

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z88.2 (1992) Respiratory Protection

ANSI Z133.1 (1994) Tree Care Operations - Pruning, Trimming, Repairing, Maintaining, and Removing Trees and Cutting Brush

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1909 Fertilizer

CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910-SUBPART Z Toxic and Hazardous Substances

DEPARTMENT OF AGRICULTURE (DOA)

DOA SSIR (April 1984) Soil Survey Investigation Report No. 1, Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples, Soil Conservation Service

1.2 DEFINITIONS

1.2.1 Pesticide

Fumigant, herbicide, insecticide, fungicide and rodenticide.

1.2.2 Stand of Turf

95 percent ground cover of the established species.

1.3 RELATED REQUIREMENTS

Division 2, Section 02811, "Irrigation Sprinkler System" applies to this section for installation of irrigation equipment requirements, with additions and modifications herein.

Division 2, Section 02921, "Turf" applies to this section for installation of seed or sod requirements, with additions and modifications herein.

Division 2, Section 02930, "Exterior Plants" applies to this section for installation of trees, shrubs, ground cover, vines, wildflower, mulch topdressing, staking and guying and weed barrier requirements, with additions and modifications herein.

1.4 SUBMITTALS

Submit the following in accordance with Division 1, Section 01330, "Submittal Procedures."

1.4.1 SD-02, Manufacturer's Catalog Data

- a. Fertilizer
- b. Pesticides

Include physical characteristics, application instructions and recommendations.

1.4.2 SD-06, Instructions

- a. Pesticides

1.5 DELIVERY, STORAGE AND HANDLING

1.5.1 Delivery

1.5.1.1 Fertilizer and Mulch Delivery

Deliver to the site in original containers bearing manufacturer's chemical analysis, name, trade name, or trademark, and indication of conformance to state and federal laws. Instead of containers, fertilizer may be furnished in bulk with a certificate indicating the above information.

1.5.1.2 Pesticide Delivery

Deliver to the site in original containers with legible label indicating Environmental Protection Agency (EPA) registration number and manufacturer's registered uses.

1.5.2 Storage

1.5.2.1 Fertilizer and Mulch Storage

Store in dry locations away from contaminants.

1.5.2.2 Pesticides Storage

Do not store with other maintenance material. Store herbicides "downwind," relative to the airflow in the storage building, from other pesticides.

1.5.3 Handling

Do not drop or dump materials from vehicles.

PART 2 PRODUCTS

2.1 FERTILIZER

2.1.1 Post-Plant Fertilizer Mixture

Fertilizer mixtures not to exceed 1 percent granular dust and CID A-A-1909, as specified below.

2.1.1.1 Turf Fertilizer "A"

For Fall and Spring season[s] use an organic, granular fertilizer containing the following minimum percentages, by weight, or plant food nutrients:

- 40 percent available nitrogen
- 40 percent available phosphorus
- 20 percent available potassium

2.2 WATER

Source of water to be approved by Contracting Officer, suitable quality for irrigation.

2.3 PESTICIDES

Herbicide and Insecticide: EPA registered and approved. Furnish for preemergence and postemergence application for broadleaf weed control. Comply with Federal Insecticide, Fungicide, and Rodenticide Act (Title 7 U.S.C. Section 136) for requirements on contractor's licensing, certification, and record keeping. Contractor to keep records of all pesticide applications and forward data monthly to Contracting Officer. Submit record keeping format to Contracting Officer for approval. Contact the Installation Pest Control Coordinator prior to starting work.

PART 3 EXECUTION

3.1 EXTENT OF WORK

Provide landscape construction maintenance to include irrigation equipment cleaning and adjustments, mowing, edging, rolling, aeration, fertilizing, watering, weeding, pruning, pesticide application for all newly installed landscape areas, unless indicated otherwise, and at all areas inside or outside the limits of the construction that are disturbed by the Contractor's operations.

3.2 IRRIGATION ESTABLISHMENT PERIOD

Irrigation establishment period will commence on the date that inspection by the Contracting Officer shows that the new irrigation equipment furnished under this contract have been satisfactorily installed and is functional and shall continue for a period of 90 days.

