

General

- Municipal, County, State and Federal laws, regarding uses and regulations governing or relating to any portion of the work depicted on these plans are hereby incorporated into and made part of these specifications, and their provisions shall be carried out by the contractor.
- The Contractor shall verify the locations of all existing utilities, structures, and services before commencing work. The location of utilities, structures, services shown on these plans are approximate only. Any discrepancies between these plans and the actual field conditions shall be reported to the Owner's representative.
- The Contractor shall locate and protect all existing utilities, features and plants on and adjacent to the project site during construction. Contractor shall repair, at his own expense, all damage resulting from his operations or negligence.
- The Contractor shall obtain all necessary valid licenses, permits, and insurance required to perform the work indicated herein before commencing work, and shall be responsible for coordinating work with all parties involved, including jurisdictional agencies.
- The Contractor shall use all means necessary to protect the public at all times during the construction process.
- In the event of conflict between pertinent codes, regulations, structural notes, and/or requirements, or the referenced standards of these Specifications, the provisions of the more stringent shall govern.
- Weather Limitations: Soil work shall be performed only when the weather conditions do not detrimentally affect the quality of work.

Mandatory Site Inspection Schedule

- Schedule for Mandatory site inspection procedures. The mandatory site inspections include but are not limited to the following:

Pre-Construction Site Meeting

Contractor shall be notified a minimum of 48 hours prior to meeting to review site conditions, proposed construction and construction schedule, and review construction specifications prior to commencement of construction operations.

Rough Grading Inspection

Contractor shall notify Owner's Representative a minimum 48 hours prior to request for inspection of rough soil grades. All rough grading operations shall be completed per specifications and prepared for inspection. No topsoil placement or backfilling in areas to be landscaped should occur until written approval by Owner's Representative has been issued.

Open Trench Irrigation Inspection

Contractor shall notify Owner's Representative 24 hours prior to inspection for written approval of irrigation trench depths, piping conditions, and pressure testing. (Refer to Irrigation Specification for inspection procedures)

Plant Material Inspection

Plant material quality and layout inspection and written approval shall occur with 24 hours notice to Owner's Representative prior to installation of any plant material. (Refer to Planting Specification for inspection procedures)

Final Landscape Areas and Irrigation Performance Inspection

Contractor shall notify Owner's Representative 48 hours prior to inspection for approval of landscape and irrigation work. Irrigation operations and coverage shall be inspected. Plant quality and layout shall be inspected. Written approval shall be issued upon inspection approval of specified construction. (Refer to relative specification sections)

Erosion Control

- Provide and maintain positive drainage patterns throughout the construction process, and as directed by the Owner's Representative if weather or construction activity creates drainage conflicts detrimental to construction process or environmental conditions. Comply with jurisdictional requirements.
- Maintain erosion measures throughout the landscaping process. Restore erosion control measures disturbed by landscaping operations. Remove only upon approval of Owner's Representative.

Invasive Weed Control Prior to Construction

- Verify and identify conditions requiring eradication of invasive weeds and grasses prior to existing soil surface disturbance as directed by Owner's Representative. Stockpiled topsoil shall be treated to eradicate weeds prior to soil ripping and stockpiling. Weed eradication shall include herbicide and non-herbicide methods only administered by a currently licensed applicator. Eradication shall include and is not limited to elimination of the following invasive species from areas to be landscaped:

Cirsium arvense (Canadian Thistle) Lotus corniculatus (Bird's foot Trefoil)  
Convolvulus spp. (Morning Glory) Lythrium salicaria (Purple Loosestrife)  
Cytisus scoparus (Scotch Broom) Melilotus spp. (Sweet Clover)  
Dipsacus sylvestris (Common Teasel) Myriophyllum spicatum (Eurasian Milfoil)  
Equisetum spp. (Horsetail) Phalaris arundinaceae (Reed Canary Grass)  
Festuca arundinaceae (Tall Fescue) Rubus discolor (Himalayan Blackberry)  
Hedera helix (English Ivy) Solanum spp. (Nightshade)  
Holicus canatus (Velvet Grass) Trifolium spp. (Clovers)  
Lolium spp. (Rye Grasses)
- In all plant bed areas the sub-grade shall be free of unsuitable material such as stumps, roots, rocks, concrete, asphalt, or metals, for a minimum depth of 24 inches, and in all lawn or seeded areas the sub-grade shall be free of unsuitable material for a minimum depth of 12 inches
- The Owner's Representative, at their discretion, shall direct further rough grading or soil preparation if specified activities have not created a surface satisfactory for further work to commence. Compensation for additional surface work created by conditions unknown at the outset and as directed in writing by the Owner's Representative shall be negotiated at the time of the directive, and prior to the commencement of particular construction activities.

