

West Loop Road Asphalt Paving Statement of Work and Supplemental Information
VA Puget Sound Healthcare System

1. Construct north end West Loop Road curb & gutter along east side (Ref attached CP101, CP-200). Regrade and compact subgrade for curb & gutter. Work to be in accordance with attached specifications 312000 & 320523.
2. Construct asphalt thickened edge section along east side of West Loop Rd (Ref attached CP101, CP102, CP200). Cut back and demolish existing asphalt edge. Prepare and compact existing base. Minimum ambient temperature to be 40F & rising. Work to be in accordance with attached specifications 312000 & 321216.
3. Complete West Loop Rd paving. Provide 2" asphalt surface course over existing asphalt, w/ tack coat & sealer on W Loop Rd (Ref attached CP101, CP102, CP200).
Existing asphalt surface to be dry and thoroughly cleaned by sweeping prior to tack coat application. Existing asphalt surface temperature to be minimum 35F and minimum ambient temperature to be 40F & rising. Work to be in accordance with attached specification 321216.
4. Prior to providing work in item 3 above, raise all catch basins, manholes, and valve boxes in the section of road to receive the 2" asphalt lift so that the covers or grates are flush with finished asphalt elevation.

Note: Attached drawings CP100, CP101, & CP102 show the limits of construction for this work clouded in red.

**SECTION 31 20 00
EARTH MOVING**

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

- A. This section specifies the requirements for furnishing all equipment, materials, labor, tools, and techniques for earthwork including, but not limited to, the following:
1. Site preparation.
 2. Excavation.
 3. Filling and backfilling.
 4. Grading.
 5. Soil Disposal.
 6. Clean Up.

1.2 DEFINITIONS:

- A. Unsuitable Materials:
1. Fills: Topsoil; frozen materials; construction materials and materials subject to decomposition; clods of clay and stones larger than 75 mm (3 inches); organic material, including silts, which are unstable; and inorganic materials, including silts, too wet to be stable and any material with a liquid limit and plasticity index exceeding 40 and 15 respectively. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction, as defined by ASTM D 698.
 2. Existing Subgrade (Except Footing Subgrade): Same materials as 1.2.A.1, that are not capable of direct support of slabs, pavement, and similar items with possible exception of improvement by compaction, proofrolling, or similar methods.
 3. Existing Subgrade (Footings Only): Same as paragraph 1, but no fill or backfill. If materials differ from design requirements, excavate to acceptable strata subject to Resident Engineer's approval.
- B. Building Earthwork: Earthwork operations required in area enclosed by a line located 5 feet outside of principal building perimeter. It also includes earthwork required for auxiliary structures and buildings.
- C. Trench Earthwork: Trenchwork required for utility lines.
- D. Site Earthwork: Earthwork operations required in area outside of a line located 5 feet outside of principal building perimeter and within new construction area with exceptions noted above.
- E. Degree of compaction: Degree of compaction is expressed as a percentage of maximum density obtained by laboratory test procedure. This percentage of maximum density is obtained through

use of data provided from results of field test procedures presented in ASTM D1556, ASTM D2167, and ASTM D6938.

