METRO
600 NE Grand Ave.
Portland, OR 97232-2736
(503) 797-1700

Addendum

ADDENDUM NUMBER ONE

RFB 10-1468
Graham Oaks Nature Park Improvements

The above listed solicitation is hereby amended and clarified through the issuance of this addendum.

Request for Bids – Division 0 & 1:

- **Certification of Good Faith Effort** - (page prior to Table of Contents, last) is amended as follows:
  Metro Code provisions 2.04.100 and 200 require all Bidders/Proposers to follow and document a specific good faith outreach effort to State certified Minority, Women and Emerging Small Businesses. Certification of good faith compliance and a declaration of any actual utilization pursuant to both programs are required **within two hours of Bid Closing.**

- **Notice of Award** - (page 7) is amended as follows:
  Within thirty (30) calendar days after the opening of Bids, Metro will accept one of the Bids or reject all Bids in accordance with the Basis of Award. The acceptance of the Bid will be by written Notice of Award, mailed or delivered to the office designated in the Bid. The Notice of Award shall not entitle the party to whom it is delivered to any rights whatsoever.

- **Clarification of the Good Faith Program** - (page19) is amended as follows:

  Good Faith Effort Steps:
  Revise #3 to read:
  3. Contact MWESB's who attended the Pre-Bid. Meeting. And/or contact several (or all) certified MWESB firms listed (with the State of Oregon) to perform the work as needed. The prime shall give any MWESB firms at least seven (7) calendar days to prepare a bid. (Metro's Procurement Services Office can provide a list of firms upon request (503-797-1816.)

     - Complete Steps #3, 4 and 5 on pages 20-21 of the Request for Bids identifying all firms contacted for sub-contracting work. If additional space is needed please make a copy of page #21 and submit as instructed in the RFB.

  Revise #6 to read:
  6. List all sub-contractors that you intend to use on this project.

     - Complete page #22 of the RFB. List all MWESB sub-contractors you intend to use. If additional space is needed please copy of this page and submit as instructed in the RFB.

- **Clarification of the Bid Security** - (page 6 & 12) is amended as follows:
  - Bid Security – The RFB solicitation correctly states that bid security in the amount of five (5) percent of the total bid amount is required (Bid Security, page 6). Bidders should disregard the language on the Bidder's Checklist (page 12) that states bid security in the amount of $500 is required.

- **General Conditions** - Section 00700, Article 8, item 8.2.3 Unit Prices –
  Unit Price No. 1 – Delete the reference to Unit of Measure: cubic yard in truck

- **General Conditions** - Section 00700, Article 8, item 8.2.3 Unit Prices – Delete Unit Price No. 3 – Cost to install six foot (6') gravel trail per details.

- **Summary of Work** - Section 01010 –Amended as follows:
  1.6 Owner Furnished Products
  A.
  8. Straw mulch for protection of finish grades. See Section 312000 - Earth Moving
  9. Recycled Rubber Wheel Stop (parking blocks). See Section 129300 – Site Furnishings

- **Progress Meetings** - Section 01200 – Project Meetings is amended as follows:
  3.2 Progress meetings
  D.
  8. Project record drawings – The Owner's Representative will require that project record drawings (as-builts) be discussed at each progress meeting.

Bid Schedule:

- **Owner Provided** - Owner shall assume all liability for plant material supplied by Owner. Contractor shall abide by all drawings and specifications for the installation of this material. The Contractor shall provide the automatic irrigation schedule as defined in the Irrigation Specification Section 328000 (sub-section 3.14 - System Programming). The Contractor shall adjust, if necessary, as recommended by the Owner. The Owner's Representative shall be on-site and observe the installation of all Owner provided trees. Please notify the Owner's Representative 48-hours in advance of planting this material.

General:

- **Contractor Pre-Qualification** – In accordance with ORS 279C.345, a contractor that is prequalified by the Department of Transportation or Department of Administrative Services will be presumed qualified by Metro for the same kind of work.

- **Pre-Bid Attendee List** – Attached is a listing of contractors and sub-contractors that attended the voluntary pre-bid meeting on July 28, 2009.

