

SPECIFICATION FOR PLANTINGS AND SOD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Civil sheets and specifications

PLANTING AND SEED SPECIFICATIONS

1.2 SUMMARY

- A. Extent of landscape development work is shown on drawings, either by specification terms or their abbreviation.
B. The major items of work include, but are not limited to the following:
1. Verify underground utility locations.
2. Furnishing, installation and maintenance of landscape materials.
3. Fine grading and preparation of tree, shrub, groundcover, perennial and bulb planting areas.
4. Preparation of planting pits and beds including excavation, back filling and disposal of surplus and unsuitable excavated material.
5. Planting of trees, shrubs, ground cover, perennials and bulbs as shown on plan, including fertilizing, mulching and trimming, guying and wrapping
6. Soil amendments and fertilizers, in landscape areas as approved by owner
7. Mulch all planting areas and trees.
8. All planting beds and trees shall have a clean, even spade edge.
D. Sub grade Elevations: Excavation, filling and grading required to establish elevations shown on drawings are not specified in this section. Refer to Earthwork sections.

1.3 QUALITY ASSURANCE

- A. Landscape planting work shall be performed by an experienced, single firm specializing in landscape work. Identify all subcontractors of specialty work.
B. Bidders Qualifications: Landscape contractor firm experienced in installing landscape work similar in size and contract amount to that required for this Project, with sufficient experience to produce required installation without causing delay in the Work.
1. Bidders shall have five (5) years of experience in installation of Landscape Work similar to that indicated and specific for this Project.
C. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
D. Plants: Provide plants, of quantity, size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock". Provide healthy, vigorous stock, grown in recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sunscald, injuries, abrasions, or disfigurement. Plants shall be approved or rejected at the Owner's Representatives discretion for damage, health, form, and size at any time before or during planting. Plant materials that are poor in health or damaged prior to completion or during the warranty period will be identified by the Owner's Representative and shall be replaced by the Contractor within five (5) days of written notice.
E. All plants shall be labeled with a securely attached waterproof tag bearing legible designation of botanical and common name.
F. Locate plants complying with requirements, and obtain Owner's Representative acceptance, through submission of digital photographs, of their visual qualities before they are delivered to site and installation. Scale figure must appear in each photograph. Identification of plant nursery or source of origin shall accompany digital photographs. After submission of digital photographs, Owner Representative, may require, an in person visual inspection of plant varieties at nursery or source prior to delivery or installation.
G. Measure trees with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4 inches caliper size, and 12 inches above ground for larger sizes. Measure main body of tree for height and spread dimensions, do not measure from branch or root tip-to-tip.
H. Trees shall be located, selected and dug prior to showing new growth. All plants shall be maintained in a favorable storage conditions and approved location until ready to plant.
I. Plants shall be subject to inspection and approval by the Owner's Representative upon delivery for conformity to specifications. SUCH APPROVAL SHALL NOT IMPAIR THE RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
J. Substitutions of plant materials is permitted if proof is submitted that any plant specified is not obtainable, a proposal may be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price.
a. ALL PROPOSED SUBSTITUTIONS TO BE SUBMITTED TEN (10) DAYS PRIOR TO SUBMISSION OF PROPOSAL OF WORK.
b. Proof of plant non-availability shall include five plant nurseries contacts for verification.
c. List of proposed plant substitutions and cost impact.
d. These provisions shall not relieve Contractor of the responsibility of obtaining specified materials in advance if special growing conditions or other arrangements must be made in order to supply specified materials.
K. The contractor shall attend a pre-construction meeting with Owner and Owner's Representative prior to the start of any installation.

1.4 SUBMITTALS

- A. Product Certification: Submit certificates of inspection as may be required by governing authorities to accompany shipment. For standard products submit manufacturer's certified analysis. For other materials, submit analysis by a recognized laboratory made in accordance with methods established by Association of Official Agricultural Chemists, wherever applicable.
B. Plant Samples: Locate plants complying with requirements, and obtain Owner's Representative acceptance, through submission of digital photographs, and plant inspection and tagging at the nursery of their visual qualities before they are prepared for transplanting. Scale figure must appear in each photograph.
C. Product Samples: Submit samples in completely filled 1 gallon zip lock bags to Owner's Representative for approval of the following items.
1. Mulch
2. Amendment's as approved by owner
D. Submit cut sheets and/or sample of materials of the following to Owner's for approval:
1. Fertilizer
2. Anti-desiccant
3. Wound dressing (none used)
4. Herbicides
E. Planting Schedule: Submit proposed planting schedule, indicating dates for each type of landscape work during normal seasons for such work in area of site. Correlate with specified maintenance periods to provide maintenance from date of initial acceptance inspection. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.
F. Maintenance Instructions: Submit typewritten instructions recommending procedures for maintenance of landscape plantings and beds, for one full year. Submit prior to expiration of required maintenance period(s).