- F. Fill: Satisfactory soil materials used to raise existing grades. In the Construction Documents, the term "fill" means fill or backfill as appropriate.
- G. Backfill: Soil materials or controlled low strength material used to fill an excavation.
- H. Unauthorized excavation: Removal of materials beyond indicated sub-grade elevations or indicated lines and dimensions without written authorization by the Resident Engineer. No payment will be made for unauthorized excavation or remedial work required to correct unauthorized excavation.
- I. Authorized additional excavation: Removal of additional material authorized by the Resident Engineer based on the determination by the Government's soils testing agency that unsuitable bearing materials are encountered at required sub-grade elevations.
- J. Subgrade: Surface or elevation immediately below: pavement sections, landscape sections, pipe and structure bedding, building footings, and building slab capillary break.
- K. Structure: Buildings, foundations, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- L. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- M. Drainage course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.
- N. Bedding course: Layer placed over the excavated sub-grade in a trench before laying pipe. Bedding course shall extend up to the springline of the pipe.
- O. Sub-base Course: Layer placed between the sub-grade and base course for asphalt paving or layer placed between the sub-grade and a concrete pavement or walk.
- P. Utilities include on-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.
- Q. Debris: Debris includes all materials located within the designated work area not covered in the other definitions and shall include but not be limited to items like vehicles, equipment, appliances, building materials or remains thereof, tires, any solid or liquid chemicals or products stored or found in containers or spilled on the ground.
- R. Contaminated soils: Soil that contains contaminates as defined and determined by the Resident Engineer or the Government's testing agency.
- S. Over-excavation: Removal of unsuitable soil (as directed by the Geotechnical Engineer in the field during construction) below final grade and subgrade elevations. Strippings are not included as over-excavation. Soils that are over the optimum moisture content but are otherwise satisfactory are not included as over-excavation.

- T. Strippings: Removal of top layer of existing soil material that contains abundant organic material and is not suitable for construction of structural fills.
- U. Excavation: Removal of material encountered above final grade and above subgrade elevations as shown on Drawings after stripping has been completed.

1.3 RELATED WORK:

- A. Materials testing and inspection during construction: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Safety requirements : Section 00 72 00, GENERAL CONDITIONS, Article, ACCIDENT PREVENTION.
- C. Protection of existing utilities, fire protection services, existing equipment, roads, and pavements: Section 01 00 00, GENERAL REQUIREMENTS.
- D. Subsurface Investigation: Section 01 00 00, GENERAL REQUIREMENTS, Article, PHYSICAL DATA.
- E. Erosion Control: Section 01 57 19, TEMPORARY ENVIRONMENTAL CONTROLS, and Section 32 90 00, PLANTING.
- F. Paving sub-grade requirements: Section 32 12 16, ASPHALT PAVING.

1.4 CLASSIFICATION OF EXCAVATION:

- A. Classified Excavation: Removal and disposal of all material except that material not defined as Rock.

1.5 MEASUREMENT AND PAYMENT FOR EXCAVATION:

- A. Lump Sum Bid
 - 1. The Contractor's lump sum bid shall include all work required to achieve final grades and completed structures as shown on the Contract Documents beginning with the existing conditions (as represented in the Contract Drawings and in the Geotechnical report). This includes but is not limited to: excavation to suitable bearing soil, export of excess material, import of material, placement and compaction.
 - 2. If the Contractor's sequencing of the work requires stockpiling and double handling of materials, this shall be accomplished within the base bid amount at no additional cost to the VA.

3. The Contractor's lump sum bid shall include all work and materials for the assumed quantities as listed in Specification Section 00300 "Bid Form", under "Unit Prices".
4. The Contractor shall be responsible for all un-authorized excavation. The Contract will not be adjusted to compensate for un-authorized excavation. No payment will be made to the Contractor for un-authorized excavation, for additional excavation of suitable material on site used to fill un-authorized excavation, or for import of material to the site at any time during construction as a result of the Contractor performing un-authorized excavation.
5. No payment shall be allowed if in the opinion of the Geotechnical Engineer, removal of materials is needed because of damage caused by the Contractor's operations.
6. Soil suitability may be influenced by the weather conditions and the Contractor's handling and protection of the material as it is removed and placed. It is the sole responsibility of the Contractor to protect soils from the elements and to condition soils that are naturally above their optimum moisture content. Material that is deemed unsuitable due to lack of protection by the Contractor or because it is naturally above the optimum moisture content will not be compensated for as over-excavation. The Contractor will be responsible for removing such material and replacing with acceptable material at no additional cost to the VA.
7. All fills and backfilling of trenches and structures performed during fall, winter, and spring months shall utilize imported suitable soil that is capable of being compacted to the required minimum density at the time of placement. Contractor shall demonstrate compaction capability of their proposed import material to the satisfaction of the Geotechnical Engineer prior to commencing these fills and backfilling. The Contractor's lump sum bid shall include this import material as needed in accordance with the Contractor's schedule for construction.

