkler is the sprinkler furthest from the remote-control valve. Complete pressure

adjustment for every rotor remote control valve; Turn over pitot tube pressure gauge to the Engineer at completion of construction

DD. Identification:

Identify valves, valve boxes, and related appurtenances with Christie ID tags.

Identify pumps with decals.

Heat brand box type identification and valve number in box lids.

EE. Adjusting System

Adjust entire system prior to coverage test and again at conclusion of maintenance period.

1. Set all shut-off valves in the system to full open position.

2. Adjust all stationary heads to equal and uniform coverage using adjusting screws in each sprinkler head and by control of the throttle device in each remote-control valve.
3. Adjust all rotary head systems using pitot tube with pressure gauge attached. Set most critical head in each system to meet nozzle pressure as called out on the legend by regulating the remote-control valve while pitot tube-gauge assembly is inserted in nozzle. Adjust all radii to fit requirements on drawing if heads are equipped with such a device.

4. Adjust arcs of all adjustable arc type heads so as to prevent overspray on areas to be kept dry. This can also mean the replacement of nozzles or arcs in stationary heads to nozzles of difference cut, i.e., 180^{o} nozzles to change to 120^{o} nozzles, etc.

5. At proper time of plant growth, or when directed by the Agency Representative, Contractor shall set automatic controller to operate as noted on the drawings and shall at that time readjust all remote-control valves in the system to operate heads at optimum performance based on nighttime pressures and simultaneous demands through the supply lines. This may call for repeat of the pitot tube-pressure gauge tests described above if the Agency Representative calls for such procedure, at no additional cost to the Agency.

FF. Site Cleaning:

Clean all debris from site, remove all storage rooms and all other constructions and make site ready for planting work to follow. Work or debris not cleared for landscape work may be backcharged to this subcontractor by the landscape subcontractor.

GG. Observations:

Observations will be performed by the Agency Representative at the following times and at random visits when the observer may be on the site.

1. Prework conference. To be conducted prior to any irrigation work under this contract.
2. Observation of flushing.

3. Observation of pressure test.
4. Observation of coverage performance.
5. Final observations of the completed installation.
6. Contractor shall not cover any work prior to observation by the Agency Representative.
7. All observances called for by the Contractor shall be requested in writing, at least 48 hours prior to the anticipated observation.

Contractor shall provide "walkie-talkie" equipment and/or personnel to maintain communication from review are to automatic controllers.

All work shall meet the approval of the Agency Representative or be rectified by the Contractor to a condition that does meet this acceptance at no additional cost to the Agency. If the Contractor calls for observations and is not ready for the observations, it shall be backcharged, hourly, including travel time for all members of the team of observers involved.

HH. Lowering of Heads, Valve Boxes, Quick Coupler Valves, etc.:

All equipment that may be damaged by mowing shall be set flush to finished grade as called out on the drawings, prior to final acceptance of the work.

II. Completion Clean-Up:

A. Upon completion of work, the Contractor shall smooth all ground surfaces. Refuse and excess dirt, excess materials, rubbish, debris, etc. shall be removed from the site. All walks, adjacent streets, parking lots, curbs, gutters, and trails shall be broomed or washed down; any damage sustained on the work of others shall be repaired to original conditions. Remove construction equipment from the premises.

JJ. Final Field Observation Prior to Acceptance:

The Contractor shall operate each system in it's entirely for the City at time of final field inspection. Any items deemed not acceptable shall be reworked to the complete satisfaction of the City.

The Contractor shall show evidence that the LACC has received all charts, accessories, record drawings and equipment as required before final field observation can occur.

End of maintenance shall occur only on the written acceptance of the City.

KK. Cleanup and Protection:

During the duration of the project, keep adjacent paving and construction clean and work area in an orderly condition.

LL. Disposal:

Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off the project site.

MM. Guarantee:

The Contractor shall guarantee the entire irrigation system against defects in materials and workmanship for a period of one (1) year from the date of acceptance of the work. The Contractor shall furnish a Faithful Performance Bond in the amount of 10% of the amount bid for the installation of the irrigation system to be in force for the one (1) year guarantee period.

A copy of the guarantee form shall be provided at the time of contract award and shall also be included in the Operations and Maintenance Manual.

The guarantee form shall be retyped onto the Contractor's letterhead and contain the following information.

GUARANTEE FOR IRRIGATION SYSTEM

We hereby guarantee that the irrigation system we have furnished and installed is free from defects in materials and workmanship, and the work has been completed in accordance with the Drawings and Specifications. We agree to repair or replace all defects in material or workmanship which may develop during the period of one year from date of acceptance and also to repair or replace all damages resulting from the repair of such defects at no additional cost to the Agency. We shall make such repairs or replacements within a reasonable time, as determined by the Agency, after receipt of written notice. In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Agency, we authorize the Agency to proceed to have said repairs or replacements made at our expense, and we will pay the costs and charges therefor upon demand.

PROJECT:
LOCATION:
CONTRACTOR/COMPANY:
LICENSE NO.:
ADDRESS:
PHONE:
DATE OF FINAL ACCEPTANCE:
SIGNED:
DATE:

End of Section

SUPERIOR SHADE™

CALCULATIONS FOR:

SUPERIOR SHADE #011991C

Shade Structure - 40' x 20' x 10'
476 Mount Vernon
Lindsay, CA 93247

2010 CALIFORNIA BUILDING CODE

APPROVED
2/14/13
CITY OF LINDSAY
BUILDING DEPT.

February 12, 2013

PREPARED UNDER THE DIRECT CONTROL AND SUPERVISION OF:

REGISTERED PROFESSIONAL ENGINEER
JASON M. CONN
C 66571
EXP. 6/30/14
CIVIL
STATE OF CALIFORNIA
2/12/13

CHECKED BY
2/14/13
CITY OF LINDSAY
BUILDING DEPT.

THIS SEAL PERTAINS ONLY TO THE MATERIALS SUPPLIED BY SUPERIOR SHADE
THIS SEAL DOES NOT SERVE AS - OR REPRESENT - THE PROJECT
ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.

Olive Bowl

City Copy / Permit Set

Permit #100711
$4,875 Valuation

TABLE OF CONTENTS

DESIGN CRITERIA

2010 CALIFORNIA BUILDING CODE

Condition #1 = Fabric Top in Place
Condition #2 = Fabric Top Removed

				Condition Applied:
Dead Loads:	Weight of Roofing System =		0.10 psf + Structure Dead Wt.	Condition #1 & #2
Snow Loads:	Basic Ground Snow Load (Pg) =		0.00 psf	Condition #2
	Roof Snow Load (ps) = 0.7(Ce)(Ct)(I)(Pg) =		0.00 psf	Condition #2
	Ce = 1.0	ASCE 7, Table 7-2		
	Ct = 1.2	ASCE 7, Table 7-3		
	I = 1.0	ASCE 7, Table 7-4		
Wind Loads:	Based on 85 mph wind speeds			Condition #1
	Based on 85 mph wind speeds			Condition #2
	See Wind Analysis Sheets			

Seismic Loads:	Equivalent Lateral Force Procedure, ASCE 7, Section 12.8			
	Seismic Design Category =	D	ASCE 7, Table 11.6-1	
	Seismic Site Class =	D	ASCE 7, Table 20.3-1	
	Basic Seismic Force Resisting System:	Cantilevered Columns	ASCE 7, Table 12.2-1	
	Detailed to Intermediate Moment Frames			
	$V = Cs*W = (S_{DS}*I/R)*W =$	0.352 *W	ASCE 7, 12.8-1, 12.8-2	
	I =	1.00	ASCE 7, 11.5.1	
	R =	1.50	ASCE 7, Table 12.2-1	
	Ωo =	1.25	ASCE 7, Table 12.2-1	
	p =	1.00	ASCE 7, 12.3.4.1	
	$S_{DS} = 2/3*(Fa*Ss) =$	0.528	ASCE 7, Table 11.6-1	
	Fa =	1.320	ASCE 7, Table 11.4-1	
	Ss =	0.600	ASCE 7, Figure 22-1	
	$W_{DL}+k*W_{LL} =$	1.62 psf	ASCE 7, 12.7.2	
	Qe = V =	0.57 psf	ASCE 7, 12.4.2.1	
	Seismic Load, E = *p* *(Qe) = *p* *(V) =	0.57 psf	ASCE 7, 12.4	Condition #1 & #2
	Max. Seismic Load, $E_m = \Omega o*(Q_e) =$	0.71 psf	ASCE 7, 12.4	Condition #1 & #2

Load Combinations:

Basic Load Combinations per CBC 2010

D = Dead Loads
S = Snow Loads
W = Wind Loads
E = Seismic Loads

(1) 1.4*D*
(2) 1.2*D* + 1.6*S* + 0.8*W*
(3) 1.2*D* + 1.6*W* + 0.5*S*
(4) 1.2D +/- 1.0E + 0.2S
(5) 0.9*D* +/- 1.6*W*
(6) 0.9*D* +/- 1.0*E*
(7) 1.2*D* + E_m
(8) 0.9*D* + E_m

Project	: ON COVER	**File**	: ON COVER
Subject	: WIND ANALYSIS	**Date**	: 2/12/2013
Location	: ON COVER	**Eng.**	: BMR

Design Wind Pressure, p, Equation 6-25 (ASCE 7-05)

Design wind pressures and forces are determined per equations given in section 6.5.13

System Type	Structure Type	Equation
Open Buildings and Other Structures	Rigid Structures Pitched Roofs over Open Buildings	p = qz·G·Cn qz : at height z above ground Gf : Given in 6.5.8 Cn : given in Figure 6-18B

Velocity Pressure Calculations, qz

Velocity pressure qz is calculated in accordance with section 6.5.10

qz = Velocity pressure @ height z (Eq. 6-15)

qz = Constant · Kz · Kzt · Kd· V ² ·I

Where :	Constant	= Numerical constant = ½ · [(Air density lb/ cu ft) / (32.2 ft/s²)] · [(mi/h)(5280 ft/mi) · (1 hr/3600 s)] ² = 0.00256	(Section C6.5.10)
	Mean Sea Level	= 0.00 ft	
	Air Density @ MSL	= 0.0765 lb/cu ft	(Table C6-13)
	Category	= II	(Table 1-1)
	Importance Factor	= 1.00	(Table 6-1)
	Exposure Category	= C (Open terrain)	
	Alpha	= 9.50	(Table 6-2)
	Zg	= 900.00 ft	(Table 6-2)
	Basic Wind Speed	= 85.00 mph	(Figure 6-1)
	Height	= 12.00 ft	
	Width	= 20.00 ft	
	Depth	= 40.00 ft	

Velocity Pressure Calculations, qz (Cont.)

Where : Kz = Velocity pressure coefficient at height z (Eq. C6-4a)
= 2.01·(Z/Zg) ^ (2/Alpha) for 15 ft <= Z <= Zg (Eq. C6-4b)
= 2.01 · (15/Zg) ^ (2/Alpha) for Z < 15 ft
= 0.85

Kzt = Topographic factor obtained from Fig. 6-4
= (1 + K1 · K2 · K3) ²
= 1.00

Topography = None

Kd = Wind directionality factor obtained from Table 6-4
= 0.85

Gust Effect Factor, Gf, Obtained by Rational Analysis

The gust effect factor Gf obtained by rational analysis uses the dynamic properties of the system

Values Obtained from Table 6-2

Zmin	=	15.00 ft
e	=	0.200
l	=	500.0 ft
c	=	0.200

Calculated Values

Analysis	=	Category II : Rigid Structure-Complete Analysis	
z (-)	=	15.00 ft	
Iz	=	$c \cdot (33/z)^{(1/6)}$	(Eq. 6-5)
	=	0.228	
Lz	=	$l \cdot (z/33)^{e}$	(Eq. 6-7)
	=	427.1 ft	
Q	=	$Sqr\,[\,1/(\,1+0.63 \cdot [(b+h)/Lz]^{0.63}\,)]$	(Eq. 6-6)
	=	0.944	
gq	=	3.4	
gv	=	3.4	
Gust Factor (G)	=	$.925 \cdot [(1 + 1.7 \cdot gq \cdot Iz \cdot Q) / (1 + 1.7 \cdot gv \cdot Iz)]$	(Eq. 6-4)
G	=	0.895	

Project : ON COVER
Subject : WIND ANALYSIS
Location : ON COVER

File : ON COVER
Date : 2/12/2013
Eng. : BMR

Design Wind Pressure, p, Equation 6-25

Design wind pressures and forces are determined per equations given in section 6.5.13

Figure 6-18B (Pitched Free Roofs)

Roof Height = 12.00 ft
Roof Angle = 22.00 deg.

Clear Flow

Load Case	Gamma	Side	Kz	K3	Kzt	Kd	qh (psf)	Cn	p (psf)
A	0 or 180	Windward	0.85	1.00	1.00	0.85	13.35	1.10	13.14
A	0 or 180	Leeward	0.85	1.00	1.00	0.85	13.35	0.07	0.80
B	0 or 180	Windward	0.85	1.00	1.00	0.85	13.35	-0.09	-1.04
B	0 or 180	Leeward	0.85	1.00	1.00	0.85	13.35	-0.82	-9.80

Obstructed Flow

Load Case	Gamma	Side	Kz	K3	Kzt	Kd	qh (psf)	Cn	p (psf)
A	0 or 180	Windward	0.85	1.00	1.00	0.85	13.35	-1.20	-14.34
A	0 or 180	Leeward	0.85	1.00	1.00	0.85	13.35	-1.19	-14.18
B	0 or 180	Windward	0.85	1.00	1.00	0.85	13.35	-0.79	-9.40
B	0 or 180	Leeward	0.85	1.00	1.00	0.85	13.35	-1.69	-20.23

BUILDING MATERIALS

Member Description	Member Size:	Steel F_y (ksi)
Cable	1/4" 7x19 Galvanized Aircraft Cable	S.S.
Columns	6" SCH40 Pipe Column	35
Frame Tube Size	5.0" OD x 11 Gage	45

Steel & Hardware Shop Notes:

1. All non hollow structural steel plates shall comply with ASTM-A36.
2. All hollow structural steel tube & pipe shall comply with ASTM-A53.
3. All welding is to be done in accordance with the latest AWS standards and all welds are to develop full strength of component parts. (E7081 Electrodes).
4. All bolts to be ASTM A-325.
5. All fabricated steel & structural tubes to be painted with a rust inhibitive alkyd primer according to Steel Structures Painting Council (SSPC-SP2) as outlined in AISC 6.5.

SUPPORT REACTIONS

Support Reactions

Units: Force Reactions Rx, Ry, Rz [lb]; Moment Reactions Rox, Roy, Roz [lb-ft]

Load Combination 1: 1.4D

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	108.159	450.900	80.292	492.245	24.457	-690.962
2	-108.159	450.900	80.292	492.245	-24.457	690.962
3	-108.159	450.900	-80.292	-492.245	24.457	690.962
4	108.159	450.900	-80.292	-492.245	-24.457	-690.962

Load Combination 2: 1.2D+1.6S+0.8WAZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1117.384	2414.285	798.615	5592.715	385.409	-7661.991
2	-1117.384	2414.285	798.615	5592.715	-385.409	7661.991
3	-1130.358	3307.667	-725.154	-4657.750	449.400	7462.071
4	1130.358	3307.667	-725.154	-4657.750	-449.400	-7462.071

Load Combination 3: 1.2D+1.6S+0.8WBZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	747.366	451.928	520.636	3388.842	240.996	-4933.611
2	-747.366	451.928	520.636	3388.842	-240.996	4933.611
3	-745.097	1853.787	-520.636	-3408.299	239.811	4940.842
4	745.097	1853.787	-520.636	-3408.299	-239.811	-4940.842

Load Combination 4: 1.2D+1.6S+0.8WAX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1131.938	2259.364	645.940	4824.077	658.324	-8591.918
2	-1076.856	2845.155	843.739	5235.374	-178.279	6283.077
3	-1076.856	2845.155	-843.739	-5235.374	178.279	6283.077
4	1131.938	2259.364	-645.940	-4824.077	-658.324	-8591.918

Load Combination 5: 1.2D+1.6S+0.8WBX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	746.227	451.997	521.575	3397.666	240.042	-4922.223
2	-746.227	1853.718	519.704	3399.470	-240.760	4952.244
3	-746.227	1853.718	-519.704	-3399.470	240.760	4952.244
4	746.227	451.997	-521.575	-3397.666	-240.042	-4922.223

Load Combination 6: 1.2D+1.6WAZ+0.5S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1028.858	1685.491	764.594	5667.793	360.222	-7259.034
2	-1028.858	1685.491	764.594	5667.793	-360.222	7259.034
3	-1054.876	3472.138	-617.672	-3799.768	488.164	6858.751
4	1054.876	3472.138	-617.672	-3799.768	-488.164	-6858.751

Load Combination 7: 1.2D+1.6WBZ+0.5S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	296.288	-2239.047	209.911	1331.323	86.835	-1922.258
2	-296.288	-2239.047	209.911	1331.323	-86.835	1922.258
3	-294.472	564.200	-209.911	-1347.662	85.744	1927.758
4	294.472	564.200	-209.911	-1347.662	-85.744	-1927.758

Load Combination 8: 1.2D+1.6WAX+0.5S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	1058.759	1375.910	460.755	4136.869	901.813	-9098.576
2	-948.595	2546.854	853.342	4953.767	49.328	4528.316
3	-948.595	2546.854	-853.342	-4953.767	-49.328	4528.316
4	1058.759	1375.910	-460.755	-4136.869	-901.813	-9098.576

Load Combination 9: 1.2D+1.6WBX+0.5S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	295.374	-2239.060	210.640	1338.781	86.001	-1913.410

2	-295.374	564.213	209.194	1340.197	-86.570	1936.629
3	-295.374	564.213	-209.194	-1340.197	86.570	1936.629
4	295.374	-2239.060	-210.640	-1338.781	-86.001	-1913.410

Load Combination 10: 1.2D+1.0EZ+0.2S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	182.018	608.135	266.812	2036.529	67.274	-1131.505
2	-182.018	608.135	266.812	2036.529	-67.274	1131.505
3	-164.114	573.229	17.188	461.320	26.134	1115.501
4	164.114	573.229	17.188	461.320	-26.134	-1115.501

Load Combination 11: 1.2D+1.0EX+0.2S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	315.062	595.833	128.706	796.784	36.911	-2444.588
2	-31.062	585.531	120.941	778.410	-56.490	-197.573
3	-31.062	585.531	-120.941	-778.410	56.490	-197.573
4	315.062	595.833	-128.706	-796.784	-36.911	-2444.588

Load Combination 12: 0.9D+1.6WAZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	794.614	1078.640	604.651	4592.518	275.355	-5679.293
2	-794.614	1078.640	604.651	4592.518	-275.355	5679.293
3	-820.986	2864.764	-457.729	-2726.799	403.301	5277.463
4	820.986	2864.764	-457.729	-2726.799	-403.301	-5277.463

Load Combination 13: 0.9D+1.6WBZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	69.990	-2846.046	51.801	313.319	15.907	-442.559
2	-69.990	-2846.046	51.801	313.319	-15.907	442.559
3	-69.488	-43.025	-51.801	-318.844	15.438	443.721
4	69.488	-43.025	-51.801	-318.844	-15.438	-443.721