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. A Packaged Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
B. Delivery of Plants: Provide freshly dug trees to the greatest extent possible. Do not prune prior to delivery, except as approved by the Owner's Representative. Provide adequate protection of root systems and balls from drying winds and sun. Do not bend or bind-tie trees in such a manner as to damage bark, break branches or destroy natural shape.

- Provide protective covering during delivery. Do not drop stock during delivery. Such damage or improper handling shall be cause for rejection by Owner.
C. Deliver plants after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set plants in shade, protect from weather and mechanical damage, and keep roots moist as follows:
1. Set balled stock on ground and cover ball with mulch, peat moss, saw dust or other acceptable material.
2. Do not remove container grown stock from containers before time of planting.
3. Periodically water root systems of trees stored on site using a fine mist spray. Water as often as necessary to maintain root systems in a moist condition.
4. Store products with protection from weather or other conditions, which would damage or impair the effectiveness of the product.

1.6 JOB CONDITIONS

- A. Acceptance of Site: Contractor shall inspect the site to determine its suitability for landscaping operations. If the site is not suitable for landscaping operations, the Contractor is not bound to accept the site for his work. He should inform the Owner in writing.
B. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required, including but not limited to requirements listed in the Plant Schedule on the Drawings.
C. Utilities: Contractor shall verify and locate all existing and proposed utilities and site conditions prior to construction. Should utilities not shown on the plans be found during excavations, contractor shall promptly notify the Owner and utility company for instructions as to further action. Failure to verify all existing utilities and notify Owner and utility companies will make Contractor liable for any and all damage arising from his/her operations subsequent actions and discovery of such utilities not shown on plan. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
D. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Owner's Representative before planting.
E. Planting Schedule: Supply planting schedule for approval from Owner's Representative prior to installation. Schedule each type of landscape work required during normal seasons for such work in area of site. Establish dates for each type of work and establish completion date. Flowering trees during the spring planting season, except as otherwise acceptable to the Owner.
F. Plant frost-tender trees only after danger of frost is past or sufficiently before frost season to allow for establishment before first frost.
G. Submit request to the Owner's Representative for changes in-planting schedule. Plantings shall be done in typical and normal planting seasons of spring and fall. When delays in planting schedule are unavoidable, include documentation of reason for delay. Maintenance periods, if any, shall be adjusted to compensate for extension of time of work outside of time limitations.
H. Coordination with Lawns: Plant material after final grades are established and prior to the installation of lawns, unless otherwise acceptable to the Owner's Representative. If planting of trees occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations. Damaged lawn areas shall be replaced by Contractor at no added expense to the Owner.
I. Coordinate plant material watering requirements with the Irrigation Contractor.

1.7 SPECIAL PROJECT WARRANTY

- A. Landscape Installer shall warranty planting material for a period of one year after date of initial acceptance inspection, against defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond Landscape Installer's control. Replacement as a result of initial "punch list" does not constitute the maximum one (1) warranty replacement.
B. Should seeded and/or sodded areas not be covered by an automatic irrigation system, the landscape contractor shall be responsible for watering these areas and obtaining a full stand of grass at no additional cost to the owner.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- A. General: Provide nursery grown plants, except as otherwise indicated, grown in a recognized nursery in accordance with good horticultural practice, with healthy root systems developed by transplanting or root pruning. Provide only healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement. Plants shall be approved or rejected at the Owner's Representatives discretion for damage, health, form, and size at any time before or during planting. Plant materials that are poor in health or damaged prior to completion or during the warranty period will be identified by the Owner's Representative and shall be replaced by the Contractor within five (5) days of written notice.
B. Size: Provide plants of the sizes indicated in planting list and in accordance with dimensional relationship requirements of ANSI Z60.1 for kind and type of trees required. Trees of larger size than specified may be used if acceptable to the Owner's Representative in which case, increase size of roots or balls proportionately.
C. Quality: Provide plants complying with recommendations and requirements of ANSI Z60.1 "Standard for Nursery Stock" and as specified.
D. Container stock shall have grown in the containers in which delivered for at least six months, but not over two years. Samples must prove no root-bound conditions exist. No container plants that have cracked or broken balls of earth when taken from container shall be planted except upon special approval by the Owner's Representative.