B. Unit Prices

1. Contractor shall include in the base bid the cost of achieving the final grades shown on the Contract Documents beginning with the existing conditions as represented in the site survey and Geotechnical report attached to, and included in, the Contract Documents. All

excavation to suitable bearing soil, export, import, placement, and compaction required to achieve the final grades and completed structures, as shown on the Contract Documents, shall be included in the base bid.

2. Over excavation:
 - a. The unit price shall be applied to un-anticipated unsuitable soils as determined by the VA Resident Engineer's appointed Geotechnical Engineer encountered below the anticipated sub grade elevation. Un-anticipated unsuitable material shall be that material below the sub-grade elevation that does not meet bearing capacity requirements as defined by the field Geotechnical Engineer.
 - b. The Contractor shall include in his basic bid the cost of over excavation and disposing of an assumed quantity at the unit price to be shown in the bid proposal.
 - 1) If the full assumed quantity of this over excavation is not required due to favorable site conditions, the Contractor shall credit back to the VA Resident Engineer the value of the un-required over excavation at his stated unit price. The contract will be reduced by Change Order accordingly.
 - 2) If a quantity greater than the assumed quantity of over excavation is required, the Contractor shall perform this work at the unit price stated in his bid and the contract will be increased by Change Order accordingly.
 - c. The Contractor shall not apply the Unit Price noted in Section 00300 to material that was not defined as unsuitable material by the Geotechnical Engineer.
3. For the purpose of compensation for work associated unanticipated unsuitable soils at the unit price stated in Section 00300 the Contractor shall be responsible for measuring the quantity of un-anticipated unsuitable material that is removed. The Contractor shall measure in place bank yards by field measurement that shall be observed, verified, and documented by the VA's Geotechnical Engineer prior to backfilling with imported structural fill. The Contractor shall note that measurement by truck tickets will not be accepted.

4. The Contractor will be compensated at his bid unit price for excavation and off-site disposal of un-anticipated soils only as verified and documented by the Geotechnical Engineer in the field. No compensation will be made to the Contractor for unverified and undocumented quantities.
5. Excavation and off-site disposal required to meet sub-grade elevations as defined in the Contract Documents, shall be included in the base bid and shall not be compensated using unit prices.
6. Excess Import: A unit price shall also be provided for import, placement and compaction of structural fill material for use in replacing over excavated un-anticipated unsuitable materials and/or as directed by the Geotechnical Engineer.
7. The Contractor will be compensated at his bid unit price for import only used in replacing over excavated un-anticipated unsuitable materials as approved, verified and documented by the Geotechnical Engineer in the field. Only import required by field determined deviations in the actual depth to competent bearing soils from that shown in the Contract Documents shall be compensated using the unit price.
8. The Contractor shall include in his base bid the cost of such excess import of an assumed quantity at the unit price to be shown in the bid proposal.
 - a. If the full assumed quantity of this excess import is not required due to favorable site conditions, the Contractor shall credit back to the VA Resident Engineer the value of the un-required import at his stated unit price. The contract will be reduced by Change Order accordingly.
 - b. If a quantity greater than the assumed quantity of excess import is required, the Contractor shall perform this work at the unit price stated in his bid and the contract will be increased by Change Order accordingly.
9. All import required for fill required to achieve final grades and completed structures as defined in the Contract Documents, shall be included in the base bid and shall not be compensated using unit prices.