Load Combination 14: 0.9D+1.6WAX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	824.774	770.105	304.566	3072.517	805.459	-7477.588
2	-714.611	1938.434	689.464	3874.483	121.779	2997.745
3	-714.611	1938.434	-689.464	-3874.483	-121.779	2997.745
4	824.774	770.105	-304.566	-3072.517	-805.459	-7477.588

Load Combination 15: 0.9D+1.6WBX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	69.737	-2846.130	51.975	315.931	15.582	-440.275
2	-69.737	-42.942	51.632	316.232	-15.760	446.012
3	-69.737	-42.942	-51.632	-316.232	15.760	446.012
4	69.737	-2846.130	-51.975	-315.931	-15.582	-440.275

Load Combination 16: 0.9D+1.0EZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	78.450	307.324	193.588	1563.036	36.319	-451.644
2	-78.450	307.324	193.588	1563.036	-36.319	451.644
3	-60.509	272.405	90.412	930.774	-5.008	435.550
4	60.509	272.405	90.412	930.774	5.008	-435.550

Load Combination 17: 0.9D+1.0EX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	211.476	295.039	55.565	325.450	5.623	-1761.884
2	72.524	284.690	47.635	306.798	-25.680	-874.682
3	72.524	284.690	-47.635	-306.798	25.680	-874.682
4	211.476	295.039	-55.565	-325.450	-5.623	-1761.884

Load Combination 18: ASD_1.0D

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	77.211	322.071	57.338	351.323	17.407	-493.020
2	-77.211	322.071	57.338	351.323	-17.407	493.020

3	-77.211	322.071	-57.338	-351.323	17.407	493.020
4	77.211	322.071	-57.338	-351.323	-17.407	-493.020

Load Combination 19: ASD_1.0D+1.0S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	481.984	1343.054	338.205	2196.479	150.462	-3181.125
2	-481.984	1343.054	338.205	2196.479	-150.462	3181.125
3	-481.984	1343.054	-338.205	-2196.479	150.462	3181.125
4	481.984	1343.054	-338.205	-2196.479	-150.462	-3181.125

Load Combination 20: ASD_1.0D+1.0WAZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	526.620	815.261	401.924	3004.427	174.011	-3729.008
2	-526.620	815.261	401.924	3004.427	-174.011	3729.008
3	-543.388	1931.179	-310.098	-1839.429	253.997	3476.688
4	543.388	1931.179	-310.098	-1839.429	-253.997	-3476.688

Load Combination 21: ASD_1.0D+1.0WBZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	77.562	-1637.875	57.478	349.448	17.573	-492.291
2	-77.562	-1637.875	57.478	349.448	-17.573	492.291
3	-77.221	114.018	-57.478	-353.135	17.268	493.109
4	77.221	114.018	-57.478	-353.135	-17.268	-493.109

Load Combination 22: ASD_1.0D+1.0WAX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	545.350	623.193	216.898	2060.950	497.415	-4827.010
2	-476.498	1351.455	452.254	2551.962	65.705	2082.840
3	-476.498	1351.455	-452.254	-2551.962	-65.705	2082.840
4	545.350	623.193	-216.898	-2060.950	-497.415	-4827.010

Load Combination 23: ASD_1.0D+1.0WBX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	77.391	-1637.926	57.597	351.184	17.361	-490.723
2	-77.391	114.069	57.361	351.398	-17.479	494.680
3	-77.391	114.069	-57.361	-351.398	17.479	494.680
4	77.391	-1637.926	-57.597	-351.184	-17.361	-490.723

Load Combination 24: ASD_1.0D+0.7EZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	83.489	334.293	156.732	1224.276	31.868	-498.649
2	-83.489	334.293	156.732	1224.276	-31.868	498.649
3	-70.933	309.850	42.068	521.626	2.948	487.388
4	70.933	309.850	42.068	521.626	-2.948	-487.388

Load Combination 25: ASD_1.0D+0.7EX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	176.609	325.692	60.109	357.843	10.398	-1415.978
2	22.191	318.450	54.566	344.800	-24.415	-429.937
3	22.191	318.450	-54.566	-344.800	24.415	-429.937
4	176.609	325.692	-60.109	-357.843	-10.398	-1415.978

Load Combination 26: ASD_1.0D+0.75WAZ+0.75S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	721.664	1457.606	527.422	3746.043	240.396	-4975.061
2	-721.664	1457.606	527.422	3746.043	-240.396	4975.061
3	-734.112	2294.733	-458.552	-2871.250	300.393	4786.396
4	734.112	2294.733	-458.552	-2871.250	-300.393	-4786.396

Load Combination 27: ASD_1.0D+0.75WBZ+0.75S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	381.306	-382.224	268.332	1726.102	116.470	-2498.262
2	-381.306	-382.224	268.332	1726.102	-116.470	2498.262
3	-380.210	931.841	-268.332	-1735.808	115.843	2501.644

4	380.210	931.841	-268.332	-1735.808	-115.843	-2501.644

Load Combination 28: ASD_1.0D+0.75WAX+0.75S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	735.516	1313.202	387.279	3034.083	487.123	-5814.249
2	-683.877	1860.294	566.603	3407.804	-56.090	3721.286
3	-683.877	1860.294	-566.603	-3407.804	56.090	3721.286
4	735.516	1313.202	-387.279	-3034.083	-487.123	-5814.249

Load Combination 29: ASD_1.0D+0.75WBX+0.75S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	380.756	-382.217	268.776	1730.524	115.984	-2492.848
2	-380.756	931.833	267.892	1731.384	-116.326	2507.064
3	-380.756	931.833	-267.892	-1731.384	116.326	2507.064
4	380.756	-382.217	-268.776	-1730.524	-115.984	-2492.848

Load Combination 30: ASD_1.0D+0.525EZ+0.75S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	384.724	1096.962	342.322	2388.725	126.801	-2505.318
2	-384.724	1096.962	342.322	2388.725	-126.801	2505.318
3	-375.367	1078.655	-193.222	-1073.306	105.408	2497.013
4	375.367	1078.655	-193.222	-1073.306	-105.408	-2497.013

Load Combination 31: ASD_1.0D+0.525EX+0.75S

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	454.595	1090.486	269.723	1735.684	111.226	-3197.586
2	-305.495	1085.131	265.828	1726.343	-120.981	1804.747
3	-305.495	1085.131	-265.828	-1726.343	120.981	1804.747
4	454.595	1090.486	-269.723	-1735.684	-111.226	-3197.586

Load Combination 32: ASD_0.6D+1.0WAZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	495.008	686.452	378.789	2859.670	165.985	-3524.122
2	-495.008	686.452	378.789	2859.670	-165.985	3524.122
3	-511.799	1802.331	-286.963	-1694.999	245.966	3271.692
4	511.799	1802.331	-286.963	-1694.999	-245.966	-3271.692

Load Combination 33: ASD_0.6D+1.0WBZ

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	46.525	-1766.694	34.478	209.201	10.543	-295.076
2	-46.525	-1766.694	34.478	209.201	-10.543	295.076
3	-46.290	-14.820	-34.478	-212.013	10.287	295.538
4	46.290	-14.820	-34.478	-212.013	-10.287	-295.538

Load Combination 34: ASD_0.6D+1.0WAX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	513.754	494.458	194.049	1917.102	488.509	-4618.807
2	-444.902	1222.533	428.819	2406.977	72.798	1881.870
3	-444.902	1222.533	-428.819	-2406.977	-72.798	1881.870
4	513.754	494.458	-194.049	-1917.102	-488.509	-4618.807

Load Combination 35: ASD_0.6D+1.0WBX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	46.407	-1766.751	34.553	210.551	10.370	-294.034
2	-46.407	-14.763	34.405	210.663	-10.459	296.582
3	-46.407	-14.763	-34.405	-210.663	10.459	296.582
4	46.407	-1766.751	-34.553	-210.551	-10.370	-294.034

Load Combination 36: ASD_0.6D+0.7EZ

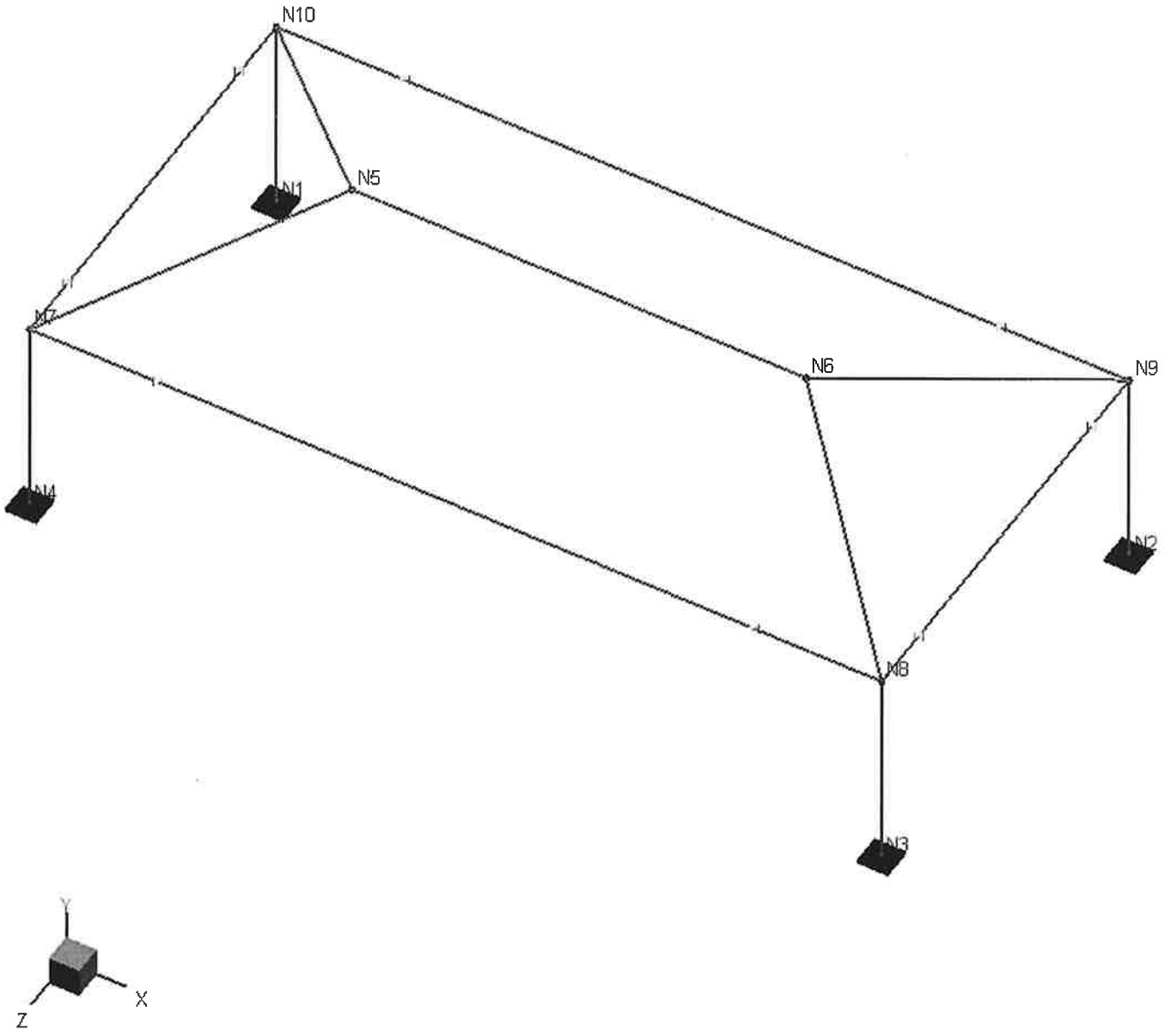
Node	Rx	Ry	Rz	Rox	Roy	Roz
1	52.581	205.465	133.788	1083.109	24.886	-301.136
2	-52.581	205.465	133.788	1083.109	-24.886	301.136
3	-40.018	181.021	65.012	661.853	-4.070	289.858
4	40.018	181.021	65.012	661.853	4.070	-289.858

Load Combination 37: ASD_0.6D+0.7EX

Node	Rx	Ry	Rz	Rox	Roy	Roz
1	145.697	196.868	37.182	217.173	3.350	-1217.819
2	53.103	189.618	31.606	204.076	-17.462	-626.821
3	53.103	189.618	-31.606	-204.076	17.462	-626.821
4	145.697	196.868	-37.182	-217.173	-3.350	-1217.819

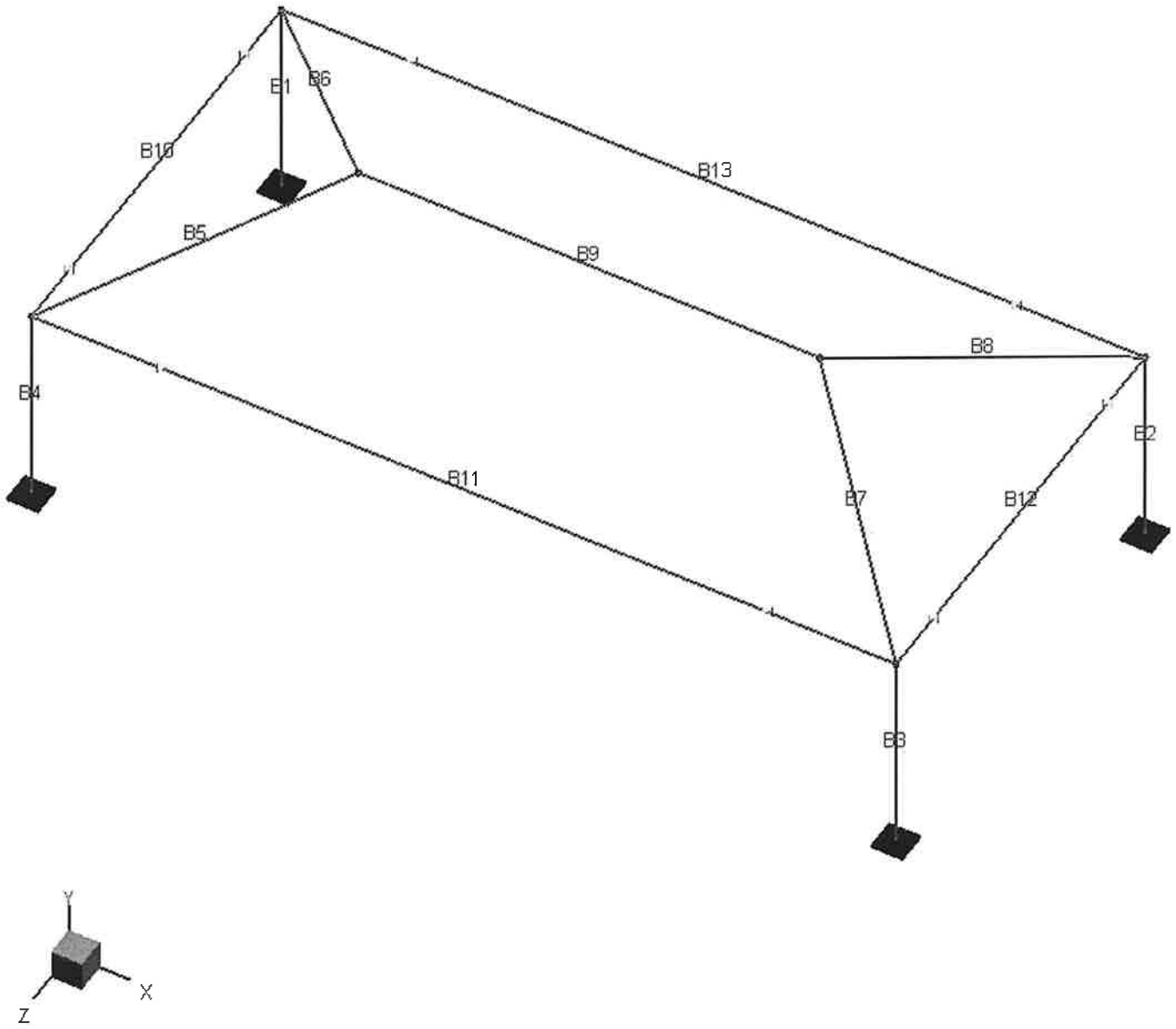
STRUCTURAL GEOMETRY AND COMPUTER MODEL

Company/Project: CEC, INC. / ON COVER		**VersaFrame V5.03 (536.0)** (C) Digital Canal Corp.
Engineer: BMR	Date/Time: 02/12/13 13:12:07	



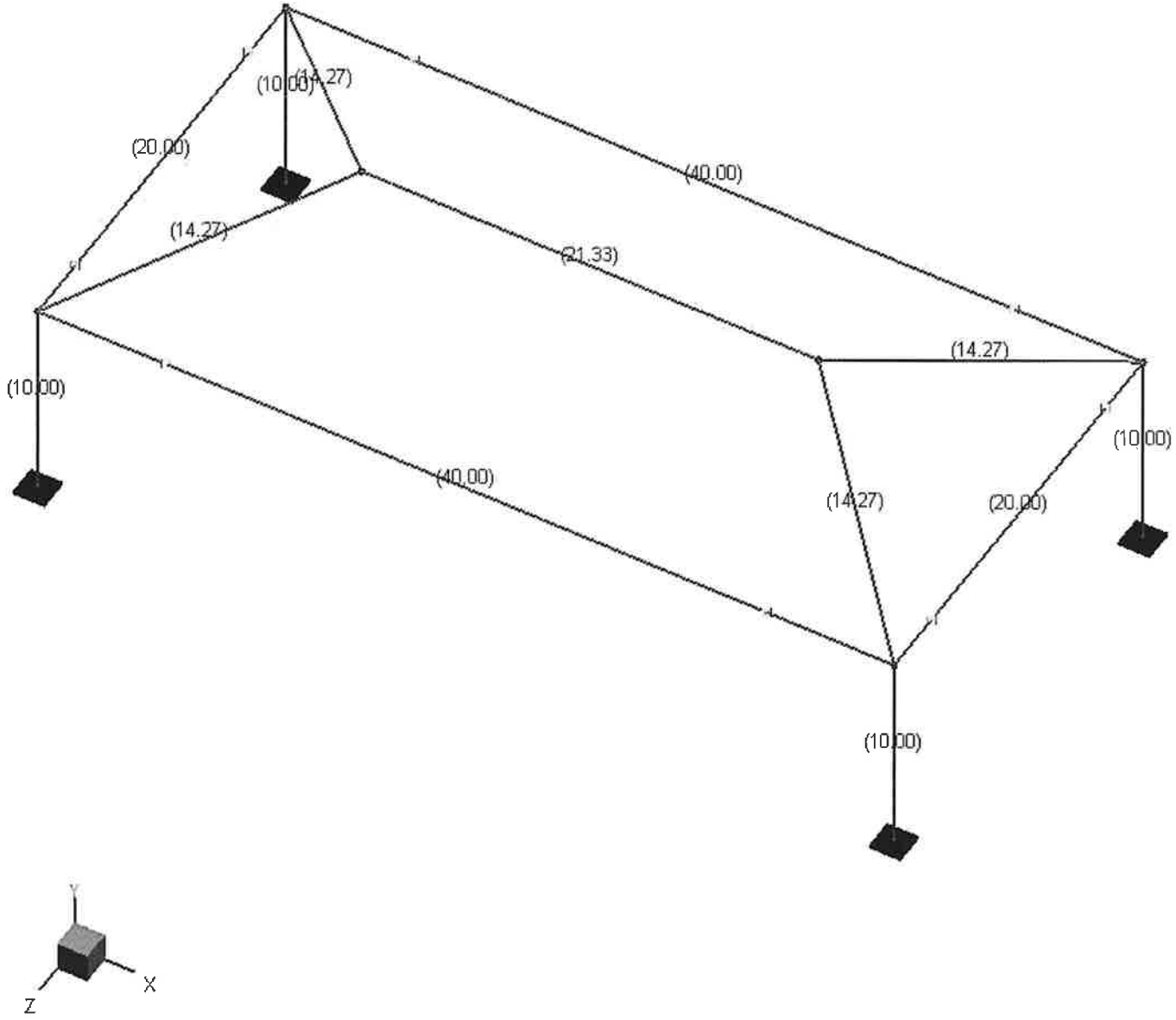
Node Numbers

Company/Project: CEC, INC. / ON COVER		**VersaFrame V5.03 (536.0)** (C) Digital Canal Corp.
Engineer: BMR	Date/Time: 02/12/13 13:12:18	