- **Contact Information** – For any and all bid inquires, please contact:
  Rod Wojtanik
  (503) 797-1846
  rod.wojtanik@oregonmetro.gov

- **Estimate of Probable Costs** – The engineer's estimate of probable cost for the total base bid project is $1,800,000.00 - $2,100,000.00.

- **System Development & Service Connection Fees** – The Owner shall pay for all system development charges and/or utility service connection fees.

- **Construction Staking** – The Contractor is responsible for all construction staking.

- **Digital Drawing Files for Site Work Estimating** – Digital files containing survey and design information are being made available to bidders with this addendum. Contact Ford Graphics at www.planwellpdx@fordgraphics.com for the Release Form required to obtain the digital files.

  Metro hereby disclaims any and all responsibility for any defects in said electronic data. All electronic media containing survey and design data given to bidders in this bid addendum is provided as background information only, is not part of the Contract Documents, and is not a warranty of surface or subsurface conditions. Only the paper plans are Contract Documents and only the paper plans may be relied upon when bidding this job. It is the bidder's responsibility to reconcile any and all electronic data

provided herein with the paper plans. Before submitting a bid, bidders should visit the site of the proposed work and fully examine the site and surrounding areas for conformity to the paper plans.

The digital drawing files share the same coordinate system.

- **Fuel Price Adjustment** – Contractor shall be responsible for all fuel costs incurred during the performance of the work for the first 30 days after issuance of Notice to Proceed. For subsequent months, the Contractor may submit to Metro a fuel surcharge in order to offset an increase in fuel costs. Based on the OPIS listing for Portland, Oregon, Contractor can submit to Metro a fuel surcharge for amounts over 125% of the OPIS listing. Such charge shall be listed separately on the monthly pay application. Upon request of the Owner's Representative, the Contractor shall provide documentation for the amount of fuel used on the Project.

Drawings/Specifications:

- **Revise Drawing –** Drawing C1.01: Revise Sheet Notes 1 to read:
  1. "CONSTRUCTION ACCESS ALONG PROPOSED TRAIL ALIGNMENT IS ALLOWED WITHIN LIMITS OF WORK WITH THE EXCEPTION THAT…"

- **Revise Drawing –** Drawing C1.01: Revise Sheet Notes 3 to read:
  3. "…REQUIRE APPROVAL BY OWNER. PROVIDE TYPE 2 TEMPORARY DELINEATION FENCING ~~AND/OR FLAGGING~~ ALONG ALIGNMENT IN FIELD ~~AS DIRECTED BY OWNER~~ TO INDICATE PROPOSED LIMITS IN FIELD."

- **Revise Drawing –** Drawing C1.01: Revise Sheet Notes 7 to read:
  7. "…WITH OWNER PRIOR TO CONSTRUCTION. PROVIDE TYPE 2 TEMPORARY DELINEATION FENCING ~~AND/OR FLAGGING AS DIRECTED BY OWNER~~ TO INDICATE PROPOSED LIMITS IN FIELD."

- **Revise Drawing** – Drawing C1.01: Add Sheet Notes 8 to read:
  8. "COORDINATE LIMITS OF WORK ALONG PROPOSED TONQUIN AND CRUSHED ROCK TRAIL ALIGNMENTS WITH OWNER PRIOR TO CONSTRUCTION. PROVIDE TYPE 1 TEMPORARY DELINEATION FENCING TO INDICATE PROPOSED LIMITS IN FIELD."

- **Revise Drawing** – Drawing C3.08: Revise detail call out 12/L5.04; referring to the Merryfield puncheon to read Detail 1/L5.05.

- **Drawing Clarification** – Drawing L5.04: The Landscape Forms trash receptacle detailed on 1/L5.04 will be a Contractor furnished, Contractor installed.

- **Revise specification** – Revise Section 129300 – PART 2 - 2.1.A.4.a.1) to read:
  1. "Lakeside Litter receptacle", subdivided trash and recycling can. Double Side opening, 30 gallon size can with plasma cut leaf pattern and black powder coated steel, as shown in the standard trashcan and surface mount detail 1/L5.04 Include a black 30-gallon can liner.