10. Unauthorized Excavation and Import: The Contractor shall be responsible for all un-authorized excavation. The unit price shall not be applied to un-authorized excavation. The VA is not responsible for un-authorized excavation nor the import required to replace any unauthorized excavation unless approved by the Geotechnical Engineer.
11. Sub Grade: For the purpose of the Contractor Bid, the following shall define the sub-grade elevations:
 - a. Footings: The elevation of the bottom of the future footing or the bottom of excavation as shown whichever is lower.
 - b. Buildings: The elevation at the bottom of the capillary break or the bottom of excavation as shown, whichever is lower.
 - c. Walkways and Paving: The elevation at the bottom of the paving section.
 - d. Utility Trenches: The elevation of the bottom of the pipe bedding.
 - e. Landscaped Areas: The elevation below the stripping depth or the soil planting section, whichever is lower.
12. The Contractor will be compensated at his bid unit price for over-excavation beyond elevation of sub-grades noted on the drawings and off-site disposal only for soils judged unsuitable by the Geotechnical Engineer at the time of excavation. The Contractor will be compensated at his bid unit price for excess import for replacement of un-anticipated backfill.
13. Soil suitability will be influenced by the weather conditions and the Contractor's handling and protection of the material as it is removed and placed. It is the sole responsibility of the Contractor to protect soils from the elements. Material that is deemed unsuitable due to lack of protection will not be applied to the unit price. The Contractor will be responsible for removing such material and replacing with acceptable material at no additional cost to the VA Resident Engineer.
14. The Contractor shall not apply the Unit Price noted in Section 00300 to material that was not defined as unsuitable material by the Geotechnical Engineer.

1.6 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Furnish to Resident Engineer:
 - 1. Contactor shall furnish resumes with all personnel involved in the project including Project Manager, Superintendent, and on-site Engineer. Project Manager and Superintendent should have at least 3 years of experience on projects of similar size.
 - 2. Soil samples. Submit minimum 50 pound sample for each material four (4) business days prior to placing material. Provide sieve analysis from certified lab for each material. Provide current WSDOT pit certification for each material source pit.
 - a. Classification in accordance with ASTM D2487 for each on-site or borrow soil material proposed for fill, backfill, engineered fill, or structural fill.
 - b. Laboratory compaction curve in accordance with ASTM D 1557 for each on site or borrow soil material proposed for fill, backfill, engineered fill, or structural fill.
 - c. Test reports for compliance with ASTM D 2940 requirements for subbase material.
 - d. Pre-excavation photographs and videotape in the vicinity of the existing structures to document existing site features, including surfaces finishes, cracks, or other structural blemishes that might be misconstrued as damage caused by earthwork operations.
 - e. The Contractor shall submit a scale plan daily that defines the location, limits, and depths of the area excavated.
 - f. Tests and Inspection: Provide sieve analysis per ASTM D422 for each material type. Tests and analysis of aggregate material will be performed in accordance with WSDOT Standard Specifications. If tests indicate materials do not meet specified requirements, change material and retest.
 - 3. Contractor shall submit procedure and location for disposal of unused satisfactory material. Proposed source of borrow material. Notification of encountering rock in the project. Advance notice on the opening of excavation or borrow areas. Advance notice on shoulder construction for rigid pavements.
 - 4. Contractor shall submit engineered shoring design drawings stamped and signed by a registered Washington State engineer for approval prior to beginning shoring work.

1.7 APPLICABLE PUBLICATIONS:

- A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by basic designation only.