Member Numbers

Company/Project: CEC, INC. / ON COVER		**VersaFrame V5.03 (536.0)** (C) Digital Canal Corp.
Engineer: BMR	Date/Time: 02/12/13 13:12:30	



Member Lengths

Member End Forces and Moments

Units: Force Fx, Fy, Fz [lb]; Moment Mx, My, Mz [lb-ft]

Load Combination 1: 1.4D

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-450.900	-108.261	80.361	-24.457	-492.245	690.962
	10	-205.351	-108.261	80.361	-24.457	311.364	-391.646
2	2	-450.900	108.261	80.361	24.457	-492.245	-690.962
	9	-205.351	108.261	80.361	24.457	311.364	391.646
3	3	-450.900	108.261	-80.361	-24.457	492.245	-690.962
	8	-205.351	108.261	-80.361	-24.457	-311.364	391.646
4	4	-450.900	-108.261	-80.361	24.457	492.245	690.962
	7	-205.351	-108.261	-80.361	24.457	-311.364	-391.646
5	7	-335.372	94.240	5.198	77.729	-2.484	-494.855
	5	-297.752	-32.766	5.198	77.729	71.675	-44.841
6	10	-335.372	94.240	-5.198	-77.729	2.484	-494.855
	5	-297.752	-32.766	-5.198	-77.729	-71.675	-44.841
7	8	-335.372	94.240	-5.198	-77.729	2.484	-494.855
	6	-297.752	-32.766	-5.198	-77.729	-71.675	-44.841
8	9	-335.372	94.240	5.198	77.729	-2.484	-494.855
	6	-297.752	-32.766	5.198	77.729	71.675	-44.841
9	5	-410.069	105.734	-0.000	-0.000	0.000	-199.929
	6	-410.069	-105.734	-0.000	-0.000	-0.000	-199.929

Load Combination 2: 1.2D+1.6S+0.8WAZ

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-2414.285	-1125.860	804.924	-385.409	-5592.715	7661.991
	10	-2203.815	-1125.860	804.924	-385.409	2456.526	-3596.610
2	2	-2414.285	1125.860	804.924	385.409	-5592.715	-7661.991
	9	-2203.815	1125.860	804.924	385.409	2456.526	3596.610
3	3	-3307.667	1141.365	-731.829	-449.400	4657.750	-7462.071
	8	-3097.197	1141.365	-731.829	-449.400	-2660.538	3951.576
4	4	-3307.667	-1141.365	-731.829	449.400	4657.750	7462.071
	7	-3097.197	-1141.365	-731.829	449.400	-2660.538	-3951.576
5	7	-3463.307	665.566	85.703	1156.534	-126.150	-4641.177
	5	-3285.182	-312.436	85.703	1156.534	1096.623	-954.823
6	10	-3514.543	503.821	-79.260	-1023.046	98.951	-4249.807
	5	-3336.418	-120.347	-79.260	-1023.046	-1031.886	-818.159
7	8	-3463.307	665.566	-85.703	-1156.534	126.150	-4641.177
	6	-3285.182	-312.436	-85.703	-1156.534	-1096.623	-954.823
8	9	-3514.543	503.821	79.260	1023.046	-98.951	-4249.807
	6	-3336.418	-120.347	79.260	1023.046	1031.886	-818.159
9	5	-4554.483	1396.032	-0.000	-0.000	24.153	-3180.242
	6	-4554.483	-1396.032	-0.000	-0.000	24.153	-3180.242

Load Combination 3: 1.2D+1.6S+0.8WBZ

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-451.928	-748.158	521.173	-240.996	-3388.842	4933.611
	10	-241.457	-748.158	521.173	-240.996	1822.886	-2547.972

2	2	-451.928	748.158	521.173	240.996	-3388.842	-4933.611
	9	-241.457	748.158	521.173	240.996	1822.886	2547.972
3	3	-1853.787	749.107	-523.366	-239.811	3408.299	-4940.842
	8	-1643.317	749.107	-523.366	-239.811	-1825.363	2550.232
4	4	-1853.787	-749.107	-523.366	239.811	3408.299	4940.842
	7	-1643.317	-749.107	-523.366	239.811	-1825.363	-2550.232
5	7	-2306.205	434.090	48.542	661.252	-54.243	-3074.538
	5	-2128.080	-167.251	48.542	661.252	638.328	-505.339
6	10	-2306.216	433.821	-48.658	-661.626	55.369	-3071.186
	5	-2128.091	-167.519	-48.658	-661.626	-638.852	-505.813
7	8	-2306.205	434.090	-48.542	-661.252	54.243	-3074.538
	6	-2128.080	-167.251	-48.542	-661.252	-638.328	-505.339
8	9	-2306.216	433.821	48.658	661.626	-55.369	-3071.186
	6	-2128.091	-167.519	48.658	661.626	638.852	-505.813
9	5	-2928.079	858.513	-0.000	-0.000	-0.397	-1882.479
	6	-2928.079	-858.513	-0.000	-0.000	-0.397	-1882.479

Load Combination 4: 1.2D+1.6S+0.8WAX

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-2259.364	-1141.622	651.308	-658.324	-4824.078	8591.919
	10	-2048.894	-1141.622	651.308	-658.324	1688.999	-2824.296
2	2	-2845.155	1083.726	849.920	178.279	-5235.374	-6283.077
	9	-2634.685	1083.726	849.920	178.279	3263.824	4554.179
3	3	-2845.155	1083.726	-849.920	-178.279	5235.374	-6283.077
	8	-2634.685	1083.726	-849.920	-178.279	-3263.824	4554.179
4	4	-2259.364	-1141.622	-651.308	658.324	4824.078	8591.919
	7	-2048.894	-1141.622	-651.308	658.324	-1688.999	-2824.296
5	7	-3372.365	361.563	123.865	1061.427	-372.216	-3161.764
	5	-3194.240	-258.040	123.865	1061.427	1395.035	-1733.298
6	10	-3372.365	361.563	-123.865	-1061.427	372.216	-3161.764
	5	-3194.240	-258.040	-123.865	-1061.427	-1395.035	-1733.298
7	8	-3481.307	759.868	-41.442	-1107.173	-141.994	-5493.366
	6	-3303.182	-143.943	-41.442	-1107.173	-733.269	-31.098
8	9	-3481.307	759.868	41.442	1107.173	141.994	-5493.366
	6	-3303.182	-143.943	41.442	1107.173	733.269	-31.098
9	5	-4467.109	1297.587	0.000	0.000	-0.000	-4433.421
	6	-4467.109	-1486.798	0.000	0.000	0.000	-1899.812

Load Combination 5: 1.2D+1.6S+0.8WBX

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-451.997	-747.018	522.114	-240.042	-3397.666	4922.223
	10	-241.526	-747.018	522.114	-240.042	1823.470	-2547.955
2	2	-1853.718	750.250	522.425	240.760	-3399.470	-4952.244
	9	-1643.248	750.250	522.425	240.760	1824.779	2550.255
3	3	-1853.718	750.250	-522.425	-240.760	3399.470	-4952.244
	8	-1643.248	750.250	-522.425	-240.760	-1824.779	2550.255
4	4	-451.997	-747.018	-522.114	240.042	3397.666	4922.223
	7	-241.526	-747.018	-522.114	240.042	-1823.470	-2547.955
5	7	-2306.254	433.890	48.532	660.960	-54.571	-3071.601
	5	-2128.129	-167.450	48.532	660.960	637.861	-505.248

6	10	-2306.254	433.890	-48.532	-660.960	54.571	-3071.601
	5	-2128.129	-167.450	-48.532	-660.960	-637.861	-505.248
7	8	-2306.166	434.021	-48.666	-661.920	55.035	-3074.128
	6	-2128.040	-167.319	-48.666	-661.920	-639.314	-505.902
8	9	-2306.166	434.021	48.666	661.920	-55.035	-3074.128
	6	-2128.040	-167.319	48.666	661.920	639.314	-505.902
9	5	-2928.078	858.380	0.000	0.000	-0.000	-1881.057
	6	-2928.078	-858.646	0.000	0.000	0.000	-1883.899

Load Combination 6: 1.2D+1.6WAZ+0.5S

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-1685.491	-1034.509	769.197	-360.222	-5667.794	7259.034
	10	-1475.021	-1034.509	769.197	-360.222	2024.175	-3086.058
2	2	-1685.491	1034.509	769.197	360.222	-5667.794	-7259.034
	9	-1475.021	1034.509	769.197	360.222	2024.175	3086.058
3	3	-3472.138	1065.342	-623.121	-488.164	3799.767	-6858.751
	8	-3261.667	1065.342	-623.121	-488.164	-2431.443	3794.667
4	4	-3472.138	-1065.342	-623.121	488.164	3799.767	6858.751
	7	-3261.667	-1065.342	-623.121	488.164	-2431.443	-3794.667
5	7	-3183.545	653.955	90.176	1207.459	-151.490	-4366.671
	5	-3105.711	-362.130	90.176	1207.459	1135.092	-1066.946
6	10	-3285.943	330.544	-77.265	-940.929	97.002	-3585.389
	5	-3208.110	22.126	-77.265	-940.929	-1005.380	-793.958
7	8	-3183.545	653.955	-90.176	-1207.459	151.490	-4366.671
	6	-3105.711	-362.130	-90.176	-1207.459	-1135.092	-1066.946
8	9	-3285.943	330.544	77.265	940.929	-97.002	-3585.389
	6	-3208.110	22.126	77.265	940.929	1005.380	-793.958
9	5	-4334.912	1405.630	-0.000	-0.000	48.663	-3220.745
	6	-4334.912	-1405.630	-0.000	-0.000	48.663	-3220.745

Load Combination 7: 1.2D+1.6WBZ+0.5S

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	2239.047	-294.224	208.516	-86.835	-1331.323	1922.258
	10	2449.517	-294.224	208.516	-86.835	753.839	-1019.981
2	2	2239.047	294.224	208.516	86.835	-1331.323	-1922.258
	9	2449.517	294.224	208.516	86.835	753.839	1019.981
3	3	-564.200	294.878	-210.189	-85.744	1347.662	-1927.758
	8	-353.730	294.878	-210.189	-85.744	-754.231	1021.026
4	4	-564.200	-294.878	-210.189	85.744	1347.662	1927.758
	7	-353.730	-294.878	-210.189	85.744	-754.231	-1021.026
5	7	-909.879	191.036	17.812	246.505	-16.409	-1248.068
	5	-832.046	-71.725	17.812	246.505	237.717	-182.156
6	10	-909.952	190.971	-17.918	-246.339	17.596	-1247.069
	5	-832.119	-71.791	-17.918	-246.339	-238.045	-182.094
7	8	-909.879	191.036	-17.812	-246.505	16.409	-1248.068
	6	-832.046	-71.725	-17.812	-246.505	-237.717	-182.156
8	9	-909.952	190.971	17.918	246.339	-17.596	-1247.069
	6	-832.119	-71.791	17.918	246.339	238.045	-182.094
9	5	-1143.887	330.593	-0.000	-0.000	-0.361	-692.766

	6	-1143.887	-330.593	-0.000	-0.000	-0.361	-692.766

Load Combination 8: 1.2D+1.6WAX+0.5S

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-1375.910	-1065.374	463.845	-901.813	-4136.870	9098.579
	10	-1165.439	-1065.374	463.845	-901.813	501.578	-1555.165
2	2	-2546.854	951.698	858.138	-49.328	-4953.767	-4528.316
	9	-2336.383	951.698	858.138	-49.328	3627.618	4988.665
3	3	-2546.854	951.698	-858.138	49.328	4953.767	-4528.316
	8	-2336.383	951.698	-858.138	49.328	-3627.618	4988.665
4	4	-1375.910	-1065.374	-463.845	901.813	4136.870	9098.579
	7	-1165.439	-1065.374	-463.845	901.813	-501.578	-1555.165
5	7	-3003.177	48.691	165.811	1017.962	-639.031	-1427.770
	5	-2925.344	-250.595	165.811	1017.962	1726.671	-2604.685
6	10	-3003.177	48.691	-165.811	-1017.962	639.031	-1427.770
	5	-2925.344	-250.595	-165.811	-1017.962	-1726.671	-2604.685
7	8	-3220.891	840.192	-2.419	-1109.035	-379.931	-6055.803
	6	-3143.058	-27.510	-2.419	-1109.035	-414.442	762.001
8	9	-3220.891	840.192	2.419	1109.035	379.931	-6055.803
	6	-3143.058	-27.510	2.419	1109.035	414.442	762.001
9	5	-4162.531	1206.137	-0.000	-0.000	0.000	-5699.259
	6	-4162.531	-1589.766	-0.000	-0.000	-0.000	-687.571

Load Combination 9: 1.2D+1.6WBX+0.5S

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	2239.060	-293.323	209.234	-86.001	-1338.781	1913.410
	10	2449.530	-293.323	209.234	-86.001	753.563	-1019.818
2	2	-564.213	295.783	209.470	86.570	-1340.197	-1936.629
	9	-353.743	295.783	209.470	86.570	754.506	1021.198
3	3	-564.213	295.783	-209.470	-86.570	1340.197	-1936.629
	8	-353.743	295.783	-209.470	-86.570	-754.506	1021.198
4	4	2239.060	-293.323	-209.234	86.001	1338.781	1913.410
	7	2449.530	-293.323	-209.234	86.001	-753.563	-1019.818
5	7	-909.955	190.957	17.812	246.168	-16.776	-1246.756
	5	-832.122	-71.804	17.812	246.168	237.350	-181.973
6	10	-909.955	190.957	-17.812	-246.168	16.776	-1246.756
	5	-832.122	-71.804	-17.812	-246.168	-237.350	-181.973
7	8	-909.874	191.050	-17.916	-246.680	17.218	-1248.387
	6	-832.040	-71.711	-17.916	-246.680	-238.402	-182.274
8	9	-909.874	191.050	17.916	246.680	-17.218	-1248.387
	6	-832.040	-71.711	17.916	246.680	238.402	-182.274
9	5	-1143.885	330.519	-0.000	-0.000	0.000	-691.982
	6	-1143.885	-330.666	-0.000	-0.000	-0.000	-693.549

Load Combination 10: 1.2D+1.0EZ+0.2S

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-608.135	-182.265	267.352	-67.274	-2036.529	1131.505
	10	-397.665	-182.265	267.352	-67.274	636.993	-691.143
2	2	-608.135	182.265	267.352	67.274	-2036.529	-1131.505
	9	-397.665	182.265	267.352	67.274	636.993	691.143

3	3	-573.229	164.363	17.365	-26.134	-461.320	-1115.501
	8	-362.759	164.363	17.365	-26.134	-287.672	528.128
4	4	-573.229	-164.363	17.365	26.134	-461.320	1115.501
	7	-362.759	-164.363	17.365	26.134	-287.672	-528.128
5	7	-528.574	108.693	7.911	189.366	28.837	-570.672
	5	-478.093	-61.728	7.911	189.366	141.706	-143.825
6	10	-541.805	141.199	-11.635	-86.752	44.466	-937.262
	5	-491.324	-29.222	-11.635	-86.752	-121.540	-46.634
7	8	-528.574	108.693	-7.911	-189.366	-28.837	-570.672
	6	-478.093	-61.728	-7.911	-189.366	-141.706	-143.825
8	9	-541.805	141.199	11.635	86.752	-44.466	-937.262
	6	-491.324	-29.222	11.635	86.752	121.540	-46.634
9	5	-666.567	186.614	0.000	0.000	-9.809	-378.150
	6	-666.567	-186.614	0.000	0.000	-9.809	-378.150

Load Combination 11: 1.2D+1.0EX+0.2S

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-595.833	-315.702	128.875	-36.911	-796.784	2444.588
	10	-385.363	-315.702	128.875	-36.911	491.968	-712.434
2	2	-585.531	30.926	121.110	56.490	-778.410	197.573
	9	-375.061	30.926	121.110	56.490	432.691	506.837
3	3	-585.531	30.926	-121.110	-56.490	778.410	197.573
	8	-375.061	30.926	-121.110	-56.490	-432.691	506.837
4	4	-595.833	-315.702	-128.875	36.911	796.784	2444.588
	7	-385.363	-315.702	-128.875	36.911	-491.968	-712.434
5	7	-537.826	129.385	8.674	187.938	17.174	-845.778
	5	-487.344	-41.036	8.674	187.938	140.934	-123.710
6	10	-537.826	129.385	-8.674	-187.938	-17.174	-845.778
	5	-487.344	-41.036	-8.674	-187.938	-140.934	-123.710
7	8	-532.552	120.506	-10.870	-88.181	32.795	-662.151
	6	-482.071	-49.915	-10.870	-88.181	-122.290	-66.761
8	9	-532.552	120.506	10.870	88.181	-32.795	-662.151
	6	-482.071	-49.915	10.870	88.181	122.290	-66.761
9	5	-666.564	197.177	0.000	0.000	-0.000	-490.804
	6	-666.564	-176.052	0.000	0.000	0.000	-265.503

Load Combination 12: 0.9D+1.6WAZ

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-1078.640	-797.446	607.060	-275.355	-4592.518	5679.293
	10	-920.787	-797.446	607.060	-275.355	1478.077	-2295.171
2	2	-1078.640	797.446	607.060	275.355	-4592.518	-5679.293
	9	-920.787	797.446	607.060	275.355	1478.077	2295.171
3	3	-2864.764	827.577	-460.843	-403.301	2726.799	-5277.463
	8	-2706.911	827.577	-460.843	-403.301	-1881.632	2998.306
4	4	-2864.764	-827.577	-460.843	403.301	2726.799	5277.463
	7	-2706.911	-827.577	-460.843	403.301	-1881.632	-2998.306
5	7	-2453.733	523.410	74.010	984.923	-128.884	-3421.413
	5	-2429.549	-311.560	74.010	984.923	927.051	-899.595
6	10	-2555.890	200.384	-60.992	-719.799	73.976	-2646.595