3.2.1 Maintenance During the Irrigation Establishment Period

Begin maintenance immediately after irrigation equipment has been installed and is functional. Inspect irrigation equipment at least once a week during the installation and establishment period and perform needed maintenance promptly.

3.2.2 Irrigation Equipment and System Maintenance

The Contractor shall provide all necessary maintenance and repair to ensure proper operation of the irrigation system and its components. Irrigation systems are designed so that only one irrigation control valve in a multiple valve connection can be in operation at one time. Operation of more than one valve, in any single system, at the same time will result in improper and insufficient water distribution. Manual watering is defined to mean that valves in a system must be manually turned on and off or that hoses or other portable equipment are required for irrigation. Irrigation systems with manual control valves shall be operated and secured after use. All manual valves and valve box covers shall be closed after each use. In the event that the main water supply connected to a system is completely shut down on a temporary or permanent basis the Contractor shall provide water by portable tanker or water truck or from the closest water source. If hosebibs from buildings are utilized for water sources, Contractor shall provide a hosebib backflow preventer for each connection between the hose and hosebib.

3.2.2.1 Irrigation Sprinkler Head Maintenance

Inspection of irrigation sprinkler heads shall be done per week to ensure correct adjustment, repair and position to prevent water from spraying into doorways, windows, buildings, parked cars, parking areas, or to impede vehicular or pedestrian traffic. Sprinkler heads shall be removed and cleaned out if dirt or other debris is causing the a malfunction or poor distribution of water. Any foreign obstruction surrounding the sprinkler heads that impairs or prevents proper coverage or operation shall be removed. Trim grass and remove debris from and around sprinkler heads as required. Cut outs or well depressions are not permitted around sprinkler heads to aid performance. Repair, broken risers, fittings, and breaks in lateral and main lines. Adjust and realign risers as needed. Clean all drip filters and sprinkler head inlet filter screens.

3.2.2.2 Automatic Controllers

Maintain, program and repair all Automatic Controllers. Electrical connections and wiring between automatic control valves shall be maintained to operate as intended. Ensure that battery back-up is fully functional and recharging correctly. Automatic controllers not equipped with rain shut-off sensors shall be turned off during periods of rain that exceed twelve hours of continuous rainfall in one day or during rain storms of one day or more. Once the rain has subsided timers shall be reactivated. Irrigation controllers shall be inspected and reprogrammed after power outages.

3.2.2.3 Valves

Clean and adjust manual, automated control valves, wye strainers, pressure regulators, auto flush valves, and rain shut-off devices. Repair or replace defective or malfunctioning automatic control valves (including valve box and lid), solenoids, quick coupler valves and backflow prevention devices.

3.2.2.4 Backflow Prevention Devices

The Contractor shall inspect and test all backflow preventers to ensure proper operation and submit reports in compliance with Federal, State and Local Health and Safety Codes. Inspection and testing shall be performed by persons who have been certified by the American Water Works Association. Testing shall be provided once at the beginning of the irrigation establishment period and inspections occurring monthly for newly installed units. The format of the test report shall be as required by the local water authority or government utility department. The original and two copies of the report once complete shall be submitted to the Contracting Officer.

3.2.2.5 Replacement Parts or Components

All irrigation repairs and/or replacement parts or components furnished by the Contractor shall be equal or better in quality than items being repaired or replaced and shall be fully compatible in equipment material and design.

3.2.3 Water Restrictions

The Contractor shall abide by state, local or other water conservation regulations in force during the establishment period. Automatic controller shall be adjusted to comply with the water conservation regulations schedule.

3.2.4 Final Acceptance

Operation and coverage test is acceptable if system operates through at least one complete cycle for areas to be irrigated and all leaks or repairs have been completed.

3.2.5 Controller Charts

Provide one chart for each controller supplied. Indicate in chart area controlled by the automatic controller. The chart is a reduction of the actual plans that will fit the maximum dimensions inside the controller housing. Use a black line print for the chart and a different pastel or transparent color to indicate each station zone of coverage. After chart is completed and approved for final acceptance, seal chart between two 20 mil pieces of clear plastic.