- B. American Association of State Highway and Transportation Officials (AASHTO):
 - T99-01 Moisture-Density Relations of Soils Using a 2.5 kg (5.5 lb) Rammer and a 305 mm (12 inch) Drop
 - T180-01 Moisture-Density Relations of Soils using a 4.54 kg (10 lb) Rammer and a 457 mm (18 inch) Drop
- C. American Society for Testing and Materials (ASTM):
 - C33-03..... Concrete Aggregate
 - D448-08..... Standard Classification for Sizes of Aggregate for Road and Bridge Construction
 - D698-07e1..... Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft. lbf/ft³ (600 kN m/m³))
 - D1140-00..... Amount of Material in Soils Finer than the No. 200 (75-micrometer) Sieve
 - D1556-07..... Standard Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method
 - D1557-09..... Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2700 kN m/m³))
 - D2167-08..... Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
 - D2487-11..... Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
 - D2940-09..... Standard Specifications for Graded Aggregate Material for Bases or Subbases for Highways or Airports
 - D6938-10..... Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- D. Society of Automotive Engineers (SAE):
 - J732-07 Specification Definitions - Loaders
 - J1179-08 Hydraulic Excavator and Backhoe Digging Forces
- E. Washington State Standard Specifications for Road, Bridge, and Municipal Construction, 2012.
- F. Geotechnical Report:
 - New Mental Health Building/Seismic Retrofit of Nursing Tower/New Parking garage VA Puget Sound Healthcare System Seattle, Washington. GeoEngineers, September 30, 2010.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Utility Trench Backfill: shall be imported Gravel Borrow in accordance with WSDOT 9-03.14(1).
- B. Pipe Bedding Material: shall be in accordance with WSDOT 9-03.12(3).
- C. Gravel Backfill for Drains: shall be 1" minus washed rock in accordance with WSDOT 9-03.12(4).
It shall be free of roots, organic matter, and other unsuitable materials.
- D. Foundation Gravel: Foundation Gravel shall meet the requirements of Section 9-03.12(1)A of the WSDOT Standard Specifications.
- E. Crushed Surfacing Top Course (CSTC): shall be manufactured from ledge rock, talus or gravel and shall be 5/8" minus for top course. Crushed surfacing top course shall conform to the gradations of Section 9-03.9(3) of the Standard Specification.
- F. Crushed Surfacing Base Course (CSBC): shall be manufactured from ledge rock, talus or gravel and shall be 1 1/4" minus for base course. Crushed surfacing base course shall conform to the gradations of Section 9-03.9(3) of the Standard Specification with the following revisions: the material passing the No. 200 sieve shall be 5.0% (maximum), and it shall have at least two mechanically fractured surfaces.
- G. Ballast: Ballast shall be in accordance with WSDOT 9-03.9(1).
- H. Capillary Break: Capillary Break placed under slab-on-grade floor shall be clean uniform gravel meeting the requirements for "Gravel Backfill for Drains", WSDOT Standard Specifications, Section 9-03.12(4)
- I. Structural Fill: All fill placed under buildings, footings, slab-on-grade floor, utility trenches, roadways, sidewalks, walkways, and all other paved areas shall be "structural fill" as defined herein, unless specified otherwise for particular applications. Structural fill shall be imported materials that conforms to the grading requirements of Gravel Borrow, Section 9-03.14(1) of the Standard Specifications, with the exception of the material passing the #200 sieve shall be less than 5%. The contractor is to assume that all structural fill is to be imported structural fill.
- J. Approval of Fill Material: All material which is proposed to be used as structural fill, common fill, and backfill shall be graded and tested for moisture content and compactability. All fill material shall be approved by the Government's testing agency.
- K. Common Fill: All fill placed under landscaped and vegetated areas to specified subgrade elevations shall be "common fill" as defined herein, unless specified otherwise for particular applications. Common Fill shall be granular material, either naturally occurring or processed. It shall be essentially free from various types of wood waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact readily. The

maximum particle size shall not exceed 6 inches. On-site Common Fill shall conform to WSDOT Section 9-03.14(3) except that the percent by weight passing the U.S. No. 200 sieve shall be less than 30% based on the portion passing the ¾ inch sieve. Imported Common Fill shall conform to the requirements of on-site Common Fill except that the percent by weight passing the U.S. No. 200 sieve shall not exceed 5 percent based on the portion passing the ¾ inch sieve.