	5	-2531.705	73.081	-60.992	-719.799	-796.221	-627.589
7	8	-2453.733	523.410	-74.010	-984.923	128.884	-3421.413
	6	-2429.549	-311.560	-74.010	-984.923	-927.051	-899.595
8	9	-2555.890	200.384	60.992	719.799	-73.976	-2646.595
	6	-2531.705	73.081	60.992	719.799	796.221	-627.589
9	5	-3400.440	1143.009	0.000	0.000	50.138	-2595.001
	6	-3400.440	-1143.009	0.000	0.000	50.138	-2595.001

Load Combination 13: 0.9D+1.6WBZ

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	2846.046	-69.413	51.413	-15.907	-313.319	442.559
	10	3003.899	-69.413	51.413	-15.907	200.810	-251.567
2	2	2846.046	69.413	51.413	15.907	-313.319	-442.559
	9	3003.899	69.413	51.413	15.907	200.810	251.567
3	3	43.025	69.463	-51.784	-15.438	318.844	-443.721
	8	200.878	69.463	-51.784	-15.438	-198.999	250.912
4	4	43.025	-69.463	-51.784	15.438	318.844	443.721
	7	200.878	-69.463	-51.784	15.438	-198.999	-250.912
5	7	-215.493	60.451	3.313	50.047	-1.277	-316.684
	5	-191.309	-21.195	3.313	50.047	45.997	-29.269
6	10	-215.583	60.613	-3.358	-49.454	1.941	-318.455
	5	-191.398	-21.034	-3.358	-49.454	-45.963	-28.729
7	8	-215.493	60.451	-3.313	-50.047	1.277	-316.684
	6	-191.309	-21.195	-3.313	-50.047	-45.997	-29.269
8	9	-215.583	60.613	3.358	49.454	-1.941	-318.455
	6	-191.398	-21.034	3.358	49.454	45.963	-28.729
9	5	-263.517	67.972	0.000	0.000	-0.136	-128.412
	6	-263.517	-67.972	0.000	0.000	-0.136	-128.412

Load Combination 14: 0.9D+1.6WAX

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-770.105	-827.833	305.897	-805.459	-3072.517	7477.590
	10	-612.252	-827.833	305.897	-805.459	-13.545	-800.742
2	2	-1938.434	715.676	692.197	-121.779	-3874.483	-2997.745
	9	-1780.581	715.676	692.197	-121.779	3047.487	4159.016
3	3	-1938.434	715.676	-692.197	121.779	3874.483	-2997.745
	8	-1780.581	715.676	-692.197	121.779	-3047.487	4159.016
4	4	-770.105	-827.833	-305.897	805.459	3072.517	7477.590
	7	-612.252	-827.833	-305.897	805.459	13.545	-800.742
5	7	-2275.070	-74.552	147.691	798.861	-603.427	-536.475
	5	-2250.885	-192.723	147.691	798.861	1503.760	-2387.126
6	10	-2275.070	-74.552	-147.691	-798.861	603.427	-536.475
	5	-2250.885	-192.723	-147.691	-798.861	-1503.760	-2387.126
7	8	-2491.890	702.910	11.788	-886.530	-389.601	-5065.681
	6	-2467.705	16.322	11.788	-886.530	-221.414	878.076
8	9	-2491.890	702.910	-11.788	886.530	389.601	-5065.681
	6	-2467.705	16.322	-11.788	886.530	221.414	878.076
9	5	-3230.144	936.671	-0.000	-0.000	0.000	-5002.296
	6	-3230.144	-1333.990	-0.000	-0.000	-0.000	-136.615

Load Combination 15: 0.9D+1.6WBX

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	2846.130	-69.164	51.581	-15.582	-315.931	440.275
	10	3003.983	-69.164	51.581	-15.582	199.879	-251.365
2	2	42.942	69.713	51.616	15.760	-316.231	-446.012
	9	200.794	69.713	51.616	15.760	199.928	251.116
3	3	42.942	69.713	-51.616	-15.760	316.231	-446.012
	8	200.794	69.713	-51.616	-15.760	-199.928	251.116
4	4	2846.130	-69.164	-51.581	15.582	315.931	440.275
	7	3003.983	-69.164	-51.581	15.582	-199.879	-251.365
5	7	-215.554	60.533	3.321	49.829	-1.491	-317.637
	5	-191.370	-21.113	3.321	49.829	45.887	-29.044
6	10	-215.554	60.533	-3.321	-49.829	1.491	-317.637
	5	-191.370	-21.113	-3.321	-49.829	-45.887	-29.044
7	8	-215.522	60.530	-3.350	-49.673	1.723	-317.503
	6	-191.337	-21.116	-3.350	-49.673	-46.069	-28.954
8	9	-215.522	60.530	3.350	49.673	-1.723	-317.503
	6	-191.337	-21.116	3.350	49.673	46.069	-28.954
9	5	-263.517	67.984	0.000	0.000	-0.000	-128.545
	6	-263.517	-67.959	0.000	0.000	-0.000	-128.280

Load Combination 16: 0.9D+1.0EZ

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-307.324	-78.490	193.785	-36.319	-1563.036	451.644
	10	-149.471	-78.490	193.785	-36.319	374.812	-333.261
2	2	-307.324	78.490	193.785	36.319	-1563.036	-451.644
	9	-149.471	78.490	193.785	36.319	374.812	333.261
3	3	-272.405	60.552	90.526	5.008	-930.774	-435.550
	8	-114.552	60.552	90.526	5.008	-25.518	169.968
4	4	-272.405	-60.552	90.526	-5.008	-930.774	435.550
	7	-114.552	-60.552	90.526	-5.008	-25.518	-169.968
5	7	-208.751	44.329	1.462	101.011	35.144	-134.637
	5	-184.566	-37.317	1.462	101.011	56.004	-77.237
6	10	-222.012	76.828	-5.206	1.336	38.274	-501.396
	5	-197.828	-4.819	-5.206	1.336	-35.998	19.674
7	8	-208.751	44.329	-1.462	-101.011	-35.144	-134.637
	6	-184.566	-37.317	-1.462	-101.011	-56.004	-77.237
8	9	-222.012	76.828	5.206	-1.336	-38.274	-501.396
	6	-197.828	-4.819	5.206	-1.336	35.998	19.674
9	5	-263.292	67.972	0.000	0.000	-9.886	-128.245
	6	-263.292	-67.972	0.000	0.000	-9.886	-128.245

Load Combination 17: 0.9D+1.0EX

Member	Node	Fx(Axial)	Fy (Major)	Fz (Minor)	Mx (Torsion)	My (Minor)	Mz (Major)
1	1	-295.039	-211.689	55.594	-5.623	-325.450	1761.884
	10	-137.186	-211.689	55.594	-5.623	230.488	-355.011
2	2	-284.690	-72.646	47.663	25.680	-306.798	874.682
	9	-126.837	-72.646	47.663	25.680	169.836	148.217
3	3	-284.690	-72.646	-47.663	-25.680	306.798	874.682

	8	-126.837	-72.646	-47.663	-25.680	-169.836	148.217
4	4	-295.039	-211.689	-55.594	5.623	325.450	1761.884
	7	-137.186	-211.689	-55.594	5.623	-230.488	-355.011
5	7	-218.028	65.131	2.204	99.618	23.644	-410.738
	5	-193.843	-16.516	2.204	99.618	55.088	-56.554
6	10	-218.028	65.131	-2.204	-99.618	-23.644	-410.738
	5	-193.843	-16.516	-2.204	-99.618	-55.088	-56.554
7	8	-212.733	56.025	-4.462	-0.058	26.766	-225.290
	6	-188.549	-25.621	-4.462	-0.058	-36.891	-1.020
8	9	-212.733	56.025	4.462	0.058	-26.766	-225.290
	6	-188.549	-25.621	4.462	0.058	36.891	-1.020
9	5	-263.289	78.422	-0.000	-0.000	0.000	-239.703
	6	-263.289	-57.521	-0.000	-0.000	-0.000	-16.794

Steel Check Report

Project:: **ON COVER**
Description:
Date: **02/12/2013 01:15 PM**

Company: **CEC, INC.**
User: **BMR**
Software: **Digital Canal VersaFrame**

Code Check Results (LRFD 13)

CRITICAL STRESS SUMMARY

ID	Section Name	Status	Governing Criteria	Stress Ratio	Load Combination	Distance (ft)
1	Pipe6STD	OK	Axial-Bending	0.4959	1.2D+1.6S+0.8WAX	0.0000
2	Pipe6STD	OK	Axial-Bending	0.4910	1.2D+1.6S+0.8WAZ	0.0000
3	Pipe6STD	OK	Axial-Bending	0.4554	1.2D+1.6S+0.8WAZ	0.0000
4	Pipe6STD	OK	Axial-Bending	0.4959	1.2D+1.6S+0.8WAX	0.0000
5	HSS5X.12	OK	Axial-Bending	0.5728	1.2D+1.6S+0.8WAZ	0.0000
6	HSS5X.12	OK	Axial-Bending	0.5276	1.2D+1.6S+0.8WAZ	0.0000
7	HSS5X.12	OK	Axial-Bending	0.7512	1.2D+1.6WAX+0.5S	0.0000
8	HSS5X.12	OK	Axial-Bending	0.7512	1.2D+1.6WAX+0.5S	0.0000
9	HSS5X.12	OK	Total Deflection Y	0.9880	ASD_1.0D+0.75WAX+0.75S	11.732

SELECTED LOAD COMBINATIONS

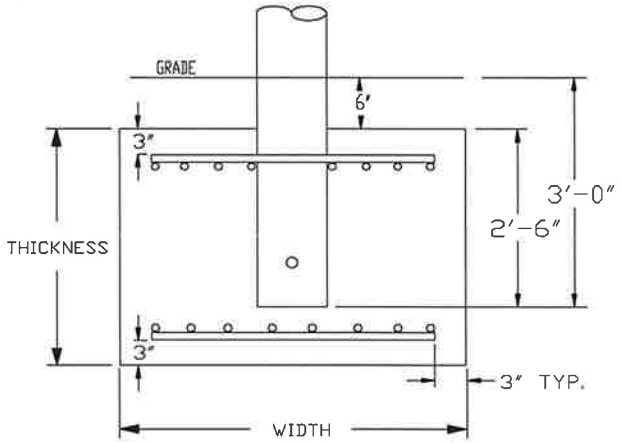
Load Combination	Code Check	Total	Live	Dependent	Conditional
1.4D	x			-	-
1.2D+1.6S+0.8WAZ	x			-	-
1.2D+1.6S+0.8WBZ	x			-	-
1.2D+1.6S+0.8WAX	x			-	-
1.2D+1.6S+0.8WBX	x			-	-
1.2D+1.6WAZ+0.5S	x			-	-
1.2D+1.6WBZ+0.5S	x			-	-
1.2D+1.6WAX+0.5S	x			-	-
1.2D+1.6WBX+0.5S	x			-	-
1.2D+1.0EZ+0.2S	x			-	-
1.2D+1.0EX+0.2S	x			-	-
0.9D+1.6WAZ	x			-	-
0.9D+1.6WBZ	x			-	-
0.9D+1.6WAX	x			-	-
0.9D+1.6WBX	x			-	-
0.9D+1.0EZ	x			-	-
0.9D+1.0EX	x			-	-
ASD_1.0D		x		-	-
ASD_1.0D+1.0S		x		-	-
ASD_1.0D+1.0WAZ		x		-	-
ASD_1.0D+1.0WBZ		x		-	-
ASD_1.0D+1.0WAX		x		-	-
ASD_1.0D+1.0WBX		x		-	-
ASD_1.0D+0.7EZ		x		-	-
ASD_1.0D+0.7EX		x		-	-
ASD_1.0D+0.75WAZ+0.75S		x		-	-
ASD_1.0D+0.75WBZ+0.75S		x		-	-
ASD_1.0D+0.75WAX+0.75S		x		-	-
ASD_1.0D+0.75WBX+0.75S		x		-	-
ASD_1.0D+0.525EZ+0.75S		x		-	-
ASD_1.0D+0.525EX+0.75S		x		-	-
ASD_0.6D+1.0WAZ		x		-	-
ASD_0.6D+1.0WBZ		x		-	-
ASD_0.6D+1.0WAX		x		-	-
ASD_0.6D+1.0WBX		x		-	-
ASD_0.6D+0.7EZ		x		-	-
ASD_0.6D+0.7EX		x		-	-

FOOTING DESIGN

Footing Design

Footing Parameters:		**Applied Loads:**		**Soil Conditions:**	
W =	3.50 ft	P =	2.29 kips	Soil Bearing Pressure, q =	1500.00 psf
Thickness =	3.00 ft	P_u =	1.77 kips	Maximum Passive =	1500.00 psf
P_{ftg} =	5512.50 lbs	M_o =	9.66 k-ft		

Total No.of Hor. Bars Each Way Top & Bottom: (4)
Bar size (#): #6



f'_c = 2500 psi
f_y = 60000 psi

Pressure @ Base:
Q_{lat} = 750.00 psf

Overturning Stability:
M_o = 9657.50 lb-ft

M_s = 17525.89 lb-ft

17525.89 > 9657.50
F.S. = 1.81 OK

Actual Bearing Pressure:
q = 637.27 psf

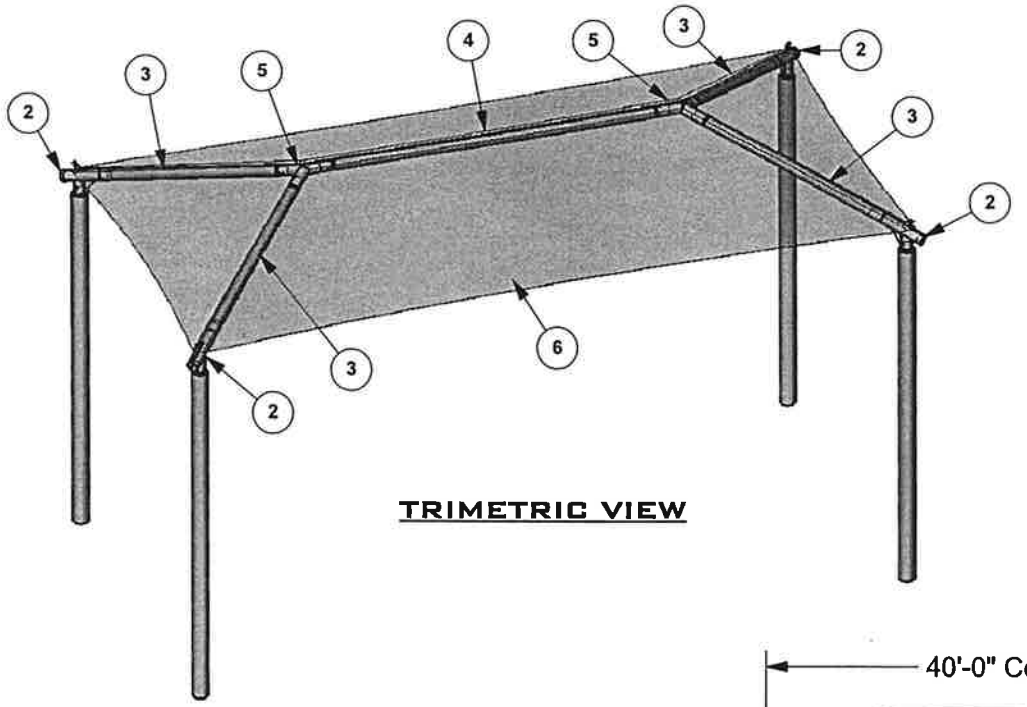
637.27 < 1500.00 OK

Footing Reinforcement:
$A_{s\ Min}$ = 2.72 in^2
$A_{s\ actual}$ = 3.53 in^2

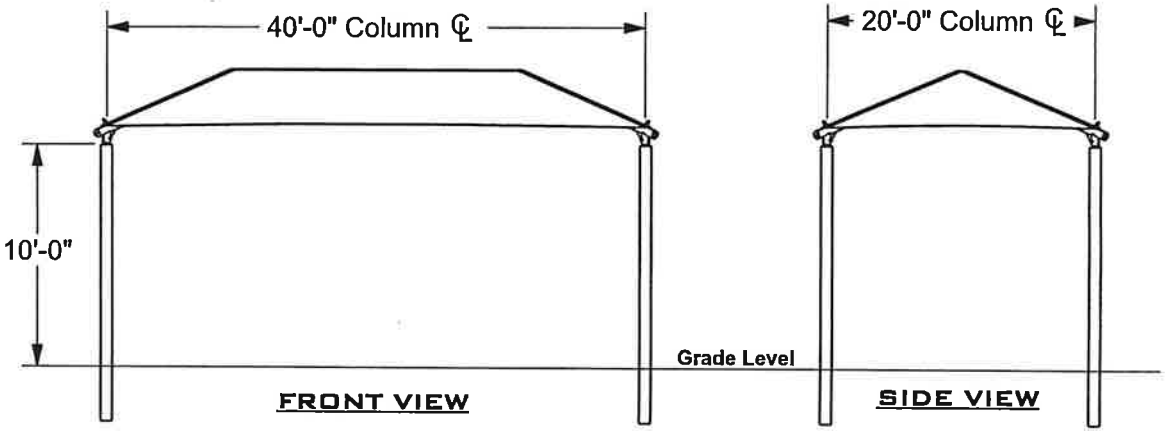
P_{all} = 129065.83 lb > 7807 lb OK

Use: Use: 3.5 ft. x 3.5 ft. x 3 ft. deep concrete footing with (4) #6 bars each way top & bottom

REF.#	PART DESCRIPTION	QTY.
1	Embedded Capped Column	4
2	Angled Elbow w/ Glide Mechanism	4
3	Hip Rafter w/ Swaged End	4
4	Ridge Pole w/ Swaged Ends	1
5	Rectangular Profile "Y" Connection	2
6	Fabric Cover w/ Cable Insert	1
7	Frame Hardware Kit	4



TRIMETRIC VIEW



FRONT VIEW

SIDE VIEW

#011991C
STEEL: BLACK
FABRIC: GREEN

SYMBOL KEY:

(1) — ITEM NUMBER

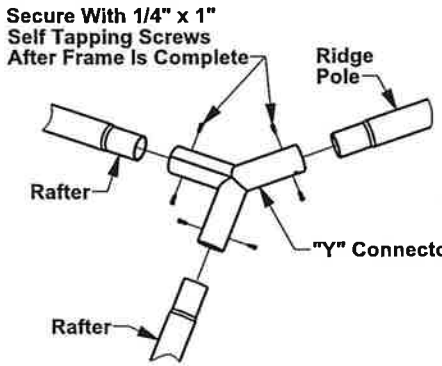
(1/3) — ITEM NUMBER OVER QTY.