Finish Grading

- Verify that rough grade in landscape areas is sufficiently below proposed final grade for planting beds and lawn areas to allow for placement of topsoil mix. Refer to grading plans for finish grade references. Verify that grades provide positive drainage at all landscape areas, and slope away from structures at a minimum of 2% slope. Final grades in all landscape areas shall be crowned at center to facilitate proposed drainage.

Installation Of Irrigation Sleeving

- Sleeving conduit shall be installed at existing and proposed paved areas as per specifications, as directed by the Owner's Representative, or as irrigation installation requirements, prior to preparation for paving construction. Set piping to provide minimum covers of:

18-inch for sleeving beneath walkways;  
24-inch for sleeving beneath vehicular traffic or structures.

Mark each end of sleeving with a 2 x 4 stake with 24" exposed, clearly marked 'SLEEVE LOCATION'. Contractor shall maintain staking identification and location throughout construction process. Protect all existing paving when installing sleeving. Restore all paving damaged by sleeve installation.
- Size of sleeving conduit pipe shall be a minimum of two times the diameter of the bell end of the pipe that is to be fed into the sleeve.
- Set sleeving in a compacted bed of material that will not damage the pipe during compaction of surface backfill material.

Design / Build Irrigation Specification

- DESIGN BUILD SUBMITTALS AND REQUIREMENTS
  - Design Criteria: Submitted plan shall meet the following criteria and shall be approved for construction only upon verification that all required criteria have been met.
    - Drawings submitted for design approval:
      - Must clearly illustrate irrigation heads, dripline, valve, controller and point of connection locations. Individual valves and controllers shall be numbered sequentially. The size and maximum flow through each valve and capacity of each controller shall be clearly noted.
      - Must clearly illustrate pipe sizes from all laterals and mainline pipe.
      - Drawings must be to a standard measurable engineering scale that is at a minimum of 1"=30'-0".
      - Drawings must be CAD generated.
      - Drawings must include a legend that describes all symbols and materials represented on the plan.
      - Drawings must clearly illustrate that the proposed irrigation system meets all performance criteria described by these specifications.
      - Must utilize graphics that clearly distinguish between lateral and mainline pipe and sleeves under pavement; dripline; manual or automatic control valves, isolation valves and drain valves; irrigation controllers and all other equipment located on the plan.
    - Irrigation system as designed and installed shall perform within the tolerances and specification of the specified manufacturers.
    - The system shall be fully adjustable to fine-tune the system performance for specific zones. Indicate water pressure and gallonage parameters at available water source on the required submittal.
    - Irrigation system shall be designed so that planting beds, sloped banks and lawn zones are on separate control valves to facilitate the different water requirements of each area.
    - System shall be designed to supply manufacturer's specified minimum operating pressure to furthest emitter from water meter. Water flow through piping shall not exceed a velocity of 5 feet per second.
    - System shall furnish components to allow operation within manufacturer's specified tolerances for optimum performance. Undersized components shall not be approved for installation.
  - Upon completion of the irrigation system installation and as a condition of it's acceptance, deliver to the Owner's representative the following 'As- built' drawings; Three prints and one reproducible sepia of all changes to the irrigation system including a Controller Zone Reference chart. Instruct owner of system components operation, system winterization, and controller adjustment processes. Instruct owner of precipitation requirements and schedule of anticipated controller adjustments as landscape matures.
  - Protect existing buildings, walls, pavements, reference points, monuments, and markers on this site. Verify location of and protect all utilities. Protect adjacent property. Protect work and materials of other trades. Protect irrigation system materials before, during, and after installation. In the event of damage, repair or replace items as necessary to the approval of the Owner's representative and at no additional cost to the Owner. Use all means necessary to protect the public from injury at all times.
  - Provide warranty for all installed materials and work for one year beyond the date of final acceptance of the irrigation system installation.
  - Verify gallonage, pressure, size, and location of service water line. The Contractor shall guarantee an irrigation system that functions to manufacturer's specifications with the source volume and pressure afforded to site. Make arrangements for water shut-off during construction if necessary, notify owner 24 hours prior to suspension of water service.
  - Irrigation trenches shall be a depth to provide a minimum cover of 18 inches for sleeving beneath walkways; 18 inches for all pressurized main lines; 36 inches for sleeving beneath asphalt paving, and 12 inches for all lateral lines. Backfill with clean fill void of material injurious to system components. All sleeving under vehicular traffic to be Class 200 PVC, all other sleeving shall be class 200 PVC. Locate top of zone valves a minimum of 6" below finish grade.
  - Combine wire and piping where possible.
  - Contractor shall follow manufacturer's instructions for solvent welding of PVC pipe and fittings to achieve tight and inseparable joints. Utilize single wrap Teflon tape at all threaded joints.