- L. Quarry Spalls: Per Section 9-13.6 of WSDOT Standard Specifications.
- M. Tracer Tape:

Utility pipe tracer tape shall be detectable below ground surface, color coded, with utility name printed on tape. Conductive warning tape required over all sewer, drainage, water, and irrigation pipe. Tape shall be manufacturer's standard permanent, bright-colored, continuous printed plastic tape, aluminum backed, intended for direct-burial service. Tape shall be not less than 6" wide x 4 mils thick.

Tape Schedule:

Piping	<u>Color</u>	<u>Wording</u>
Domestic Water	Blue	Caution Domestic Water
Storm Sewer	Green	Caution Storm Sewer
Sanitary Sewer	Green	Caution Sanitary Sewer

- N. Controlled Density Fill (CDF): Per Section 2-09.3(1)E of WSDOT Standard Specifications

PART 3 - EXECUTION

3.1 SITE PREPARATION:

- A. Clearing: Clear within limits of earthwork operations as shown. Work includes removal of trees, shrubs, fences, foundations, incidental structures, paving, debris, trash, and other obstructions. Remove materials from Medical Center .
- B. Grubbing: Remove stumps and roots 3 inch and larger diameter. Undisturbed sound stumps, roots up to 3 inch diameter, and nonperishable solid objects a minimum of 3 feet below subgrade or finished embankment may be left.
- C. Trees and Shrubs: Trees and shrubs, not shown for removal, may be removed from areas within 4500 mm (15 feet) of new construction and 2250 mm (7.5 feet) of utility lines when removal is approved in advance by Resident Engineer. Remove materials from Medical Center. Box, and otherwise protect from damage, existing trees and shrubs which are not shown to be removed in construction area. Immediately repair damage to existing trees and shrubs by trimming, cleaning and painting damaged areas, including roots, in accordance with standard industry horticultural

practice for the geographic area and plant species. Do not store building materials closer to trees and shrubs, that are to remain, than farthest extension of their limbs.

- D. Stripping Topsoil: Strip topsoil from within limits of earthwork operations as specified. Topsoil shall be a fertile, friable, natural topsoil of loamy character and characteristic of locality. Topsoil shall be capable of growing healthy horticultural crops of grasses. Stockpile topsoil and protect as directed by Resident Engineer. Eliminate foreign materials, such as weeds, roots, stones, subsoil, frozen clods, and similar foreign materials larger than 0.014 m³ (1/2 cubic foot) in volume, from soil as it is stockpiled. Retain topsoil on station. Remove foreign materials larger than 50 mm (2 inches) in any dimension from topsoil used in final grading. Topsoil work, such as stripping, stockpiling, and similar topsoil work shall not, under any circumstances, be carried out when soil is wet so that the composition of the soil will be destroyed.
- E. Concrete Slabs and Paving: Score deeply or saw cut to insure a neat, straight cut, sections of existing concrete slabs and paving to be removed where excavation or trenching occurs. Extend pavement section to be removed a minimum of 300 mm (12 inches) on each side of widest part of trench excavation and insure final score lines are approximately parallel unless otherwise indicated. Remove material from Medical Center.
- F. Lines and Grades: Registered Professional Land Surveyor or Registered Civil Engineer, specified in Section 01 00 00, GENERAL REQUIREMENTS, shall establish lines and grades.
1. Grades shall conform to elevations indicated on plans within the tolerances herein specified. Generally grades shall be established to provide a smooth surface, free from irregular surface changes. Grading shall comply with compaction requirements and grade cross sections, lines, and elevations indicated. Where spot grades are indicated the grade shall be established based on interpolation of the elevations between the spot grades while maintaining appropriate transition at structures and paving and uninterrupted drainage flow into inlets.
 2. Locations of existing and proposed elevations indicated on plans, except spot elevations, are from a site survey that measured spot elevations and subsequently generated existing contours and spot elevations. Proposed spot elevations and contour lines have been developed utilizing the existing conditions survey and developed contour lines and may be approximate. . Contractor is responsible to notify Resident Engineer of any differences between existing elevations shown on plans and those encountered on site by Surveyor/Engineer described above. Notify Resident Engineer of any differences between existing or constructed grades, as compared to those shown on the plans.