SUPERIOR SHADE

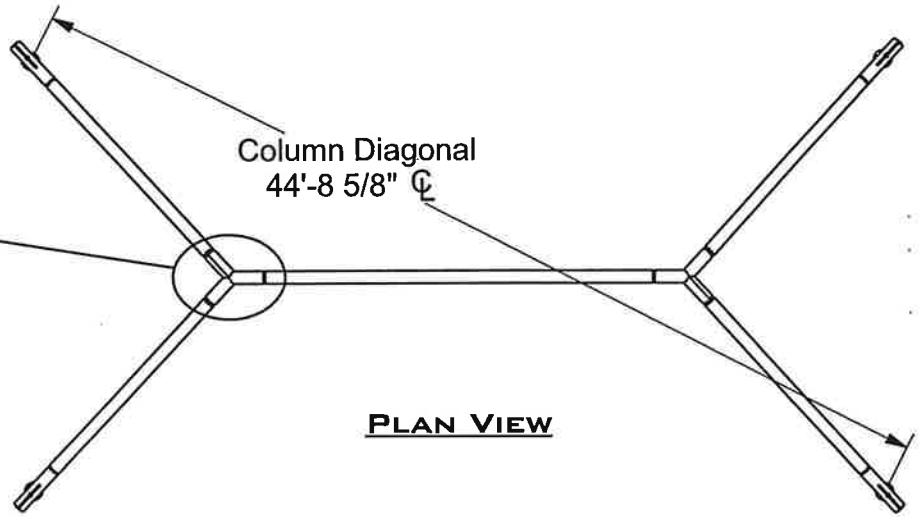
206 ADAMSON INDUSTRIAL BOULEVARD
CARROLLTON, GA 30116
1-888-829-8997

DESCRIPTION: RECTANGULAR 4-COLUMN EMBEDDED SHADE WITH GLIDE ELBOWS

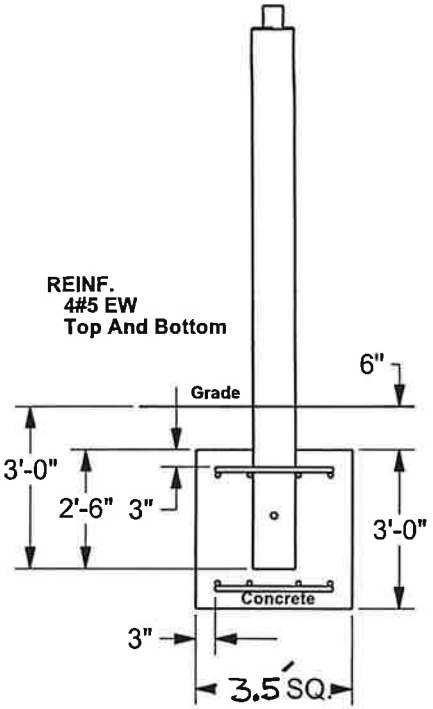
SCALE:	SHADE STYLE:	SHEET:
VARIES	HIP DESIGN	1 OF 3
DATE:	UNITS: INCHES / FEET	PROPOSAL/SO NO:



"Y" Connection Assembly

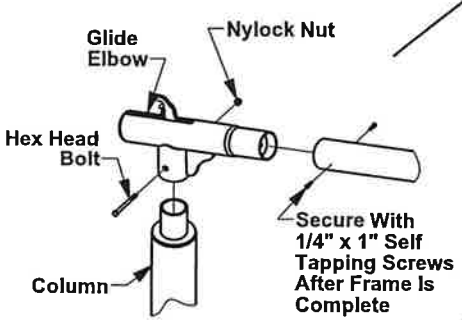


Plan View

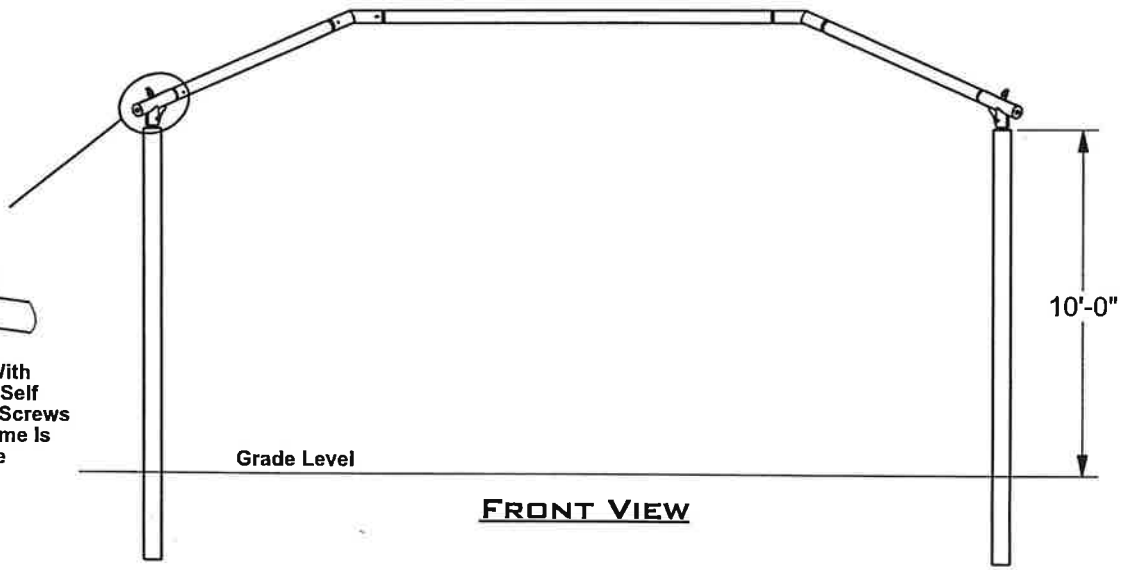


Footing Detail

NOTE:
A Hole Is Provided At The Base Of Each Column For One #5 Rod

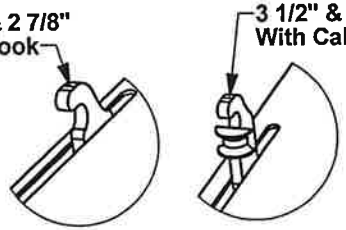


Elbow Connection Assembly



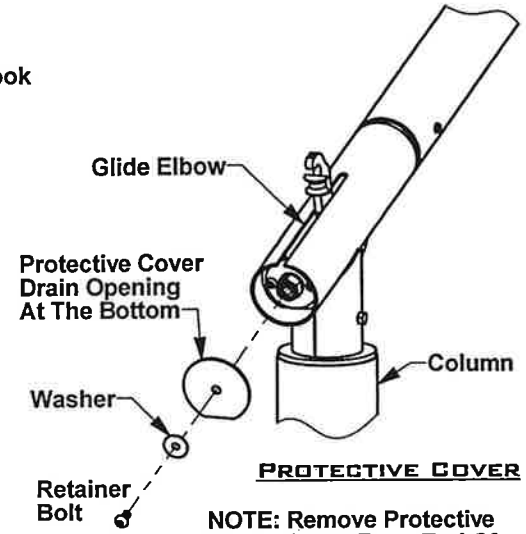
Front View

Superior Shade	Description: Rectangular 4-Column Frame Details	Sheet: 2 of 3



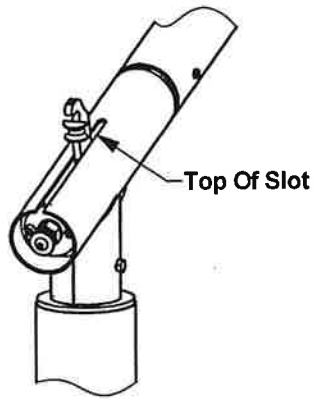
Hook Styles

NOTE: Larger Framework Will Have Glide Hooks With A Seperate Position For The Cable. For Standard Glide Elbows Both The Cable And Fabric Are Positioned Over Hook.



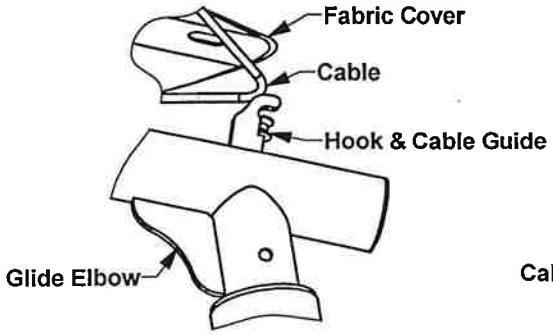
Protective Cover

NOTE: Remove Protective Cover From End Of Glide Elbows.



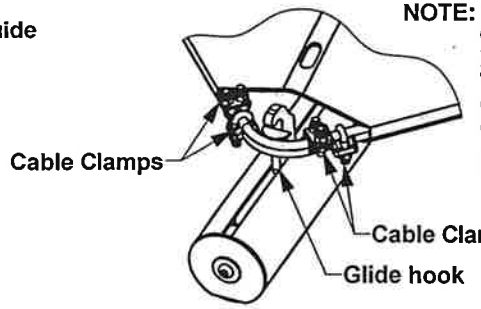
Glide Adjustment

NOTE: Rotate Hex Nut With Hand Tool To Adjust All Glide Hooks To The Top Of Slots Before Installing Fabric.



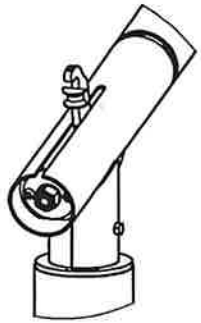
Fabric Installation

NOTE: Pull Cable Over Hook Into Cable Guide. Pull Hole In Fabric Corner Over Hook. This Applies To Three Of Four fabric Corners.



NOTE: Cross Cable Ends Within Cable Guide. Pull Cables Tight To Remove Any Slack. Secure With Two Cable Clamps On Either Side Of Guide. Pull Strap On Fabric Corner Over Hook Followed By The Hole In Fabric. Tuck Loose cable Ends Back Into Fabric Hems.

Secure Cable Ends



Fabric Tension

NOTE: Rotate Glide Hex Nuts Equally With Hand Tool To Adjust Cable And Fabric Tension.

SUPERIOR SHADE	DESCRIPTION: GLIDE ELBOW DETAILS	SHEET: 3 OF 3

SUPERIOR SHADE
SHIPPING FEEDBACK FORM

FAX TO: 770-834-2764 OR SEND VIA E-MAIL TO:
CWEBB@SIIBRANDS.COM

COMPANY NAME: _____

SALES ORDER NUMBER: _____

INSTALLER UNLOAD _____ YES _____ NO

END USER UNLOAD _____ YES _____ NO

SALES REP UNLOAD _____ YES _____ NO

PACKING MATERIAL & SKID IN TACT?

_____ YES _____ NO

BOXES DAMAGED OR TORN? _____ YES _____ NO

PAINT DAMAGE _____ YES _____ NO

IF YES - PLEASE DESCRIBE OR SEND PICTURES

_____

_____

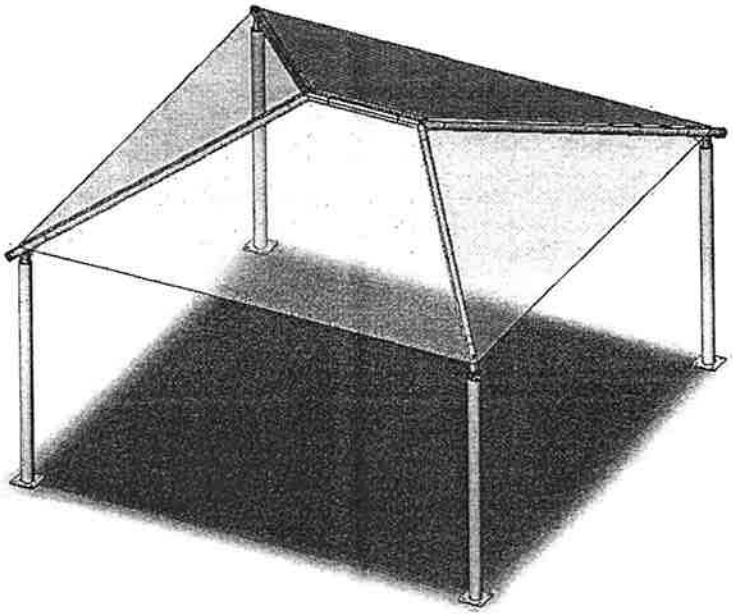
PARTS MISSING _____ YES _____ NO

IF YES - PLEASE CONTACT SUPERIOR SHADE IMMEDIATELY! 7-888-829-8997

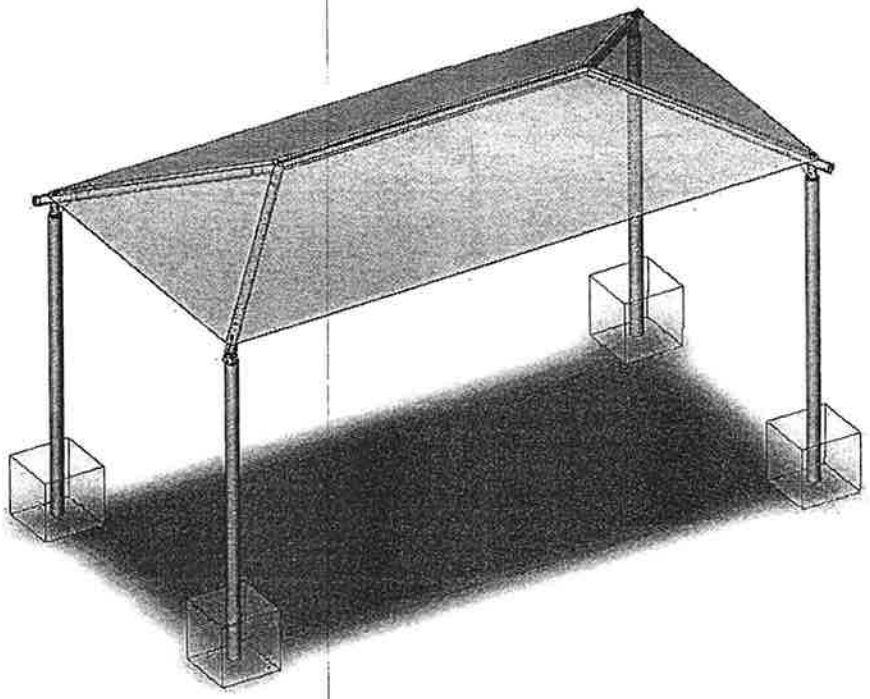
PLEASE PROVIDE ANY FEEDBACK YOU WOULD LIKE US TO LEARN FROM, TO BETTER IMPROVE OUR PACKING/SHIPPING PROCESS:

SUPERIOR SHADE™

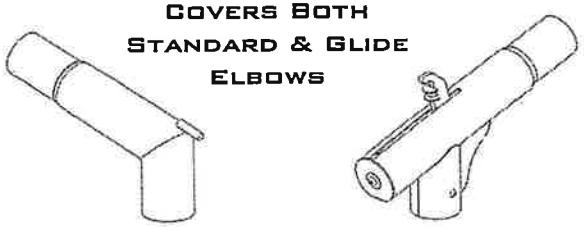
Hip Shade Design Installation



Rectangular Embedded
Rectangular With Base Plates
Square Embedded
Square With Base Plates



Covers Both
Standard & Glide
Elbows



SUPERIOR SHADE™

INSTALLATION INTRODUCTION

It is very important that you read this entire manual before beginning the installation process. We are continuously striving to improve our product, and the *Installation Introduction* will Contain the latest up-to-date information.

STORAGE:

When Shade Unit equipment is received at the job site it should be installed as soon as possible (within a few days). We package the equipment components to keep them safe and damage-free during shipment. However, the packaging material is not suited for periods of extended storage in an uncontrolled environments. The combination of moisture in the air mixed with heat generated inside the plastic shrink-wrap may cause damage to the finish of powdercoated frame members.

If an immediate installation is not possible, certain steps should be taken to minimize the risk of damage to the components. If Shade components must be stored, ideally they should be kept in a controlled warehouse or storage container environment away from heat and moisture. If this is not possible, the packaging material should be removed. Care is recommended when using cutting blades to remove packaging. Keep blades away from powdercoated surfaces to avoid damage to finish..

INVENTORY:

It is very important that you inventory all Shade equipment received using the Packing List that shipped with your unit. Review all items for proper quantities and check for any damaged components. Notify *Superior Shade* immediately if any components are missing or damaged at (800) 356-4727.

Superior Shade is not responsible for items discovered missing after 72-Hours from time of delivery.

IF YOU NEED TO REPLACE DAMAGED PARTS OR HAVE INSTALLATION QUESTIONS, PLEASE CALL OUR CUSTOMER SERVICE REPRESENTATIVES AT

888-829-8997

Monday – Friday 8:00 am – 5:00 pm Eastern Time

SHADE UNIT SITE PREPARATION

Using the provided plan view drawing of your unit, locate the position of all four support columns.

All loose asphalt, concrete and debris must be removed from the entire site prior to installation.

Site must be graded as close to level as possible to aid in unit construction. Special installation considerations must be implemented for sites that are not level.

The customer is responsible for checking local soil and drainage conditions within the site area. Proper drainage around the unit and the support columns is important. Inquire with local contractors in your area for drainage recommendations.

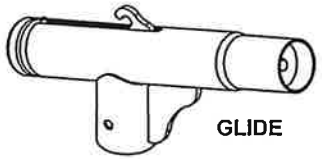
Site must be surveyed for underground hazards such as Electrical Cables, Phone Lines and Gas or Water Pipes. Serious injury or death could result if these hazards are not first located and marked within the site.

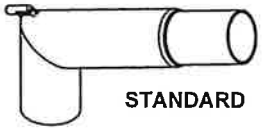
Never leave the job site unattended without making sure that all open holes are covered with material such as plywood. Rope off all unfinished construction to keep children away from site until job is complete.

REQUIRED TOOLS

(A) Safety Glasses
(B) String Level, Magnetic Level
(C) Rubber Mallet
(D) Shovel / Post Hole Digger / Auger
(E) Tape measure
(F) Rechargeable Drill / Drill Bit Set
(G) Socket Set (SAE)
(H) Adjustable Wrench
(I) Center Punch
(J) Two Ladders (10' recommended)
(K) Duct Tape
(L) One 2" x 8" x 16" Wood Length
(M) Multiple Scrap 2" x 4" x 8' Lengths
(N) 1/2" x 4' x 4' Plywood Sheet
(O) Wheelbarrow / Loader

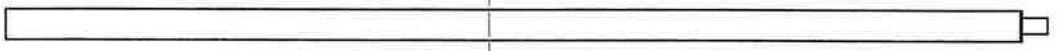
SHADE UNIT COMPONENT INVENTORY

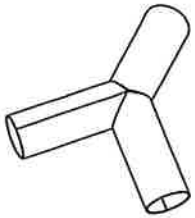




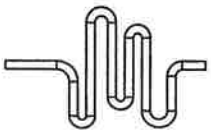
(4) GLIDE OR STANDARD ELBOWS

(4) BASE PLATE OR EMBEDDED COLUMNS

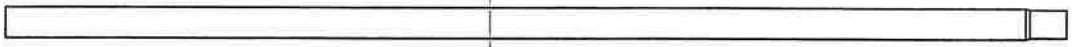




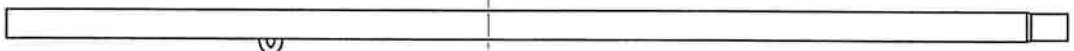
(2) "Y" CONNECTIONS



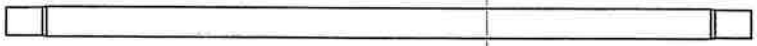
(1) CABLE LENGTH
Cable Will Be Installed Within Fabric If Shade Has Glide Elbows.



(4) HIP RAFTERS



Bracket Will Be Welded To One Rafter If Shade Structure Has Standard Elbows



(1) RIDGE POLE

(4) HEX HEAD BOLTS

(4) NYLOCK HEX NUTS

(4) CABLE CLAMPS
Supplied With Shade Units Using Standard Elbows

(20) SELF TAPPING SCREWS

(16) ANCHOR RODS
Supplied With 12" x 12" Or Larger Base Plate Columns.