- **Revise specification** – Add Section 221313 – Facility Sanitary Sewers PART 1 - 1.2.C to read:
  C. Step system sanitary lift station start-up and system check approval by certified representative from product supplier.

- **Revise specification** – Add Section 221313 – Facility Sanitary Sewers PART 1 - 1.3.D & E to read:
  D. Training: Provide a training session for key Metro personnel or representatives for the operation and maintenance of the step system sanitary lift station. Training shall be led by a certified representative from the product supplier. Coordinate meeting time with Owner.
  E. Manuals: Provide 5 copies, bound in three-ring binders, of the product operations and maintenance manual and product documentation including a custom system schematic, custom wiring diagram, product numbers and cut sheets for individual components, inspection report forms, or other pertinent O&M support information. Additionally each copy shall include contact

information for the installation contractor, supplier and certified representative performing start-up.

- **Revise specification** – Add Section 311000 – Site Clearing PART 1 - 1.2.B.2 to read:
  1. Halt work immediately and contact Owner's Representative if artifacts are encountered during construction.

- **Revise specification** – Replace Section 311000 – Site Clearing PART 1 - 1.3.E.1 & 2 with the following:
  1. Refer to Section 31 "Earth Moving" for additional information on alternate haul routes.

- **Revise specification** – Add Section 311000 – Site Clearing PART 3 - 3.2.D to read:
  1. Contractor shall assign a Certified Erosion Control Specialist to serve as Site Inspector for the 1200-C Permit for the duration of the project.

- **Replace specification** – Replace in whole the following Section 312000 – Earth Moving

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All other terms, conditions, and requirements of the RFB remain in full force.

Issued July 31, 2009.

By _____
Darin Matthews, CPPO, C.P.M., Metro Procurement Officer

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Preparing subgrades.
   2. Excavating and backfilling for buildings and structures.
   3. Base course for concrete walks and pavements.
   4. Base course for asphalt paving.
   5. Excavating and backfilling for utility trenches.
   6. Protecting exposed grades.
   7. Temporary Construction Access Roadways

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subgrade and hot-mix asphalt paving, concrete paving, crushed rock top course or a cement concrete or hot-mix asphalt walk, or course placed between the subgrade and sand bedding course and concrete or unit pavers.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Fill: Course surrounding perforated drainage pipe in vegetated infiltration basin.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
   1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Owner's Representative. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
   2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Owner's Representative. Unauthorized excavation, as well as remedial work directed by Owner's Representative, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Gravel Shoulder: Base course material exposed at surface set flush to adjacent pavement.

I. Sand bedding course: Course placed between the base course and concrete pavers.

J. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Owner's Representative and then only after arranging to provide temporary utility services according to requirements indicated.

B. Site Information: Research public utility records and verify existing utility locations prior to ordering any material. Notify the Owner's Representative immediately if any discrepancies are found in the project survey.

C. Geotechnical Report: A geotechnical study was performed on the site. Contractor shall be familiar with and adhere to conditions and requirements as contained in the Report of Geotechnical Services for the Graham Oaks Nature Park prepared by Pacific Geotechnical, LLC dated September 17, 2008 and the Addendum Report of Geotechnical Services for the Graham Oaks Nature Park prepared by Pacific Geotechnical, LLC, dated July 16, 2009.

1.4 SUBMITTALS

A. Provide Product Data and representative samples for the following prior to delivery to the site or placement as fill:
   1. Satisfactory soils; ~~Granular Site Fill Material, Fine-grained site fill~~
   2. Engineered fill, Select fill
   3. Quarry spalls
   4. Growing medium
   5. Geotextile fabrics
   6. Drainage fill
   7. Bedding course
   8. Base course
   9. Grasspave

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Native soil material free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, organics and other deleterious material.
   1. Excavated native material will typically require moisture conditioning prior to compaction as fill.

C. Unsatisfactory Soils: Native soil material that does not meet requirements for Satisfactory Soils or with a moisture content that can not be moisture conditioned to allow compaction.

D. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, recycled concrete, and natural or crushed sand; ASTM D 2940; with 100 percent passing a 1-1/2-inch sieve and not more than 5 percent passing a No. 200 sieve.

E. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, crushed concrete blocks, and natural or crushed sand; ASTM D 2940; well graded between coarse and fine sizes with a maximum particle size of 4 inches, at least 90 percent passing a 1-1/2-inch sieve and not more than ~~12~~5 percent passing a No. 200 sieve. During dry weather, the fines content may be increased to a maximum of 12 percent.

F. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

G. Quarry Spalls: Hard, sound and unweathered crushed quarry rock well graded between coarse and fine meeting the following gradation:

Sieve Size	% Passing
6 in	100
3 in	40 max.
¾ in	10 max

H. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

I. Backfill and Fill:
   1. Satisfactory soil materials.
   2. Initial Trench Backfill: Use ODOT 19.0mm – 0mm (3/4-inch – 0-inch) base aggregate.
   ~~3. Final Trench Backfill: Refer to Engineered Fill.~~

~~I. In-Water Fill Material: Natural or artificially well graded angular rock with nominal maximum size of a 6 inches and having less than 5 percent passing the a 1/4- inch sieve.~~

J. Grasspave: Grasspave 2 porous pavement system by Invisible Structures, Inc. or approved equal.

K. Growing Medium: Blended soil material for vegetated infiltration basin per the Drawing Details.

L. Straw Mulch: Sterile straw mulch for protection of finish grades to be furnished by Owner.

2.2 GEOTEXTILES

A. Drainage Fabric: Nonwoven geotextile, specifically manufactured as a drainage geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:
   1. Grab Tensile Strength: 110 lbf (490 N); ASTM D 4632.
   2. Tear Strength: 40 lbf (178 N); ASTM D 4533.
   3. Puncture Resistance: 50 lbf (222 N); ASTM D 4833.
   4. Water Flow Rate: 150 gpm per sq. ft. (100 L/s per sq. m); ASTM D 4491.
   5. Apparent Opening Size: No. 50 (0.3 mm); ASTM D 4751.

B. Separation Fabric: Woven geotextile, specifically manufactured for use as a separation geotextile; Mirafi 600X or approved equal made from polypropylene, polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:
   1. Grab Tensile Strength: 360 lbs; ASTM D 4632.
   2. Tear Strength: 140 lbs; ASTM D 4533.
   3. Puncture Resistance: 195 lbs; ASTM D 6241.
   4. Water Flow Rate: 7 gpm per sq. ft.; ASTM D 4491.

2.3 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
   1. Red: Electric.
   2. Yellow: Gas, oil, steam, and dangerous materials.
   3. Orange: Telephone and other communications.
   4. Blue: Water systems.
   5. Green: Sewer systems.

2.4 TEMPORARY DELINEATION FENCING

A. Type 1
   1. Metal t-posts with rope strung between posts.
   2. Drive metal t-posts at a maximum spacing of 20 feet.
   3. Rope shall be natural fiber, 3-strand manila rope, ¾" diameter.
   4. Pull rope taught and fasten to the metal t-post by threading bailing wire through the rope and attaching 3' above the ground.
   5. Tie orange flagging along rope or wire at 10-foot maximum spacing to improve visibility.

B. Type 2
   1. Metal t-posts with orange snow fencing material between posts.

2. Drive metal t-posts at a maximum spacing of 10 feet.
3. Orange snow fencing shall be Dupont construction fencing #L-60 or L-70, or approved equal secured to posts with plastic ties.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, freezing temperatures or frost, and other hazards created by earthwork operations. Provide protective insulating materials as necessary.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." during earthwork operations.

D. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

E. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

~~F.Any earthwork activities during the wet weather construction period, as defined by the City of Wilsonville Code, shall be approved by the Owner's Representative prior to start of earthwork. In addition, all work during the wet weather period shall adhere to the wet weather construction recommendations in the project geotechnical report.~~

F. Access and haul routes shown on the Contract Drawings in their approximate alignment may be utilized during construction in addition to proposed trail alignments. Actual alignments to be field verified with Owner.
   1. Currently routes are worn paths of compacted native material created by mowing equipment and maintenance vehicle access and do not ~~already~~ have a protective wearing course.
   2. Any use of these alternate haul routes will require restoration per the Drawings.
   3. Provide temporary bridge crossings over wetland areas to prevent damage to wetland vegetation and soil structure as approved by Owner.
   4. Provide Type 2 temporary delineation fencing to indicate limits of access and haul routes approved by Owner.
   5. Supplemental or alternative fencing material may be required by Owner at no additional cost if Contractor's operations cross temporary delineation fencing.