3.2.6 Remedial Work

Remedial measures directed by the Contracting Officer to ensure all irrigation system and equipment repairs and adjustments for plant material survival and healthy growth have been completed.

3.3 TURF ESTABLISHMENT PERIOD

Turf establishment period will commence on the date that inspection by the Contracting Officer shows that the new turf furnished under this contract has been satisfactorily installed and shall continue for a period of 90 days.

3.3.1 Maintenance During the Turf Establishment Period

Begin maintenance immediately after turf has been installed. Inspect turf areas at least once a week during the installation and establishment period and perform needed maintenance promptly.

3.3.2 Promotion of Turf Growth

Turf shall be maintained in a manner that promotes proper health, growth, rich natural green color, and neat uniform manicured appearance, free of bare areas, ruts, holes, weeds, pests, dead vegetation, debris, and unwanted vegetation that present an unsightly appearance. Mow, remove excess clippings, eradicate weeds, water, fertilize, roll, aerate, and perform other operations necessary to promote turf growth.

3.3.3 Mowing

Turf shall be mowed at a uniform finished height. Mow turfed area[s] to an average height of 1 inch when average height of grass becomes 1 inch for spring/summer maintenance and to an average height of 1 inch when the average height of grass reaches 1 inch for fall/winter maintenance. The height of turf is measured from the soil. Mowing of turf shall be performed in a manner that prevents scalping, rutting, bruising, uneven and rough cutting. Each successive mowing shall be at approximate 45 degree angles to the previous mowing where practical. Prior to mowing, all rubbish, debris, trash, leaves, rocks, paper, and limbs or branches on a turf area shall be picked up and disposed. Adjacent paved areas shall be swept/vacuumed clean. Reel-type mowers shall be used on warm season grasses and rotary-type mowers shall be used on cool season type grasses. Mulcher mowers may be used on only cool season type grasses.

3.3.4 Turf Edging

Perimeter of planter bed edges, sidewalks, driveways, curbs, and other paved surfaces shall be edged. Uniformly edge these areas to prevent encroachment and to provide a clear cut division line between planter beds, turf, and ground cover. Edging is to be accomplished in a manner that prevents scalping, rutting, bruising, uneven and rough cutting. Edging shall be performed on the same day that turf is mowed. Use of string line trimmers is permitted in "soft" areas such as an edge between turfgrass and a planter bed. Care shall be exercised to avoid damaged to any plant materials.

3.3.5 Turf Trimming

Trimming around poles, walls, irrigation valve boxes and other similar objects is to be accomplished to match the height and appearance of surrounding mowed turf growth. Trimming shall be performed on the same day the turf's mowed. Care shall be exercised to avoid "Girdling" trees located in turf areas. The use of protective tree collars on trees in turf areas may be utilized as a temporary means to avoid injury to tree trunks. At the end of the plant establishment period Contractor will be responsible for removing all protective tree collars.

3.3.6 Post-Fertilizer Application

Apply fertilizer in a manner that promotes health, growth, color and appearance of cultivated turf areas. The method of application, fertilizer type and frequencies shall be determined by the laboratory soil analysis result and recommendations of the soils at the site. Fertilizer shall be applied by approved methods in accordance with the manufacturer's recommendations. For bidding purposes only apply at rates for the following:

Organic Fertilizer "A" square feet at intervals of every 6 weeks.

3.3.7 Turf Watering

The Contractor shall perform irrigation in a manner that promotes the health, growth, color and appearance of cultivated vegetation and that complies with all Federal, State, and local water agencies and authorities directives. The Contractor shall be responsible to prevent over watering, water run-off, erosion, and ponding due to excessive quantities or rate of application. The Contractor shall abide by state, local or other water conservation regulations or restrictions in force during the establishment period.

3.3.8 Turf Aeration

Upon completion of weed eradication operations and Contracting Officer's approval to proceed, aerate turf areas by approved device. Core, by pulling soil plugs, to a minimum depth of **2** inch. Remove all debris generated during this operation off site. After aeration operations are complete, topdress entire area **2** inch depth with the following mixture:

100 percent humus

Blend all parts of topdressing mixture to a uniform consistency throughout. Keep clean at all times at least one paved pedestrian access route and one paved vehicular access route to each building. Clean all soil plugs off of other paving when work is complete. This work shall commence 90 days prior final acceptance of the maintenance establishment period.