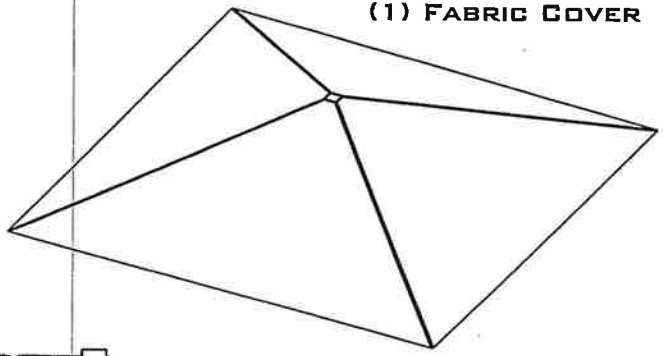
(32) ANCHOR ROD NUTS

(32) ANCHOR ROD WASHERS

TURNBUCKLE
Turnbuckle Is Supplied With Shade Units Using Standard Elbows.

DRIVER TOOL

(1) FABRIC COVER



STEP #1:

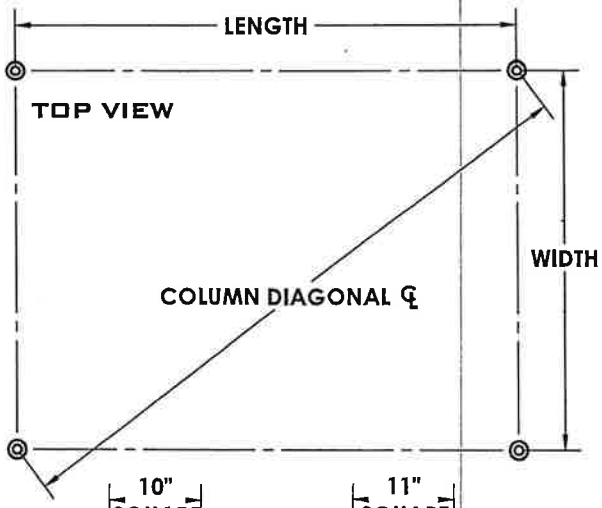
Locate and mark the positions of the four upright columns. Refer to the specific dimension information for your Shade unit provided in this packet.

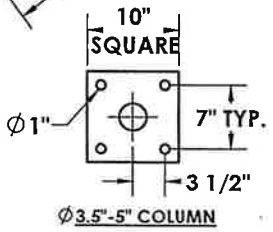
EMBEDDED COLUMNS:

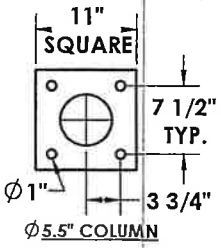
- -Excavate footings in accordance with the dimensions specified for your Shade unit. Refer to the specific dimensions provided for your unit within in this packet.
- -Place a 3" block in the bottom of each hole.
- -Place a column into each hole on top of each block.
- -Block and brace each column into position making sure that they are plumb and remain on centers. The distance between the columns at the top between cap centers must be correct.
- -Pour concrete around columns until it is three inches below grade level. Allow concrete to harden for 48-hours before proceeding to next step.

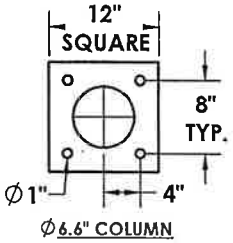
BASE PLATE COLUMNS:

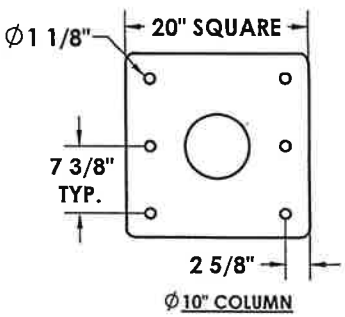
- -Excavate footings for concrete pads in accordance with the dimensions specified for your shade structure. Refer to the specific dimensions provided in this packet.
- -Cut the plywood sheet into four squares 2" larger than your base plates. Working from the center, mark off the hole pattern that applies to your base plate. Mark the center point of the column as well.
- -Drill four holes through the plywood at the outer marks. Make the holes slightly larger then the anchor diameter.
- -Insert the four anchors through the holes. Thread a nut completely over each anchor on top of the plywood. The four anchors should hang from the plywood.
- -Fill the footer holes with concrete to 4" below grade.
- -Place one Plywood sheet with anchors over each footer submersing the anchors into the concrete. Make sure the the center marks are on your column centers.
- -After the concrete has started to harden you must remove the hardware and plywood from each footer.
- -Let concrete harden for 48-hours.
- -Re-thread a nut over each anchor down to the concrete. Place a washer over each anchor followed by each column base plate. Adjust the nuts under the base plates to plumb each column. Insert a washer and thread a nut over each anchor tight against base plate.
- - Apply concrete Grout base between base plates and concrete.

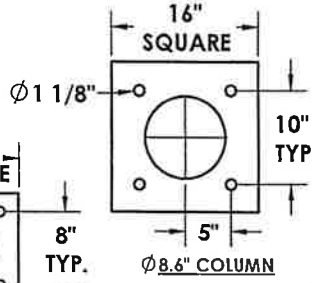


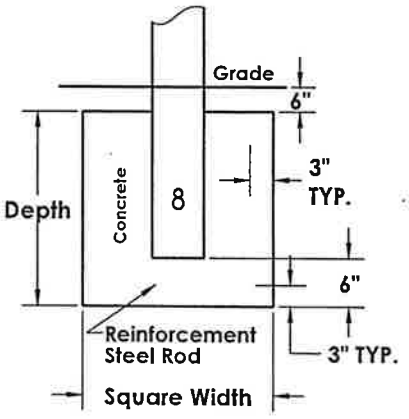




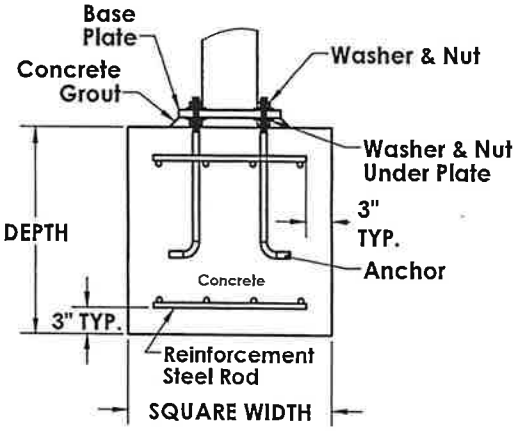




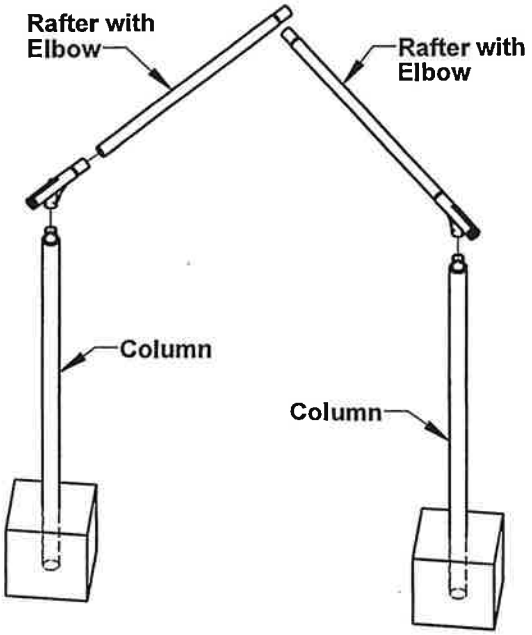




NOTE: A HOLE IS PROVIDED AT THE BASE OF EACH COLUMN FOR ONE #4 ROD



BASE PLATE APPLICATIONS AND DIMENSION



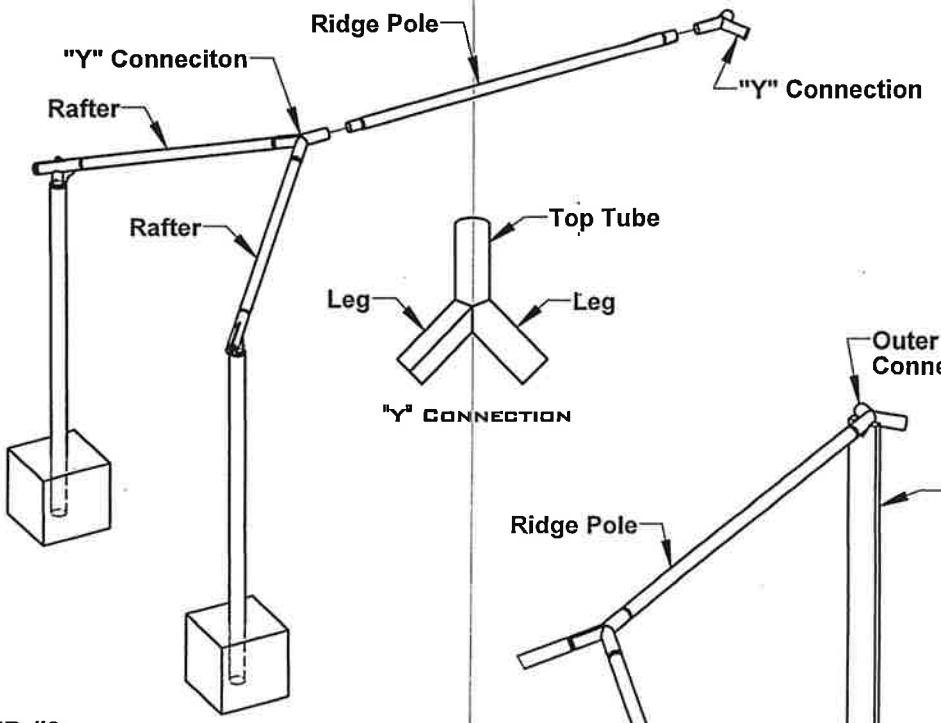
STEP #2:

-Begin the frame assembly by inserting the tappered ends of two elbows into the non-tappered ends of two rafters.
HELPFUL HINT: Wrap the joined parts with Duct Tape over the seam to hold them in place.

Standard Elbows:

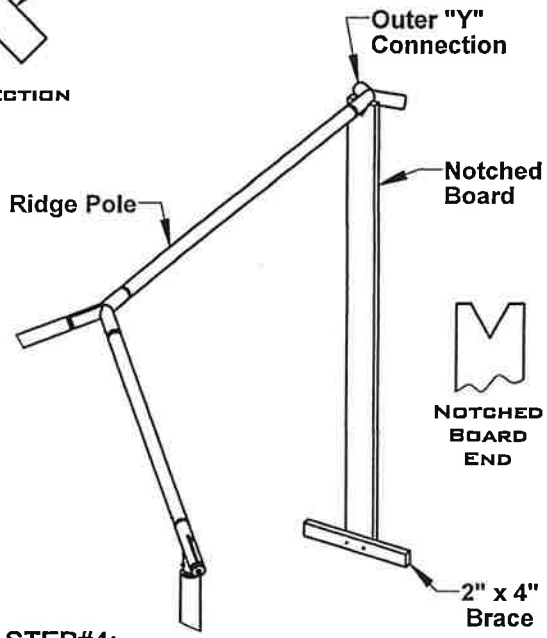
One of your four Rafters will have a welded turnbuckle bracket along its length. Location of this Rafter is optional but Turnbuckle Bracket must be toward ground.

-Using adequate manpower and ladders, lift the two rafter assemblies and slide open leg of elbow down over the top of the column cap.



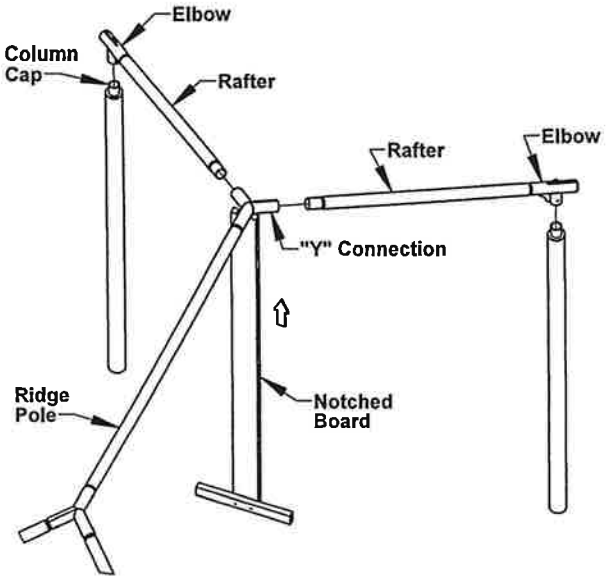
STEP #3:

-Slide the legs of a "Y" Connection over the tappered ends of the assembled rafters.
-Insert one of the tappered ridge pole ends into the "Y" Connection top tube.
-Slide the top tube of the second "Y" over the remaining tappered Ridge Pole end.
-Wrap all joining seams with Duct Tape to hold them in place.



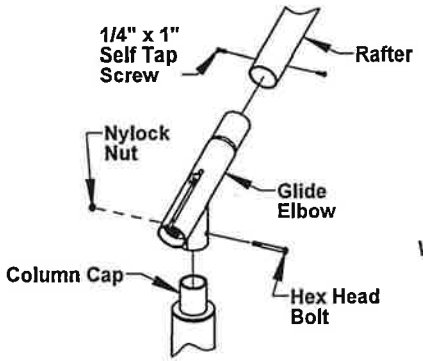
STEP#4:

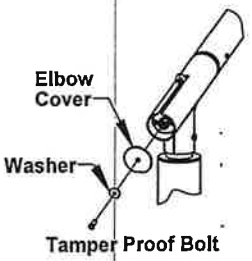
-Cut a vee notch in one end of the 2" x 8" that will craddle the "Y" Connection top tube. Cut length from the bottom of the board to equal height of ridge pole above ground. Add a 2" x 4" brace across the bottom. Place the boards under the outer "Y" to support the assembly.

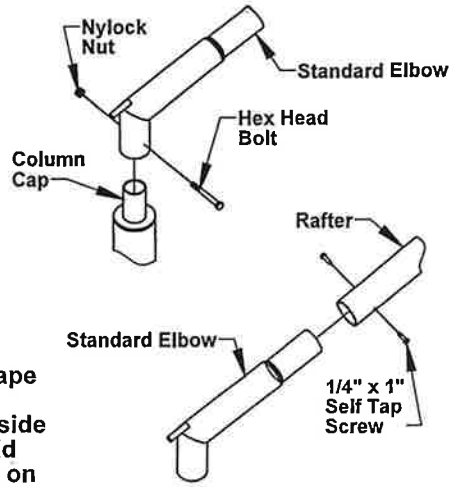


STEP#5:

- Insert the remaining two Elbows into the non-tappered ends of the remaining Rafters. Wrap seams with Duct tape.
- Insert the tappered ends of the Rafter assemblies into the suspended "Y" Connection.
- Raise the rafters now connected to the Ridge Pole and pull Elbow legs over remaining Column caps. Slide Elbow legs down over Column caps completely.
  HELPFUL HINT: Have a third person lift the board to raise the Ridge Pole when pulling Elbows into position. This will help locate the Elbow legs over the Column caps.

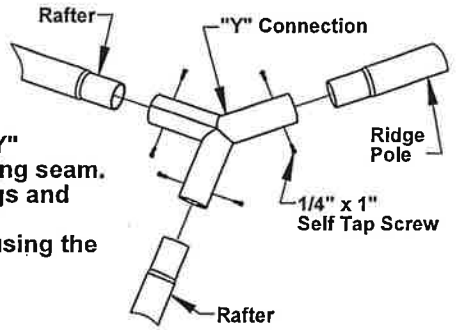






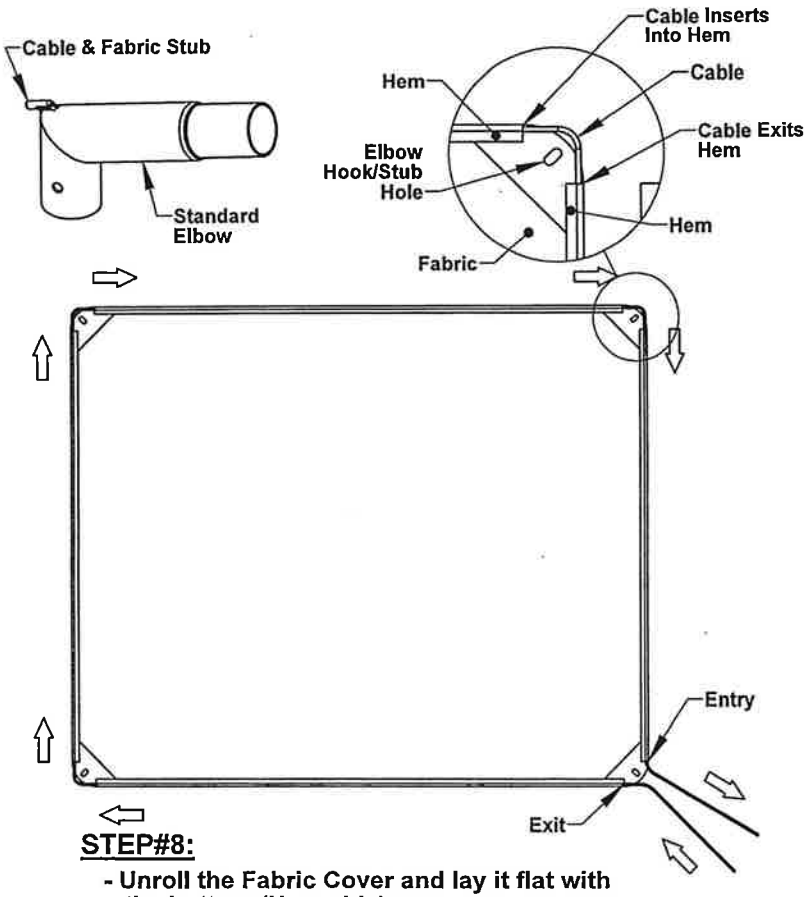
STEP#6:

- At this point the frame is complete and all Duct Tape can be removed.
- Using a steel center punch, strike a point on one side of each elbow 2" above the column cap plate. Field drill a hole completely through the elbow and cap on your mark. Use a 7/16" bit for 3/8" bolts and a 9/16" bit for 1/2" bolts.
- Install the provided 3/8" or 1/2" hex head bolts through the hole and secure with a Nylock hex nut of the same size.
- Remove Protective Covers from Glide Elbows if applicable.
- Strike a point on each side of each Rafter 2" above the joining seam with the Elbow.
- Field drill a 3/16" hole through the rafter and Elbow end at each location.
- Install a self tapping screw in each hole using the provided tool and drill.



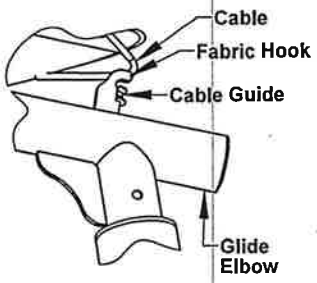
STEP#7:

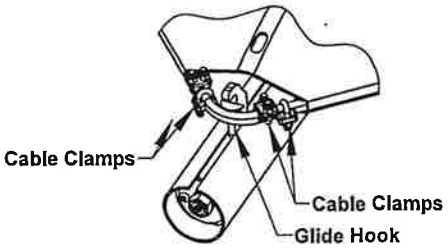
- Strike a point on each side of the three "Y" Connection legs 2" above the Rafter joining seam.
- Field drill a 3/16" hole through the "Y" legs and Rafter end at each location.
- Install a self tapping screw in each hole using the provided tool and drill.