3. Subsequent to establishment of lines and grades, Contractor will be responsible for any additional cut and/or fill required to ensure that site is graded to conform to elevations indicated on plans.
 4. Finish grading is specified in Section 32 90 00, PLANTING.
- G. Disposal: All materials removed from the property shall be disposed of at a legally approved site, for the specific materials, and all removals shall be in accordance with all applicable Federal, State and local regulations.

3.2 EXCAVATION:

- A. Shoring, Sheet piling and Bracing: Shore, brace, or slope, its angle of repose or to an angle considered acceptable by the Resident Engineer, banks of excavations to protect workmen, banks, adjacent paving, structures, and utilities.
1. Design of the temporary support of excavation system is the responsibility of the Contractor.
 2. Construction of the support of excavation system shall not interfere with the permanent structure and may begin only after a review by the Resident Engineer.
 3. Extend shoring and bracing to a minimum of 1500 mm (5 feet) below the bottom of excavation. Shore excavations that are carried below elevations of adjacent existing foundations.
 4. If bearing material of any foundation is disturbed by excavating, improper shoring or removal of existing or temporary shoring, placing of backfill, and similar operations, the Contractor shall provide a concrete fill support in compliance with specifications Section 31 23 23.33, FLOWABLE FILL, under disturbed foundations, as directed by Resident Engineer, at no additional cost to the Government. Do not remove shoring until permanent work in excavation has been inspected and approved by Resident Engineer.
- B. Excavation Drainage: Operate pumping equipment, and/or provide other materials, means and equipment as required to keep excavation free of water and subgrade dry, firm, and undisturbed until approval of permanent work has been received from Resident Engineer. Approval by the Resident Engineer is also required before placement of the permanent work on all subgrades.
- C. Subgrade Protection: Protect subgrades from softening, undermining, washout, or damage by rain or water accumulation. Reroute surface water runoff from excavated areas and not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches. When subgrade for foundations has been disturbed by water, remove disturbed material to firm undisturbed material after water is brought under control. Replace disturbed subgrade in trenches with concrete or material approved by the Resident Engineer.
- D. Proofrolling:

1. After rough grade has been established in cut areas and prior to placement of fill in fill areas under building and pavements, proofroll exposed subgrade with a fully loaded dump truck to check for pockets of soft material.
2. Proofrolling shall consist of at least two complete passes with one pass being in a direction perpendicular to preceding one. Remove any areas that deflect, rut, or pump excessively during proofrolling, or that fail to consolidate after successive passes to suitable soils and replaced with compacted fill. Maintain subgrade until succeeding operation has been accomplished.

E. Building Earthwork:

1. Excavation shall be accomplished as required by drawings and specifications.
2. Excavate foundation excavations to solid undisturbed subgrade.
3. Remove loose or soft materials to a solid bottom.
4. Fill excess cut under footings or foundations with 25 MPa (3000 psi) concrete poured separately from the footings.
5. Do not tamp earth for backfilling in footing bottoms, except as specified.
6. Slope grades to direct water away from excavations and to prevent ponding.
7. Capillary water barrier (granular fill) under concrete floor and area-way slabs on grade shall be placed directly on the subgrade and shall be compacted with a minimum of two passes of a hand-operated plate-type vibratory compactor.
8. Ensure that footing subgrades have been inspected and approved by the Resident Engineer prior to concrete placement. Excavate to bottom of pile cap prior to placing or driving piles, unless authorized otherwise by the Resident Engineer. Backfill and compact over excavations and changes in grade due to pile driving operations to 95 percent of ASTM D698 maximum density.