3.3.9 Turf Clearance Area

Trees located in turf areas shall be maintained with a growth free clearance of 18 inches from the tree trunk base. The use of mechanical weed whips to accomplish the turf growth free bed area is prohibited.

3.3.10 Policing

The Contractor shall police all landscaped areas. Policing includes removal of leaves, branches and limbs regardless of length or diameter, dead vegetation, paper, trash, cigarette butts, garbage, rocks or other debris. Policing shall extend to both sides of fencing or walls. Collected debris shall be promptly removed and disposed of at an approved disposal site.

3.3.11 Drainage System Maintenance

The Contractor shall remove all obstructions from surface and subsurface drain lines to allow water to flow unrestricted in swales, gutters, catch basins, storm drain curb inlets, and yard drains. Remove grates and clear debris in catch basins. Open drainage channels are to be maintained free of all debris and vegetation at all times. Edges of these channels shall be clear of any encroachment by vegetation.

3.3.12 Final Inspection and Acceptance

Final inspection will be made upon written request from the Contractor at least 10 days prior to the last day of the turf establishment period. Final acceptance will be based upon a satisfactory stand of turf.

3.3.13 Replanting

Replant in accordance with Division 2, Section 02921, "Turf" and within specified planting dates areas which do not have a satisfactory stand of turf.

3.4 EXTERIOR PLANT (PLANTER BED) ESTABLISHMENT PERIOD

Planter Bed establishment period will commence on the date that inspection by the Contracting Officer shows that the new plants furnished under this contract has been satisfactorily installed and shall continue for a period of 365 days.

3.4.1 Maintenance During the Planter Bed Establishment Period

Begin maintenance immediately after plants have been installed. Inspect planter bed areas at least once a week during the installation and establishment period and perform needed maintenance promptly.

3.4.2 Promotion of Plant Growth

Water, prune, fertilize, mulch, eradicate weeds and perform other operations necessary to promote plant growth.

3.4.3 Planter Bed Maintenance

Planter beds shall be weeded, fertilized, dead flower stalks and seed heads removed, and mulch levels maintained.

A plant bed is defined as an area comprised of trees, shrubs, vines, wildflowers, perennials, ground cover, and a mulch topdressing excluding turf. Planter beds shall be kept weed, turf and pest free. Ground covers shall not be allowed to grow into vines, perennials, shrubs or trees.

3.4.3.1 Ground Cover Maintenance

Herbaceous and Woody ground cover shall be trimmed, pruned, irrigated, and fertilized to present a healthy and manicured appearance. Ground cover will not be allowed to encroach into turf areas. A definite break shall be maintained between turf and ground cover. In areas where ground cover and shrubs, vines and wildflowers are planted together the ground cover shall not be allowed to grow onto or otherwise dominate the planter bed area.

Ground cover will not be allowed to grow onto or into, and be removed from paved areas, buildings, walls, trees, shrubs and storm drains.

3.4.3.2 Shrub Maintenance

Shrubs shall be trimmed and pruned for health, safety, and aesthetic appearance. Shrubs or shrub masses not identified as hedges shall be pruned to evenly form and balance a plant to its natural growth characteristics. Water shoots, suckers, and branches of shrubs not conforming to desired shape and size shall be removed. An informal hedge shall be treated as a continuous row of plant material with no gaps or voids. Informal hedges shall be pruned to shape and control size and growth pattern. Informal pruning shall leave hedges evenly formed and balanced to its natural growth characteristics. Water shoots, suckers and branches not conforming to desired shape and size shall be removed. Hedge growth shall be maintained continuous from top to ground level with no voids or gaps.

3.4.3.3 Shrub Selective Maintenance

In addition to the above requirements, shrubs shall be selectively pruned, and shaped for health and safety when the following conditions exist. Remove growth in front of windows, over entrance ways or walks, and any growth which will obstruct vision at street intersections. Remove dead, damaged or diseased branches or limbs.