2.2 TREES

- A. Size: Provide trees of height and/or caliper indicated and to standards recommended by ANSI Z60.1 unless otherwise indicated. Provide trees with straight trunks, having a natural growth habit for that species with a full crown. Each plant must be as near perfect as is possible.
B. Provide balled and burlapped (B&B) deciduous and evergreen trees as identified on planting schedule.

C. Trees shall be grown in within 150 radius of project site. Plant materials shipped from out-state sources shall pre-approved by Owner's Representative

2.3 REQUIREMENTS FOR CONTAINER GROWN STOCK

- A. General: Where specified as acceptable, provide healthy, vigorous, well-rooted trees established in container in which they are sold.
B. Established container stock is defined as a tree transplanted into a container and grown in container for a length of time sufficient to develop new fibrous roots, so that root mass will retain its shape and hold together when removed from container.
C. Containers: Use rigid containers, which will hold ball shape and protect root mass during shipping. Provide trees established in containers of not less than minimum sizes recommended by ANSI Z60.1 for kind, type and size of trees required.

2.4 GRASS MATERIALS

- A. 90 % Turf Type Tall Fescue/ 10 % Bluegrass seed mixture shall be Tag Certified. Seed tag shall be approved by Owner's Representative.
1. Seed blend of Turf Type Tall Fescue and Bluegrass shall have at least 3 varieties of Fescue and 1 variety of Bluegrass or approved equal.
B. Seed Certification:
1. Pure Seed: Greater than 98%
2. Other Crop: Less than 0.5%

- 3. Inert Matter: Less than 2%
4. Weed Seed: Less than 0.3%
5. Germination Rate: Greater than 85%
C. Provide seed mix composed of the above-mentioned lawn seed in the areas indicated on the plan.
D. Sod: Turf type tall fescue.

2.5 SOIL AMENDMENTS

- A. Provide six (6) inches pulverized and screened soil at all landscape and lawn areas.
B. Manure: Well-rotted, un-leached stable or cattle manure containing not more than 25% by volume of straw, sawdust or other bedding materials and containing no chemicals or ingredients harmful to plants.
C. Mulch: Top dressing for trees and planting areas shall be organic mulch free from deleterious materials and consisting of the following:
1. Double Ground Hardwood Bark Mulch shall be use. Distributed by St Louis Composting, Valley Park MO.
D. Organic Soil Conditioner: A product of composted plant materials only, with total carbon:nitrogen ratio no greater than 10:1 per AOC method. Shall be in a uniform "beaded" homogenous matrix, all material must pass through a No. 4 sieve per ASTM method. All material must be coated with a water-soluble biodegradable binder. Shall contain in available form: a minimum of 0% organic nitrogen, 3% organic phosphate and 1% organic potash, 500/g aerobic/anaerobic bacteria, yeast and mold, 1% iron, .05% manganese and .05% zinc. Packaged weight to be no more than 50 lbs. with Manufacturer's name, product name, percentage of nutrients, and net weight of materials shown on label.

2.6 FERTILIZER:

- A. Commercial Fertilizer: Complete fertilizer of neutral character, with some elements derived from organic sources, containing following percentages of available plant nutrients.
B. AGRI FORM 21 gram time release fertilizer 20-10-5 formulation. Mycorrhizae 'Starter Packs' both available Hummerts, Earth City MO 1 800- 325- 3055.

2.7 MISCELLANEOUS LANDSCAPE MATERIALS

- A. Mulch: Mulch shall consist of decorative shredded hardwood bark, which has been hammer milled and screened. Sawdust, wood shavings, bark chunks, dirt, rocks, and twig scraps are not considered acceptable mulch materials. Substitute material similar to shredded bark may be used if approved by Owner's Representative.
B. Wound Dressing: Pruning paint manufactured by Ferti-lome.
C. Anti-desiccant: Anti-desiccant shall be non-clogging emulsion which provides a protective film over plant surfaces, permeable enough to permit transpiration, delivered in containers of the manufacturer, and shall be mixed according to the manufacturer's directions, e.g., "Wilt-pruf", "Dowax" or approved equal.
D. Wrapping Materials: Wrapping material for tree trunks of trees susceptible to sunscald shall be standard nursery tree wrapping paper, tan in color. Tan shiny postal tape shall affix the wrap top and bottom. DO NOT apply manufacturer's trademark facing outward.
E. Herbicides: Herbicide use should be limited to specific pre-emergent and systemic herbicides to control weed competition in planting beds. Submit schedule of proposed herbicides and specific control goals for approval by Landscape Architect prior to application. All herbicides submitted must be acceptable with Local, State and Federal Agencies having jurisdiction.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Contractor must examine sub grade up, verify sub grade elevations, observe conditions under which work is to be performed, and notify the Owner in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected.