STEP#8:

- Unroll the Fabric Cover and lay it flat with the bottom (Hem side) up.
- Insert one end of the cable into the one of the two Hem openings at a corner. Feed the cable through the hem until it exits at the next corner. Pull the cable completely through leaving 1'- 3'" at the insertion end.
- Tuck the end that just exited back into the adjacent hem on the same corner.
- Repeat this procedure until both ends exit the same corner.





STEP#9:

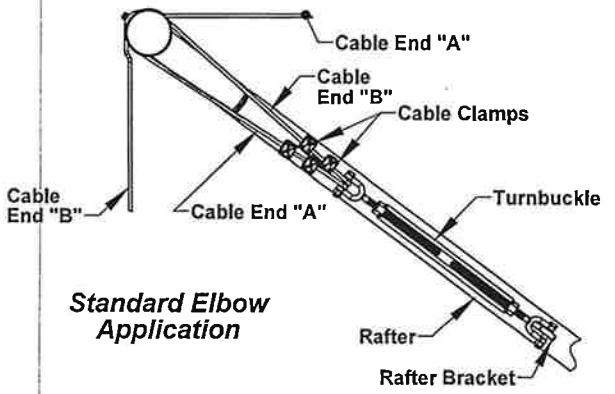
Securing Fabric Cover

NOTE: Larger shades will have a Cable Guide at the base of the fabric hook to separate the cable from the fabric.

Before attaching fabric make sure that all glide hooks are in their highest position at the top end of the slot.

- Working from either end of the structure, pull the Fabric cover over the framework with the HEM SIDE DOWN.
- Start with one of the corners without the loose ends. Pull the cable over the hook and place in cable guide if applicable.
- Pull the Fabric Strap sewn to the corner underside over the hook.
- Pull the corner over the hook inserting hook through hole in fabric fabric.
- Repeat procedure at all corners without the loose ends.
  Be sure that cable is always below fabric.
  NOTE: Fabric will be tight and may need pulled over hooks.

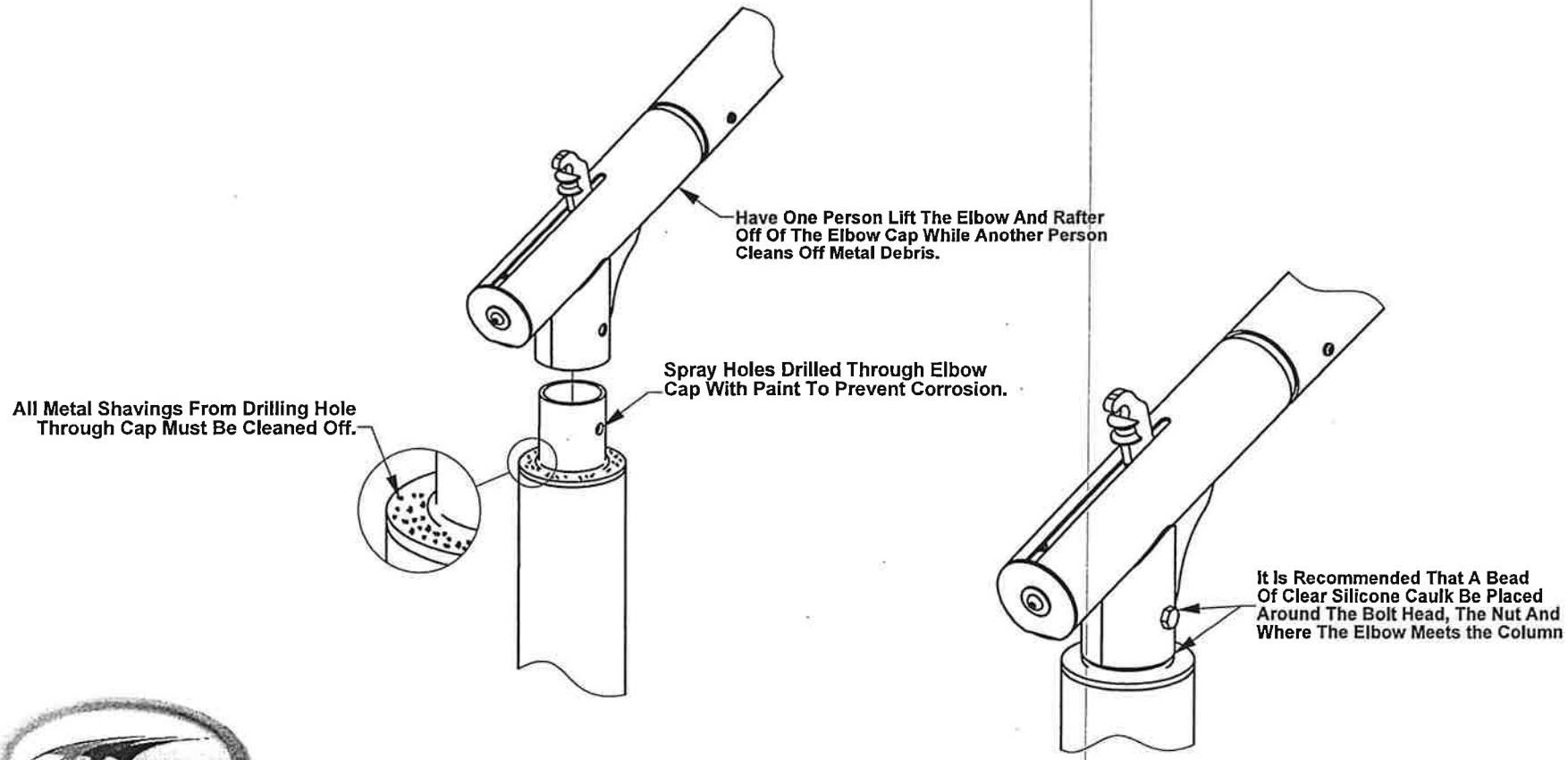
-Cross cables over within the cable guide or hook at the remaining corner.
Draw cables tight removing all slack. Secure the cables together with two clamps on either side of hook.
Tuck loose cable ends back into fabric hems.



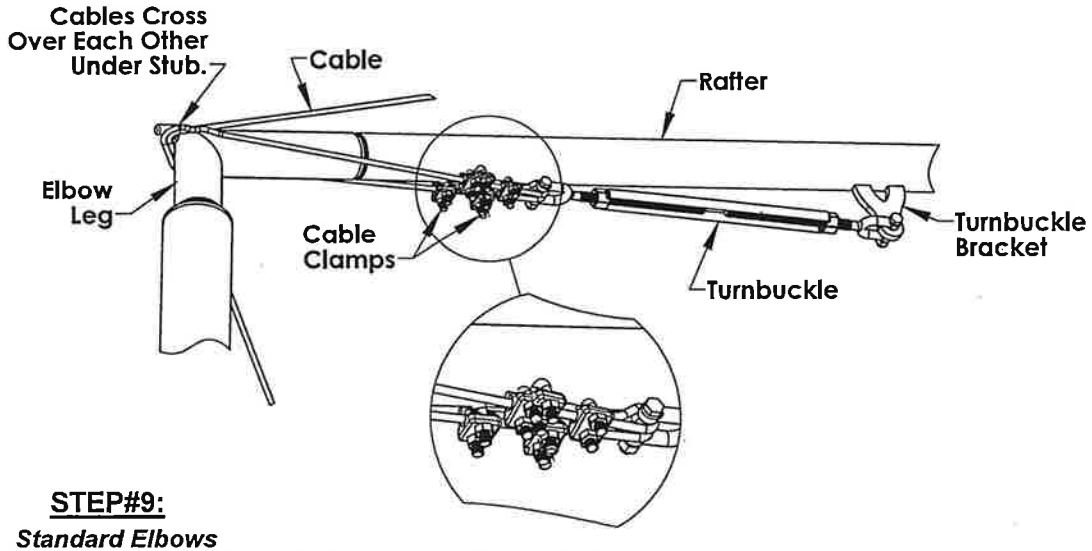
Standard Elbow Application

ATTENTION!

Metal Shavings Must Be Removed To Prevent Corrosive Staining.



SUPERIOR SHADE



STEP#9:

Standard Elbows

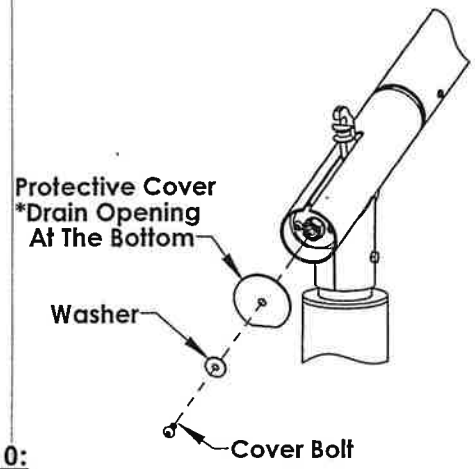
-Locate the Rafter with the Turnbuckle Bracket. This will be the corner where the loose cable ends of the Fabric cover will be located.

-Starting at the corner diagonal to the loose cables, pull the cable and Fabric corner hole over the stub welded to the tip of the Elbow. Cable must go over first.

- Move to the adjacent two corners and repeat this procedure.
  NOTE: Fabric will be tight and may need pulled by rope and guided over stub.
- Attach one end of the supplied Turnbuckle to the Bracket. Extend the Turnbuckle to near full length leaving one inch of threads unused at each end.

-Pull one of the loose cable ends around the Elbow leg under the stub. Run the cable end up the rafter and loop it through the remaining Turnbuckle end. Pull cable snug tight and secure snug tight with cable clamp.

- Repeat this procedure with remaining cable end crossing over the first cable under stub. Pull this cable as tight as possible before clamping.
- Pull Remaining Fabric corner hole over Elbow stub using rope if necessary.
- Re-adjust both cables as tight as possible before securing with two cable clamps per cable.
- Rotate Turnbuckle to apply more tension to cables being careful not to over tighten.



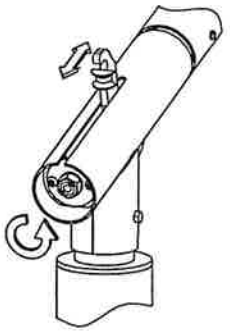
STEP#10:

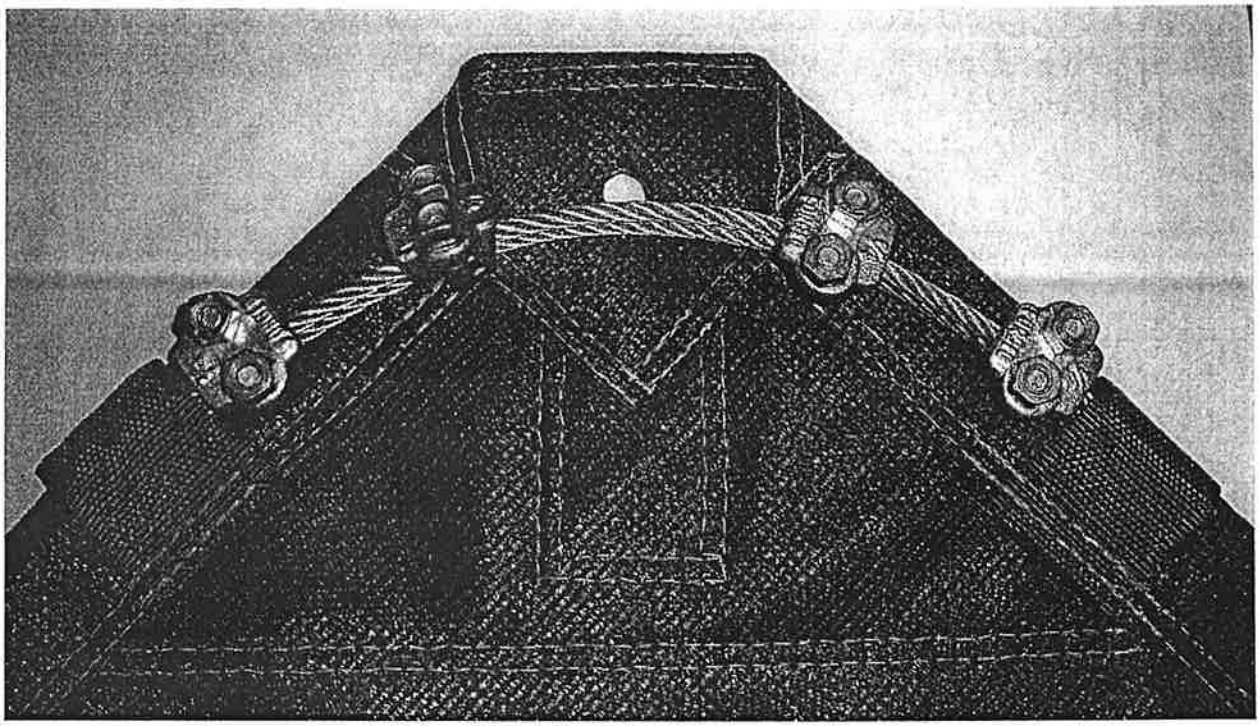
Glide Elbow:

- Remove protective cover from Elbow end using standard Allen head wrench or provided T-45 Torx wrench.

STEP#11:

- Rotate Hex Nuts within Elbow ends the same amount at all corners to tension or loosen Fabric Cover. Be careful not to over tighten cable and fabric.
- Re-insert protective covers and secure with hardware.





WARNING:

Cables must exit through holes under webbing

to ensure spacing for the FOUR cable clamps.

WARRANTY

Including Appendix A, **"PROPER CARE, MAINTENANCE AND SAFE REMOVAL OF THE SHADE CANOPY"**

General Conditions:

- The warranty set forth shall be the purchaser's sole and exclusive warranty.
- All warranties below are effective from the date of delivery by Superior Shade, its subsidiaries or agents.
- Labor for the removal, installation and/or freight will be covered in full for a period of 12 months from the date of delivery for warranty claims; following that, labor for the removal, installation and/or freight will be at the customers' expense and the warranty will only be applicable to the repair or replacement of the defective materials.
- Superior Shade reserves the right to repair or replace any item covered by this warranty.
- This warranty will be void if the structures are not paid for in full.
- The warranty is void if the structures are not installed in strict compliance with the manufacturer specifications.
- Purchaser shall notify Superior Shade or its agent in writing detailing any defect for which a warranty claim is being made.
- Superior Shade shall not in any event be liable for indirect, special, consequential or liquidated damages.
- Superior Shade specifically denies the implied warranties of fitness for a particular purpose and merchantability.
- The warranty is void if any changes, modifications, additions or attachments are made to the structures or fabric without the written consent of the manufacturer.
- No signs, objects, ornaments, fans, lights, fixtures or decorations may be hung from the top part of the structure, unless specifically designed and engineered by the manufacturer. These items may interfere with the fabric causing the warranty to be voided.

Thread:

- Shall be 100% expanded PTFE fiber that is high strength and low shrinkage which carries a 10 year warranty.
- This warranties that the sewing thread will be free from defects in material and workmanship and will not be damaged by exposure to sunlight, weather and water.
- All other warranties are disclaimed.

Fabric:

- Superior Shade fabrics carry a ten-year limited manufacturers warranty from the date of delivery against failure from significant fading*, deterioration, breakdown, mildew, outdoor heat, cold or discoloration. Should the fabric need to be replaced under the warranty, Superior Shade will manufacture and ship a new fabric at no charge for the first six years, thereafter pro-rated at 18% per annum over the last four years. *The colors Red and Yellow are warranted against significant fading for only two years.
- If the corners of the fabric are equipped with both holes in the fabric corner PLUS reinforcing straps, BOTH the strap and fabric hole must be placed over each corner hook or the fabric warranty is void.

- Fabric curtains, valences or flat vertical panels are not covered under the warranty.
- Fabric is not warranted where it is installed on a structure that is not engineered and built by Superior Shade or its agents.
- This warranty shall be void if damage to or failure to the shade structure is caused by contact with chemicals, chlorine, bleaching agents, hydrocarbons or hydrocarbon containing solvents, misuse, vandalism or any act of God, including but not limited to wind in excess of the wind limitations set forth below.
- All fabric tops are warranted for sustained winds up to 76mph (hurricane force 1) and for gusts of up to 3 seconds duration up to 90mph. Removal of the shade fabric is required if damaging winds are called for. Damage due to snow and/or ice accumulation is not covered by this warranty. Canopies should be removed during the "off season".
- The structures have been designed to eliminate any friction between the rafters and the fabric. The warranty will, therefore, be voided if any modification (temporary or permanent) is made to the rafter, cross pieces or ridge beams.
- Superior Shade reserves the right, in cases where certain fabric colors have been discontinued, to offer the customer a choice of available colors to replace the warranted fabric of the discontinued color. The company does not warranty that any particular color will be available for any period of time and reserves the right to discontinue any color for any reason it may determine, without recourse by the owner of the discontinued fabric color.

Steel Structure:

- The structural steel frames are covered for a period of twenty years against failure due to rust-through corrosion under normal environmental conditions.
- Workmanship is warranted for a period of five years.
- Structures are warranted for winds up to 150mph only if shade canopies have been removed as per requirement set forth above in the **Fabric** paragraph. Removal and reinstallation must be performed by a qualified person or authorized dealer following the instructions in APPENDIX A below.
- This steel warranty shall be void if damage to the steel frame is caused by the installer, or from physical damage, damage by salt spray, or sprinkler systems, contact with chemicals, chlorine, pollution, misuse, vandalism, or any act of God.

Powder Coat Finish:

- The factory applied powder coat finish is warranted for a period of ten years under normal environmental conditions. This warranty does not cover cosmetic issues such as fading, discoloration, or weathering.
- This finish warranty shall be void if damage to the powder coat is caused by the installer, or from physical damage, damage by salt spray or sprinkler systems, contact with chemicals, chlorine, thinners, degreasers, hydrocarbon containing solvents, pollution, misuse, vandalism or any act of God, including but not limited to, ice, snow or wind in excess of the applicable building code parameters. The owner must report any defects in the powder coat at the time the installation is completed.

Acts of Nature:

- This warranty does not cover natural disasters, such as earthquakes, shifts of terrain or tornados. If the structure is installed in an area exposed to hurricanes, removal of the shade fabric is required when a hurricane warning is issued.