Shrub growth obstructs pedestrian walkways. Shrub growth found growing against or over structures. All pruning debris shall be disposed of in a proper manner.

3.4.3.4 Shrub Irrigation

All earth mound watering basins around the base of shrubs intended to retain water for proper irrigation shall be maintained in good condition to permit the most efficient application of water and reduce waste.

3.4.3.5 Tree Maintenance

Tree maintenance includes watering, fertilizing, pest control, pruning for health and safety and fall leaf cleanup.

All trees within the project boundaries, regardless of caliper, shall be selectively pruned for safety and health reasons. These include but are not limited to removal of dead and broken branches, correction of structural defects, or whenever the following conditions exist. Remove diseased wood, or structurally weak limbs that may cause a safety hazard. Remove branches that extend over buildings and endanger roofs and in front of windows and which obstruct traffic signs or street intersections. Provide clearance for buses, moving vans and similar vehicles along streets. Prune trees according to their natural growth characteristics leaving trees well shaped and balanced. Pruning of all trees including palm trees shall be accomplished by or in the presence of a certified member of the International Society of Arboriculture and in accordance with ANSI Z133.1. All pruning debris generated shall be disposed of in a proper manner.

3.4.3.6 Tree Irrigation

All earth mound watering basins around the base of individual trees or clumps of trees intended to retain water in place for proper irrigation shall be maintained in a good condition to permit the most efficient application of water and reduce waste.

3.4.4 Water Restrictions

The Contractor shall abide by state, local or other water conservation regulations in force during the establishment period.

3.4.5 Planter Bed Post-Fertilizer Application

Apply fertilizer in a manner that promotes health, growth, color and appearance of newly installed planter bed areas. The method of application, fertilizer type and frequencies shall be determined by the laboratory soil analysis result and recommendations of the soils at the site. Fertilizer shall be applied by approved methods in accordance with the manufacturer's recommendations. For bidding purposes only apply at rates for the following:

Organic Fertilizer "A" 8 **2** pounds per 1000 square feet at intervals of every 6 weeks.

3.4.6 Policing

The Contractor shall police all landscaped areas. Policing includes removal of leaves, branches and limbs regardless of length or diameter, dead vegetation, paper, trash, cigarette butts, garbage, rocks or other debris.

Policing shall extend to both sides of fencing or walls. Collected debris shall be promptly removed and disposed of at an approved disposal site.

3.4.7 Drainage System Maintenance

The Contractor shall remove all obstructions from surface and subsurface drain lines to allow water to flow unrestricted in swales, gutters, catch basins, storm drain curb inlets, and yard drains. Remove grates and clear debris in catch basins. Open drainage channels are to be maintained free of all debris and vegetation at all times. Edges of these channels shall be clear of any encroachment by vegetation.

3.4.8 Removal of Dead Plants

Remove dead plants and provide new plants immediately upon and replace mulch and eroded earth mound water basins. No additional plant establishment period will be required for replacement plants.

3.4.9 Tracking of Unhealthy Plants

Note plants not in healthy growing condition, as determined by the Contracting Officer, and as soon as seasonal conditions permit, remove and replace with plants of the same species and sizes as originally specified. Install replacement plantings in accordance with Division 2, Section 02930 "Exterior Plants."

3.4.10 Final Inspection

Final inspection will be made upon written request from the Contractor at least 10 days prior to the last day of the planter bed establishment period.

3.4.11 Final Acceptance

Based on compliance with the following:

3.4.11.1 Total Plants on Site

Plants have been accepted and required number of replacements have been installed.

3.4.11.2 Mulching and Weeding

Planter beds and earth mound water basins are properly mulched and free of weeds.

3.4.11.3 Fertilizing

Planter beds have been fertilized as required with correct type of material and application rates.

3.4.11.4 Remedial Work

Remedial measures directed by the Contracting Officer to ensure plant material survival and promote healthy growth have been completed.