3.2 FINISH GRADING:

- A. Remove stones over 1 inch in any dimension and sticks, roofs, rubbish and other extraneous matter.
B. Grading and mounding with the exception of final planting shall be completed prior to soil preparation.
C. Planting areas shall be free of all weeds (plants not specified in planting areas), stones, stumps, roots, or other debris 1-inch in diameter and greater.
D. Contractor shall allow for soil amendments, as approved by owner when establishing sub grade elevations. All planting areas shall have a finish grade conforming to approved plans and specifications after full settlement has occurred. Spread specified soil amendments over all areas to be and cultivate thoroughly in at least two directions to thoroughly mix into the soil to a depth of 4 inch.
E. Inspection: Inspection shall be made during and at the completion of fine grading (fill/backfill and excavation). If grading is not satisfactory, additional grading shall be performed at the direction of the Owner's Representative until work conforms to the plans.

3.3 INSTALLATION

- A. General:
1. Stake and label plant locations and outline bed areas with surveyor's paint and secure the Owner's Representative acceptance with entire area. Proceed with and complete landscape work as rapidly as portions of site are released to Contractor by Owner, working within seasonal limitations for each kind of landscape work required.
2. Excavate pits, with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation, to a depth of 3 inch.
3. Notify the Owner's Representative in writing of all soil or drainage conditions Contractor considers detrimental to growth of plant material. State condition and submit proposal for correcting condition.
4. If rock, underground construction work, tree roots or other obstructions are encountered in the excavation of plant pits, alternate locations may be selected by the Owner. Proceed with work after approval of the Owner.
5. Dispose of unsatisfactory soil removed from landscape excavations (i.e. soils deemed as not suitable for backfill per soils test). Do not mix with planting soil or use as backfill.

3.4 PREPARATION OF PLANTING SOIL MIXES

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.
B. Mix soil amendments and fertilizers with topsoil at rates specified by testing lab. Delay mixing of fertilizer if planting will not follow placing of planting soil within 5 days.
C. For Tree Planting: Mix thoroughly in a 4:2:1/2 ratio:
1. 4 parts original soil removed from the plant pit.
2. 2 parts mulch.
3. 1/2 part well-rotted manure.
D. Before planting, fertilizer shall be spread over the bed at the rate established by soil test, and cultivated in the soil to a depth of 2-4 inches.

3.5 PLANT INSTALLATION:

- A. Excavation for balled and burlapped planting shall be circular with vertical sides. Their diameter shall exceed by at least 24 inches the diameter of the ball in balled and burlapped material, to allow 12 inches minimum from edge of ball to edge of the pit. Plant

pits dug by auger are acceptable provided criteria established above are met. If building rubble is encountered while digging, plant pit is to be doubled in size and backfilled with new topsoil and rubble hauled away.

B. Setting and Backfilling:

- 1. Set balled and burlapped stock on layer of compacted soil mix, plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. Remove burlap from tops of balls but do not remove from under balls after placement of tree staples. Remove pallets, if any, before setting. Do not use stock if ball is cracked or broken before or during planting operation. When set, place additional soil mix around base and sides of ball, and work each layer to settle soil mix and eliminate voids and air pockets. When excavation is approximately 2/3-full, water thoroughly before placing remainder of soil mix. Repeat watering until no more is absorbed. Water again after placing final layer of soil mix.
2. Set container grown stock as specified for balled and burlapped stock, except cut cans on 2 sides with a metal cutter; remove bottoms of wooden boxes before setting. Carefully remove sides of wooden boxes after partial backfilling so as not to damage root ball.
3. Disturb the root system by slashing 4 or 5 one-inch deep cuts into the entire vertical length of the root ball. For 1-gallon, 3-gallon and 5-gallon sized plants; the "butterfly" method of separating the lower one-half of the root ball with a spade is also suggested.
4. After plants are installed water thoroughly to eliminate air pockets. Add additional fill if soil has settled and straighten settled material.
5. Dish top of backfill to allow for mulching for the shrubs.
6. Provide not less than 3" thickness of mulch and work into top of backfill and finish forming 6 inch dish.
7. Apply anti-desiccant to all evergreen material using power spray to provide an adequate film over trunks, branches, stems, twigs and foliage.
C. Prune, thin out and shape trees in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by the Owner's Representative, do not cut tree leaders, and remove only injured or dead branches from flowering trees. Pruning cuts over one-half inch in diameter shall be painted over with approved tree paint.
D. Remove and replace excessively pruned or malformed stock resulting from improper pruning.
E. General tree staking is optional. It is the responsibility of the Contractor to provide trees standing plumb thru the maintenance period in order to gain final acceptance. The Owner reserves the right to have the Contractor stake certain trees at any time during the maintenance period.
F. Wrap tree trunks of all trees susceptible to sunscald with tree wrap. Start at ground and cover trunk to height of first branches and securely attach with twine. Inspect tree trunks for injury, improper pruning and insect infestation and take corrective measures required before wrapping.