Customer Info

NVB PLAYGROUNDS
Name: KYLE
Address:
City:
State: Zip:
Tel: 877-826-2776 Fax: 317-823-3567

Shipping Info Order # 011991C

Company: CITY OF LINDSAY HIP RECT
Name: QUO0011991
Address:
City: LINDSAY
State: CA ZIP: 93247
Tel: FAX:

Parts List

QTY= 1 # of Dome: 1 # of rows: 1 <Field 'L X 20 'W X 10 'H

Qty	Description	Size	Color	Man	Q.C.	Pack
4	Columns EMB	156" L 6040 " D	BLACK			
4	Corner Elbow Glide	5.00 " D	BLACK			
4	Corner Rafter	157.0 " L 5.00 " D	BLACK			
1	Ridge pole	246.5 " L 5.00 " D	BLACK			
2	Y Rectangle	5.00 " D	BLACK			
0	Mid Rafter Elbow Glide	5.00 " D	BLACK			
0	Mid Rafter	" L 5.00 " D	BLACK			
0	Mid Cross	5.00 " D	BLACK			
1	Cable length	130 Feet	Size=1/4			
1	Canopy	L 39.97' W 20.11' C 20.11'	FOREST GREEN F/R			
0	Turn Buckle		Galv			
4	Clamps	SIZE 1/4"	Galv			
4	Elbow Bolts	1/2x6	Zinc			
4	Elbow Nuts Hex Nylock	1/2	Zinc			
0	Base Plate Bolts		Zinc			
0	Base Plate Nuts		Zinc			
0	Base Plate Washers		Zinc			
20	Self Tapping Screw	1/4" x 1"	Zinc			

Customer Info

NVB PLAYGROUNDS

Name: Kevin Van Wye

Address: 10725 Hidden Oak Way

City: Indianapolis

State: IN Zip: 46236

Shipping Info Order #011991AZ

Project: City Of Lindsay

Address: 476 Mt. Vernon

City: Lindsay

State: CA Zip: 93247

40' x 25' Hyperbolic Sail

Parts List						
Qty	Description	Size	Color	Man	Q.C.	Pack
1	Hyperbolic Sail		PLAIN BEIGE			
1	Cable Length	5/16" x 148 Feet	GALV.			
4	Clamps	5/16"	GALV.			

Powder: **Date:** _____ **ID:** _____

Weld QC:

Part: _____ Drawing _____ Actual _____

Part: _____ Drawing _____ Actual _____

Part: _____ Drawing _____ Actual _____

Part: _____ Drawing _____ Actual _____

Powder/Primer:

Part: _____ Pass ☐ Powder
Fail ☐ Thickness _____

Part: _____ Pass ☐ Powder
Fail ☐ Thickness _____

Part: _____ Pass ☐ Powder
Fail ☐ Thickness _____

Part: _____ Pass ☐ Powder
Fail ☐ Thickness _____

Packing:

Part: _____ Fail ☐ Thickness _____
Pass ☐ Powder

Part: _____ Fail ☐ Thickness _____
Pass ☐ Powder

Part: _____ Fail ☐ Thickness _____
Pass ☐ Powder

Part: _____ Fail ☐ Thickness _____

Date: _____ **ID:** _____

Checklist:

☐ Packing List Satisfied

☐ Sales Order Identified on Package

☐ Complete Date Marked on Package

"Y"CHECK:

☐ Square
☐ Rectangle

Shipping:

Date: _____ ID: _____

Checklist:

Sales Order #: _____ **Hardwaer Boxes Palletized:** _____

Pallet Piece Count: _____ **Palletized Correctly:** _____

Roediger Agencies cc

REG No: 93/29937/23
VAT No: 4280155465
Polymer Chemistry Building
De Beer Street, STELLENBOSCH 7600
www.roedigeragencies.co.za

ANALYTICAL LABORATORY

PO Box 3202
MATIELAND 7602
Tel: +27 21 808 3175
Fax: +27 21 886 4731
Cell: 083 250 9281

12 June 2009

Katy Speelman
Alnet (Pty) Ltd.
Private Bag X308
7475 Eppindust

Dear Ms. Speelman

A sample of beige extra block fire retardant shade cloth was brought to the analytical laboratory of Roediger Agencies cc to evaluate the cloth according to NFPA 701 2004 edition via the following test method.

The samples were cut according to the specification and that is the long section is in the direction of the role. This is very important and can lead to erroneous results if cut the other way round. The test results are tabulated below.

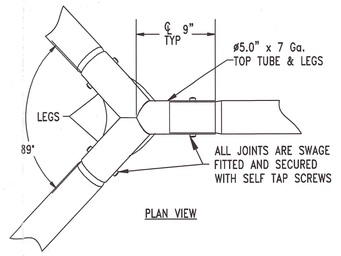
	Specimen	Mass before (g)	Mass after (g)	After flame (sec)	Flaming drip (sec)	Weight loss (%)	Flame projects above top of specimen (yes/no)
Tested according to NFPA 701 - Fire tests for flame propagation of textiles & films	1	20.749	20.562	0	0	0.90	No
	2	19.920	19.773	0	1	0.74	No
	3	18.755	18.639	0	0	0.62	No
	4	18.232	18.177	0	0	0.30	No
	5	17.781	17.495	0	1	1.61	No
	6	19.244	18.977	0	1	1.39	No
	7	20.187	18.865	7	2	6.55	No
	8	19.589	18.638	8	1	4.85	No
	9	19.936	19.874	0	2	0.31	No
	10	19.855	19.582	0	0	1.37	No
					Average	1.86	
					Standard deviation	2.11	

Summary

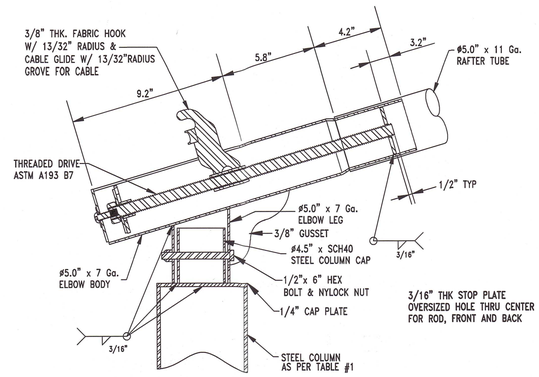
The material passes the 701 test.

Yours faithfully,

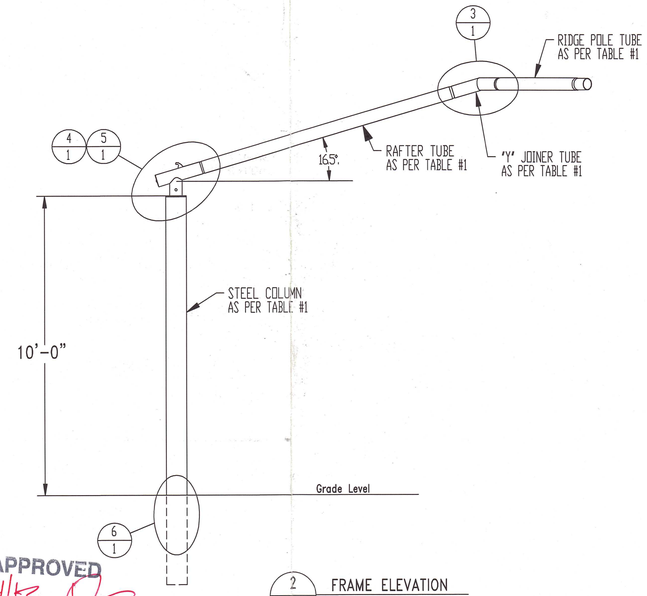
Dr. AHA Roediger.



3/1 "Y" JOINER CONNECTION

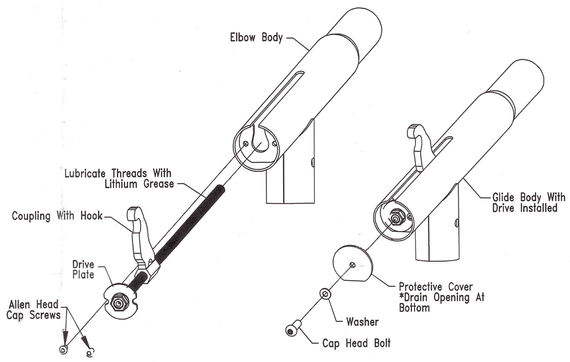


4/1 ELBOW CONNECTION

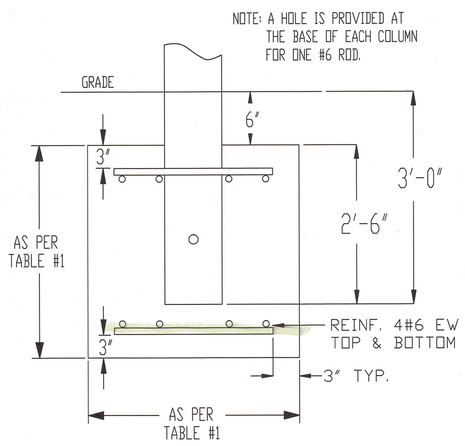


2/1 FRAME ELEVATION

APPROVED
2/14/13
CITY OF LINDSAY
BUILDING DEPT.

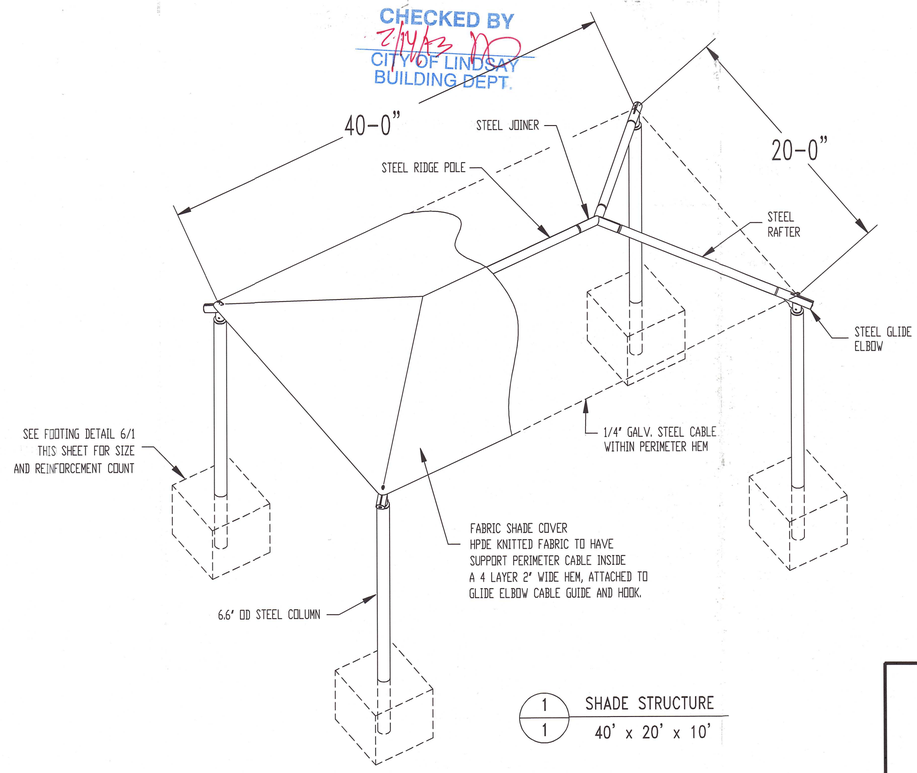


5/1 GLIDE ELBOW CONSTRUCTION



6/1 FOOTING DETAIL

CHECKED BY
2/14/13
CITY OF LINDSAY
BUILDING DEPT.



1/1 SHADE STRUCTURE
40' x 20' x 10'

DESIGN CRITERIA
2010 CALIFORNIA BUILDING CODE
DEAD LOAD: 0.10 PSF + STRUCTURE DEAD WEIGHT (FABRIC COVER ATTACHED)
SNOW LOAD:
GROUND SNOW LOAD: 0 PSF (FABRIC COVER ATTACHED)
GROUND SNOW LOAD: 0 PSF (FABRIC COVER REMOVED)
SNOW EXPOSURE FACTOR: 1.0
SNOW LOAD IMPORTANCE FACTOR: 1.0
THERMAL FACTOR: 1.2
LIVE LOAD:
ROOF LIVE LOAD: 5 PSF (FABRIC COVER ATTACHED)
WIND LOAD:
BASIC WIND SPEED: 85 MPH (FABRIC COVER ATTACHED)
BASIC WIND SPEED: 85 MPH (FABRIC COVER REMOVED)
WIND IMPORTANCE FACTOR: 1.0
WIND EXPOSURE CATEGORY: C
GUST EFFECT FACTOR: 0.895
SEISMIC DESIGN: (FABRIC COVER ATTACHED)
SEISMIC IMPORTANCE FACTOR: 1.0
SEISMIC SITE CLASS: D
SEISMIC DESIGN CATEGORY: D
BASIC SEISMIC FORCE RESISTING SYSTEM: CANTILEVERED COLUMNS DETAILED TO INTERMEDIATE MOMENT FRAMES

GENERAL NOTES:
-FABRIC MEETS NFPA 701-04
-ALL EXPOSED STEEL TO BE POWDERCOATED

OWNER NOTES:
THE STEEL STRUCTURE WITH THE FABRIC COVER ATTACHED IS NOT DESIGNED TO WITHSTAND ROOF LIVE LOADS EXCEEDING 5 PSF, SNOW LOADS EXCEEDING 5 PSF, OR WIND SPEEDS EXCEEDING A BASIC WIND SPEED OF 85 MPH. THE OWNER ACCEPTS FULL RESPONSIBILITY OF REMOVING THE FABRIC FROM THE STEEL FRAME WHEN ANY OR ALL OF THESE CONDITIONS MAY OCCUR. THE STEEL STRUCTURE WITH THE FABRIC COVER REMOVED IS DESIGNED TO WITHSTAND DEAD LOADS, ROOF LIVE LOADS, SNOW LOADS, SEISMIC LOADS AND WIND SPEEDS PER THE LOCAL CODE REQUIREMENTS.

CONCRETE: 2,500 PSI
*Min. (28) Day Comp. Strength.
Bar Reinforcement Shall Comform To ASTM-A615, Grade 60.
Footer To Be Poured In Undisturbed Soil. Do Not Form.
Footing Size Based On 1,500 lbs Per Square Foot Soil Bearing Capacity.
It Is The Responsibility Of The Installer/Purchaser To Verify Actual Soil Bearing Capacity At The Site Of Installation.

MEMBER TYPE	ASTM	MIN. YIELD STRENGTH
ROUND MECHANICAL TUBING	A519	45 KSI
MISCELLANEOUS PLATES/SHAPES	A36	36 KSI

1/4" Galvanized Aircraft Cable Shall Have A Nominal Strength Of 7,000 lbs.
All Hardware, And Cable To Be Galvanized Or Zinc Plated.

TABLE 1

STRUCTURE	COLUMN HEIGHT	COLUMN SIZE	FRAME TUBE SIZE	FOOTING SIZE	FOOTING REINF.	BASEPLATE
40' x 20' Embedded	10'-0"	6.0" ID SCH-40 (6.6" OD)	5.0" OD 11 Gage	3.5' x 3.5' 3.0' Deep	4 #6 EW Top And Bottom	NONE

SEAL:
REGISTERED PROFESSIONAL ENGINEER
JASON W. COWN
C 66571
EXP. 6/30/14
CIVIL
STATE OF CALIFORNIA
2/12/13

SUPERIOR SHADE
150 Adamson Industrial Blvd.
Carrollton, GA
30117

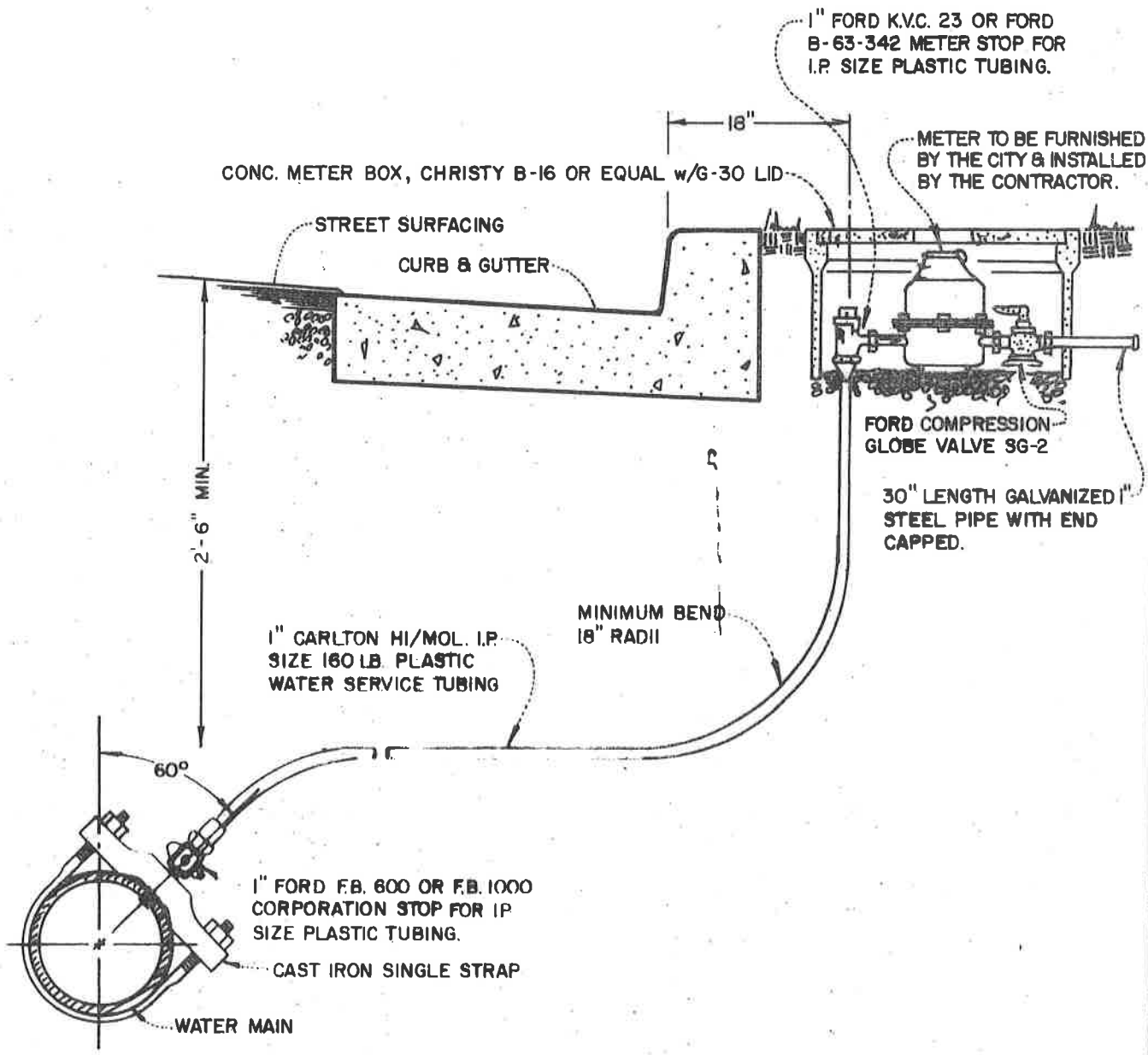
STATE OF CALIFORNIA
CITY OF LINDSAY
476 Mount Vernon
Lindsay, CA
93247

Revisions:		
	Date:	By:

Drawn:	Chris Zanot
Date:	2/5/2013
Chkd:	
Date:	

#011991C

1
Sheet No.



INSTALLATION DETAILS OF LARGER SERVICES TO BE DETERMINED BY ENGINEER.

CITY OF *Lindsay*
DEPARTMENT OF PUBLIC WORKS

1" WATER SERVICE

MARK	DATE	REVISION

Engineering Standard
Approved James L. West
Date 9/14/79

WA-5