G. Provide Type 1 temporary delineation fencing to indicate limits of work along proposed Tonquin and crushed rock trail alignments as approved by Owner.
   1. Supplemental or alternative fencing material may be required by Owner at no additional cost if Contractor's operations cross temporary delineation fencing.

3.2 WET WEATHER REQUIREMENTS

A. The site soils are expected to be highly susceptible to disturbance during construction, especially during periods of wet weather.

B. The construction schedule is intended to allow adequate time for the construction of trails during dry weather conditions. Wet weather construction beyond the gateway area will be at Contractor's risk. The wet weather construction period as defined by the City of Wilsonville Code is November 1st to April 30th.

C. The Owner is authorized to stop grading work during wet weather conditions beyond the defined wet weather construction period.

D. All work during the wet weather period shall adhere to the wet weather construction recommendations provided in the project geotechnical report.

E. Contractor shall stage their construction in such a manner as to construct trails during dry weather conditions and protect these constructed sections from damage by construction activity during wet weather. If Contractor decides to construct trails during wet weather conditions, all costs associated with additional stabilization will be borne by the Contractor.

F. Trail and plaza pavement sections included in the plans are designed for final pedestrian and intermittent maintenance vehicle loads and are not designed to accommodate loading from construction equipment. Additional stabilization measures required for construction access shall be at the Contractor's expense. The Contractor shall be responsible for repair of subgrade, base rock and pavement damaged due to construction operations including additional subgrade stabilization where required at no additional cost to the Owner

G. Improvements beyond those noted in the Drawings, necessary for construction access, shall be provided at the Contractor's expense.

H. Aggregate bases that are used to support construction activities shall be stripped and/or cleaned prior to construction of pavement or paver sections at the Contractor's expense. Contractor shall be responsible for assuring that subgrade and base rock meet specifications prior to construction of pavement and paver sections.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
   1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

B. Scarify and recompact top 12 inches of exposed subgrade per Paragraph 3.15 below.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

B. Scarify and recompact top 6 to 12 inches of exposed subgrade per Paragraph 3.15 below.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
   1. Clearance: 6 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
   1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material, 4 inches deeper elsewhere, to allow for bedding course. Hand excavate for bell of pipes.
   2. Excavate utility structures to provide 6 inches clearance (enlarge as needed) to allow for compaction of backfill material.

3.8 SUBGRADE INSPECTION

A. Proof-roll subgrade before filling or placing aggregate with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
   1. During wet weather conditions, alternative methods will be considered such as a probing rod.

B. Unsuitable areas identified by the Owner's Representative shall be removed and replaced with appropriate compacted suitable fill.
   ~~1. Payment for subgrade "Over Excavation and Backfill" shall be paid per the Unit Price on the Bid Form.~~

1. Refer to Section 00700 - General Conditions for measurement and payment for Unit Price No. 1 - "Subgrade Stabilization (6")."

C. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Owner's Representative, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Owner's Representative.
   1. Fill unauthorized excavations under other construction or utility pipe as directed by Owner's Representative.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust or exposure to wet weather.
   1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

B. Temporary stockpile areas are indicated on the Drawings. ~~The stockpile layout shown on the Drawings is conceptual and can be modified by the Contractor.~~ Coordinate limits of proposed stockpile area with the Owner.
   1. Any changes to the temporary stockpile boundary will need to be reviewed and approved by the Owner.
   2. Coordinate layout of stockpile, construction entry and exit, wheel wash (as required), and haul routes.
      a. Reestablish wet weather protection measures that are disturbed by crews collecting stockpiled materials.
   3. Segregated excavated unsatisfactory soils or waste materials may be temporarily stored separately within the stockpile area ~~before disposal by Contractor~~ provided that the placement of the material does not contaminate stockpiles of satisfactory soils.
   4. Contractor to protect stockpiles from becoming unsatisfactory due to wet weather, mixing with other unsatisfactory materials or other construction activities. Satisfactory soils deemed unsatisfactory due to Contractor's activities or lack of protection shall be brought into conformance with satisfactory conditions or disposed of offsite and replaced with approved imported material at no additional cost to Owner.
   5. Provide Type 2 temporary delineation fencing to indicate limits of temporary stockpile and staging areas approved by Owner.
   6. Supplemental or alternative fencing material may be required by Owner at no additional cost if Contractor's operations cross temporary delineation fencing.