- Install all valves with fittings that facilitate maintenance removal and place valve boxes at location that are easily serviced but not in conspicuous locations. Locate in planting beds wherever possible, away from mower, edger, or de-thatcher operations.
- Contractor shall install one manual drain valve at discharge side of each remote control valve and at all low points in mainline pipe so as to allow for complete drainage of all main lines. Mark with a painted sleeve cover and indicate locations on As-Built drawings.
- Contractor shall provide backflow prevention as required per local and state codes, installed as per manufacturer's specifications.
- Contractor shall install irrigation controller in accordance with manufacturer's specifications. Verify a 120 V.A.C. electrical source and a min. 1 1/2" conduit from controller location open to all electrical zone valves in field. Weatherproof any exterior wall penetrations.
- Automatic Controller: Rainbird or Hunter capable of meeting Water Sense EPA Criteria or approved equal. Controller shall have ability for all zones to fully operate and meet both normal and specified low volume system requirements as specified herein, and as required by site conditions. Coordinate location in field with owner's representative.
- Install all wire in accordance with manufacturer's specifications with a minimum of 18 inch looped inside valve box at each remote control valve and at the controller. All splices shall occur within valve boxes with water-proof connectors.
- Contractor shall install all sprinkler heads with flexible risers, using flexible polyethylene pipe not to exceed 18 inches in length or PVC swing joints. Tee fittings shall extend horizontally from pipe.
- Contractor shall thoroughly flush irrigation system after piping, risers, and valves are installed but prior to installing sprinkler heads. Thoroughly clean, adjust and balance the installed irrigation system. Adjust spray pattern of nozzles to minimize throw of water onto buildings, walls, roads and parking lots. Adjust controller for optimum performance and precipitation rates utilizing proper water conservation measures.

Topsoil Placement and Soil Preparation

- Contractor shall submit certified topsoil analysis report for owner's approval prior to plant installation.
- Contractor is responsible for any amendments to soil PH, fertility and/or drainage conditions necessary to ensure proper growing conditions for proposed planting.
- Topsoil shall be friable soil from existing stockpiled material or imported, with added soil amendments as specified. It shall not be delivered while in a frozen or muddy condition. Protect from erosion at all times. Utilize existing stockpiled topsoil only under the direction of the Owner's Representative. Do not place topsoil in areas that have not been cleared of weeds listed herein. Topsoil shall meet the following requirements:
  - Free of roots and rocks larger than 1/2 inch,
  - Free of subsoil, debris, large weeds, foreign matter and any other material deleterious to plant material health.
  - Acidity range (pH) of 5.5 to 7.5.
  - Containing a minimum of 4 percent and a maximum of 25 percent inorganic matter with decaying matter of 25 percent content by volume or less.
  - Textural gradations shall be sand: 45-75%, silt: 15-35%, clay: 05-20%.
- Commercial fertilizer shall be an organic base, complete fertilizer containing in available form by within a minimum of 10N 10P 5K - with 50 percent of the available nitrogen in slow-release formula, Webfoot Organic Delux, or approved equal.a
- Compost shall be yard debris compost meeting industry and jurisdictional standards.
- Contractor shall remove all debris, rocks one inch in diameter or larger, sticks, mortar, concrete, asphalt, paper, contaminated soil and any material harmful to plant life, in all planting areas.
- Contractor shall rototill subgrade six (6) inches deep before placing topsoil. Approved topsoil shall be placed at a minimum depth of 12" in all planting areas. Do not place material during wet conditions. Do not work saturated soils in any manner. floated to a level, sloped or mounded grade between any existing or constructed point on the site, such as curbs, walls, walks, paving and the like. Final soil grades in planting beds shall be 2" below adjacent paving and curbs for mulch application.
- Distribute following soil amendments to all landscape areas in even layers and power rototill or spade to a minimum depth of six (12) inches into topsoil, as follows:

Planting Beds:

- Compost: Apply nine cubic yards per 1000 sq. ft.
- Commercial Fertilizer: Apply 50 pounds per 1000 sq. ft.