3.5 PESTICIDE APPLICATION

The Contractor shall furnish all labor, supervision, tools, materials, equipment, and transportation necessary to provide Pest Control Services as required.

3.5.1 State Licensing

The Contractor shall be licensed by the State to provide pest control in the categories in which work will be performed.

3.5.2 Licensed Applicators

All pesticide applications shall be performed by a licensed pesticide applicator. The individual must be responsible and all pesticides must be used in accordance with the Federal, state, local, and installation laws publications, and any requirements identified in attachments. All pesticides shall be procured, processed, handled, and applied in strict accordance with the manufacturer's label. All pesticides shall be registered with the U.S. Environmental Protection Agency and State.

3.5.3 Pesticide Use Inspections

Pesticide applications will be inspected by a Government designated Certified Pest Control Coordinator or trained Pest Control Quality Assurance Evaluator. The Contractor shall notify the Contracting Officer immediately, by telephone, of any inspection visits by any Federal or State enforcement officials.

3.5.4 Pesticide Approval

The Contractor shall submit to the Contracting Officer a list of pesticides "proposed for use" prior to initiation of work on the correct submission form. The Contracting Officer must approve the pesticides proposed before they can be used. Copies of the pesticide label and material safety data sheet for each pesticide proposed for use must be included. Copies of the State of business license as an applicator of pesticides and the pesticide applicators certificate in the appropriate categories must also be attached. If the Contractor wishes to use a pesticide not currently on the "list" (previously submitted), the new pesticide must be submitted to the Contracting Officer for approval on the correct submission form. Once pesticides are approved by the Contracting Officer, they can be used throughout the course of the contract provided that registration is not revoked by the EPA or the State.

3.5.5 Application and Reporting Procedure

Notify the Contracting Officer 24 hours before application. Apply pesticides in accordance with EPA label restrictions and recommendations and federal and state laws. Make daily reports to the Contracting Officer stating areas treated with each chemical, the quantity applied, and spray mixture or formulation used. The Contractor shall maintain a label book of pesticides used, including all appropriate Material Safety Data Sheets (MSDS), and have it readily available at all times for inspection. Pesticides shall always be stored in original containers having EPA-registered labels or in containers meeting EPA label requirements.

3.5.6 Application Precautions

Apply in well ventilated areas. Avoid inhalation, injection, or spilling on clothing or skin. Wear protective clothing in accordance with manufacturer's Material Safety Data Sheet recommendations. Do not expose personnel to pesticides exceeding the exposure levels recommended in the most stringent of the following: OSHA, 29 CFR 1910-SUBPART Z, or the manufacturer's material safety data sheet. If excessive exposures are unavoidable, use respirators approved by the National Institute for Occupational Safety and Health for protection from pesticides. Conform to the selection and usage guidance in ANSI Z88.2.

3.5.7 Hydraulic Equipment

For liquid application of chemicals, hydraulic equipment shall have leakproof tanks and a positive agitation method. Calibrate and meter equipment so that application of chemicals in specified amounts can be determined. Provide equipment with gages and valves capable of maintaining constant application pressures. Use application equipment appropriate for the nature and size of work, that is clean, calibrated, and in proper operational condition. Never leave equipment unattended during filling, and during application usage.

3.5.8 Personnel Injury and Property Damage Prevention

Apply in a manner to prevent injury to personnel, and damage to property, from either direct spray, or drifting of chemicals both on and off Government property.

3.5.9 Pesticide Disposal

The Contractor shall dispose of all excess pesticides, pesticide rinse water, empty pesticide containers, and any pesticide contaminated article in accordance with the label, applicable State and Federal regulations and with Division 1, Section 01575, "Temporary Environmental Controls." Pesticides, pesticide containers, pesticide residue, pesticide rinse water, or any pesticide contaminated articles shall not be disposed of on the installation or on any Federally owned property. However, rinse water may be used as diluent for the formulation of the same pesticide.

3.5.10 Pesticide Spills, Clean Up and Decontamination

The Contractor shall be responsible for proper reporting, clean up and decontamination of pesticide spills, as required by EPA and State Laws and Regulations. All spills shall be immediately reported to the Contracting Officer.

END OF SECTION