3.6 PROTECTION

- A. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until plants are established.
B. Take necessary precautions to protect existing and new work from damage during the life of the project. Contractor shall be responsible for the cost to repair any damage done to existing or new work provided by others.
C. Work shall not be done when site conditions are detrimental to quality of work as determined by Owner's Representative.

3.7 WARRANTY/ MAINTENANCE NOTES:

- A. The landscape contractor shall be responsible for the maintenance of all work shown on these plans for 90 days beyond final acceptance of all landscape work by the owner. Landscape maintenance shall include weekly site visits for the following actions (as appropriate): proper pruning, restaking of trees, resetting of plants that have settled, mowing and aeration of lawns, weeding, reseeding areas which have not germinated well, treating for insects and diseases, replacement of mulch, removal of litter, repairs to the irrigation system due to faulty parts and/or workmanship, and the appropriate watering of all plantings
B. Landscape contractor shall be responsible for watering these areas and obtaining a full stand of grass at no additional cost to the owner.

3.8 INSPECTION AND ACCEPTANCE:

- A. Acceptance Inspection will be made upon written request from the Contractor at the completion of landscape operations. The Owner's shall observe that plants and related work are installed according to plans and specifications and prepare a "punch list" of items to be completed prior to acceptance. Upon acceptance by the Owner, the Contractor will receive written notification of INITIAL ACCEPTANCE.
B. FINAL ACCEPTANCE and inspection shall be made upon written request from Contractor. The Owner's shall insure that plants are healthy, showing satisfactory growth and in general, show signs of developing into healthy, mature representatives of their respective species. Contractor shall remove and replace promptly any plant material required under this specification that is dead or not showing satisfactory growth, as determined by the Owner. Decision of the Owner is final.
C. The replacement shall be of the same variety, size and character as specified for original planting. The replacement plant shall be guaranteed as specified under Special Project Warranty above.
D. If approved by the Owner, trees may be replanted at start of next year's digging and planting season. In such case, Contractor shall remove dead trees immediately and backfill holes remaining as the result of removal work.
E. Upon acceptance by the Owner, Contractor shall receive notification of FINAL ACCEPTANCE.
F. The landscape work may be inspected for acceptance in parts agreeable to the Owner, provided work offered for inspection is complete; including maintenance and that the area comprises one complete unit or area of substantial size.

3.9 CLEAN-UP, PROTECTION, AND REPAIRS

- A. During the work, the premises are to be kept neat and orderly at all times. Contractor shall organize storage areas for plants and other materials so that they are neat and orderly. Contractor shall remove all trash daily as the work progresses, including debris resulting from removing weeds or rock from planting areas. Contractor shall sweep or hose clean all walks, drives and streets. Site should be left "broom clean" at completion of Contract.
B. Protect landscape work and materials from damage due to operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods, until Owner's acceptance. Repair or replace damaged landscape work as directed.

END OF SECTION



DERMODY & ASSOCIATES, LLC



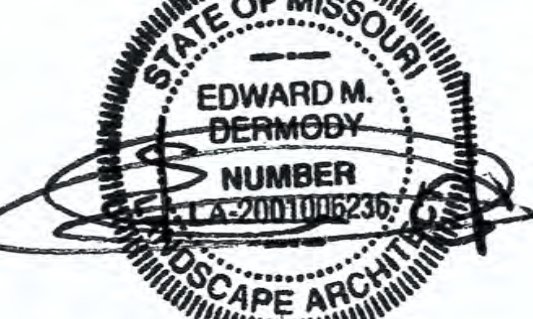
U i s c e b e a t h a

ph# 314.205.8871
Missouri Certificate of Authority
#200902208

CLIENT:
The Clayton Engineering Company, Inc.
2268 Welsch Industrial Court
St. Louis, Missouri 63146
RANGE USA INDOOR GUN RANGE
9200 Veterans Memorial Parkway,
O'Fallon, MO

Table with 3 columns: No., Description, Date. Row 1: 1 City Comment 4/21/22. Row 2: 2 Coordination 5/12/22.

5/12/22



Edward M. Dermody
Landscape Architect
LA-2001006236

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Issue for CD Set: March 16, 2022

Drawn by: EMD

Checked by: EMD

Sheet Title

Landscape Specifications

Project Number: 719.036

Sheet Number:

L-2