- Preparation of backfill planting soil mix shall be as follows:

Thoroughly blend and mix the following proportion of materials while in a moist condition:

- Three cubic yards topsoil
- 1 1/2 cubic yards compost
- 1 1/2 cubic yards medium bark,
- 10 pounds commercial fertilizer
- Five pounds bonemeal

- Keep project free from accumulation of debris, topsoil and other material. At completion of each area of work, remove debris, equipment and surplus materials. Any paved area or surfaces stained or soiled from landscaping materials shall be cleaned with a power sweeper using water under pressure. Building surfaces shall be washed with proper equipment and materials as approved by the Owner's representative.

Seed Installation

- Seeding operations shall occur only between March 15 and October 15.
- Seeding is not permitted during cold weather (less than 32 degrees F), hot weather (greater than 80 degrees F), when soil temperature is less than 55 degrees F, when ground is saturated, or when wind velocity is greater than 10 mph.
- Contractor shall float rough graded seedbed. Do not disturb natural drainage patterns. Remove rocks, clumps, or debris at surface. Lightly scarify surface.
- Contractor shall apply 10 pounds commercial fertilizer per 1,000 square feet of surface area before spreading seed.
- Lawn Seed: Contractor shall manually broadcast or hydro-seed eight pounds of Sunmark "Northwest Supreme Lawn Mix" grass seed per 1,000 square feet.
- Fieldgrass Seed: Contractor shall manually broadcast or hydro-seed eight pounds of Sunmark "Diamond Green" grass seed per 1,000 square feet.
- The Contractor shall protect and maintain the seeded area by fencing, watering, feeding, reseeding, mowing and repairing as necessary to establish a thick, uniform stand of grass acceptable to the Owner's representative. Contractor to maintain lawn for a minimum of 3 mowings.

Trees, Shrubs, & Groundcover Installation

- Contractor shall guarantee materials and workmanship in general landscape areas for one year from date of conditional acceptance. Plant material shall be in accordance with American Standard for Nursery Stock (ANSI Z60.1) , shall comply with State and Federal laws with respect to inspection for insect infestation and plant diseases and shall be free of insect pests and plant diseases.
- Plant materials shall have a minimum of 6 inches of prepared soil under the root ball, and a minimum of 6 inches on each side of the root ball. Tree roots or root ball shall have a minimum of 12 inches of plant soil under the root ball and a minimum of 12 inches on each side of the root ball, or roots. Final grade should maintain root ball slightly above surrounding grade (not to exceed one inch) for bark mulch installation.
- Root control barrier shall be installed in trenches, alongside hardscape structures and utility lines such as sidewalks, curbs, pavement, walls, and concrete located within 5 feet of new trees measured from the trunk. Root barrier is to be 40 - 60 mil HDPE, minimum 18" deep and extend 10' in either direction measured from the center of the trunk.
- Mulch all planting beds after planting, final raking, grading and leveling of the planting beds with a layer of Hem/Fir medium screened bark mulch as specified on the plans.
- Balled and burlapped trees, boxed trees or bare root trees shall be either guyed or staked as detailed on the plans.
- Remove all dead or dying branches and criss-crossing branches from trees. Do not cut leader.
- Keep project free from accumulation of debris, topsoil and other material. At completion of each area of work, remove debris, equipment and surplus material. All paved areas or surfaces stained or soiled from landscape material shall be cleaned with a water-pressure power sweeper. Building surfaces shall be washed with proper equipment and materials as approved by the Owner.
- River Rock Mulch: River rock mulch shall be minimum 3/4" to maximum 1-1/2" diameter washed round river rock, uniform in size. All fines shall be screened from the aggregate within a one-quarter inch (1/4") tolerance. Color shall be white to light brown. Contractor shall provide the owner with samples of river rocks for approval prior to installation.

Maintenance

- Contractor shall maintain general landscape areas for one year after accepted completion of project.
- Maintenance shall include; all grade resettlement, weeding, policing and removal of plant material debris during maintenance period. Remove and replace dead plant material as needed at no cost to owner for maintenance period. Seasonal leaf fall removal is outside the scope of this maintenance specification.
- Any unsatisfactory condition arising during this maintenance period shall be brought to the attention of the Owner's Representative immediately.