C. Restore stockpile areas by removing all construction materials and debris to pre-existing subgrade. Cross rip subgrade to 12 inch depth and reestablish finish grades. Hydroseed affected area with native restoration seed mix per Landscape specifications.

3.11 BACKFILLS AND FILLS

A. Backfill: Place and compact backfill in excavations promptly, but not before completing the following:
   1. Surveying locations of underground utilities for record documents.
   2. Inspecting and testing underground utilities.
   3. Removing concrete formwork.
   4. Removing trash and debris.
   5. Removing temporary shoring and bracing, and sheeting.

3.12 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches of bottom of footings with engineered fill.

D. Place and compact initial trench backfill material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
   1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

E. Place and compact final backfill of satisfactory soil to final subgrade elevation.

F. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:
   1. Under grass and planted areas, use satisfactory soil material.
   2. Under walks and pavements, use approved satisfactory soil material or engineered fill.
   3. Under building slabs, use engineered fill.
   4. Under footings and foundations, use engineered fill.
   5. Under and around utility structures, use engineered fill.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 3 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 3 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than the following:
   1. 12 inches (300 mm) in loose depth for native material compacted by heavy compaction equipment.
   2. 18 inches (450 mm) in loose depth for imported granular fill material compacted by heavy compaction equipment.
   3. 4 inches (100 mm) in loose depth for native material compacted by hand-operated tampers.
   4. 8 inches (200 mm) in loose depth for imported granular fill material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
   1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
   2. Under crushed rock walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 90 percent.
   3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
   4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
   1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
   2. Walks: Plus or minus 1/2-inch (13 mm).
   3. Pavements: Plus or minus 1/2-inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2-inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.17 BASE COURSE

A. Place base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place base course under pavements and walks as follows:
   1. Shape base course to required crown elevations and cross-slope grades.
   2. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.18 DRAINAGE FILL

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course as follows:
   1. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.

3.19 GRASSPAVE

A. Install per Drawings and manufacturer's recommendations.

3.20 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing. This does not release the Contractor from engaging their own testing agency to verify work is being performed in accordance with the Contract requirements.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Owner's Representative.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
   1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. (186 sq. m) or less of paved area or building slab, but in no case fewer than three tests.
   2. Lawn and Unpaved Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. (186 sq. m) or less of lawn and unpaved areas, but in no case fewer than three tests.

3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet (46 m) or less of trench length, but no fewer than two tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

F. The Owner's Geotechnical Engineer will be required to have a representative on-site to observe trenching, excavation, cut and fill operations during the development of the project as may be required by the City of Wilsonville.

3.21 PROTECTION

A. Site soils highly are moisture sensitive and susceptible to impacts from construction activity.

B. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
   1. Apply wet weather construction methods to protect subgrade.

C. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

D. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
   1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

E. Maintain 2 inches of straw mulch over exposed soils once finish grades are established and approved to protect soils from erosion.
   1. Coordinate straw mulch material supply with Owner.
   2. Straw mulch will be delivered to site by Owner

3.22 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Surplus satisfactory soil to be placed and compacted to form berms at the gateway as indicated on the Drawings. Final grades of the berms shall be as directed by the Owner's Representative based on the amount of material available after construction of the trails.

B. Disposal: Remove trash, debris and ~~surplus satisfactory soil and~~ waste material, including unsatisfactory soil containing deleterious material, and legally dispose of it off Owner's property.

C. Unsatisfactory soils that can not be properly moisture conditioned to achieve compaction and that are free of debris, trash or other deleterious material may be broadcast onsite under the direction of the Owner's Representative.

END OF SECTION 312000