F. Trench Earthwork:

1. Utility trenches (except sanitary and storm sewer):
 - a. Excavate to a width as necessary for sheeting and bracing and proper performance of the work.
 - b. Grade bottom of trenches with bell holes scooped out to provide a uniform bearing.
 - c. Support piping on undisturbed earth unless a mechanical support is shown.
 - d. Length of open trench in advance of piping laying shall not be greater than is authorized by Resident Engineer.
 - e. Provide buried utility lines with utility identification tape. Bury tape 12 inches below finished grade; under pavements and slabs, bury tape 6 inches below top of subgrade

- f. Bury detection wire directly above non-metallic piping at a distance not to exceed 12 inches above the top of pipe. The wire shall extend continuously and unbroken, from manhole to manhole. The ends of the wire shall terminate inside the manholes at each end of the pipe, with a minimum of 3 feet of wire, coiled, remaining accessible in each manhole. The wire shall remain insulated over its entire length. The wire shall enter manholes between the top of the corbel and the frame, and extend up through the chimney seal between the frame and the chimney seal. For force mains, the wire shall terminate in the valve pit at the pump station end of the pipe.
 2. Sanitary and storm sewer trenches:
 - a. Trench width below a point 6 inches above top of pipe shall be 24 inches maximum for pipe up to and including 12 inches diameter, and four-thirds diameter of pipe plus 8 inches for pipe larger than 12 inches. Width of trench above that level shall be as necessary for sheeting and bracing and proper performance of the work.
 - b. Bed bottom quadrant of pipe on undisturbed soil or granular fill.
 - 1) Undisturbed: Bell holes shall be no larger than necessary for jointing. Backfill up to a point 12 inches above top of pipe shall be clean earth placed and tamped by hand.
 - 2) Granular Fill: Depth of fill shall be a minimum of 3 inches plus one sixth of pipe diameter below pipe to 12 inches above top of pipe. Place and tamp fill material by hand.
 - c. Place and compact as specified remainder of backfill using acceptable excavated materials. Do not use unsuitable materials.
 - d. Use granular fill for bedding where rock or rocky materials are excavated.
 - e. Provide buried utility lines with utility identification tape. Bury tape 12 inches below finished grade; under pavements and slabs, bury tape 6 inches below top of subgrade
 - f. Bury detection wire directly above non-metallic piping at a distance not to exceed 12 inches above the top of pipe. The wire shall extend continuously and unbroken, from manhole to manhole. The ends of the wire shall terminate inside the manholes at each end of the pipe, with a minimum of 3 feet of wire, coiled, remaining accessible in each manhole. The wire shall remain insulated over its entire length. The wire shall enter manholes between the top of the corbel and the frame, and extend up through the chimney seal between the frame and the chimney seal. For force mains, the wire shall terminate in the valve pit at the pump station end of the pipe.
- G. Site Earthwork: Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with

soil, boulders, and other materials not classified as rock or unauthorized excavation. Excavation shall be accomplished as required by drawings and specifications. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, complying with OSHA requirements, and for inspections. Remove subgrade materials that are determined by Resident Engineer as unsuitable, and replace with acceptable material. Testing of the soil shall be performed by the VA Testing Laboratory. When unsuitable material is encountered and removed, contract price and time will be adjusted in accordance with Articles, DIFFERING SITE CONDITIONS, CHANGES and CHANGES-SUPPLEMENT of the GENERAL CONDITIONS as applicable. Adjustments to be based on volume in cut section only.

1. Site Grading:

- a. Provide a smooth transition between adjacent existing grades and new grades.
- b. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- c. Slope grades to direct water away from buildings and to prevent ponds from forming where not designed. Finish subgrades to required elevations within the following tolerances:

1) Lawn or Unpaved Areas: Plus or minus 25 mm (1 inch).

2) Walks: Plus or minus 25 mm (1 inch).

3) Pavements: Plus or minus 13 mm (1/2 inch).

- d. Grading Inside Building Lines: Finish subgrade to a tolerance of 13 mm (1/2 inch) when tested with a 3000 mm (10 foot) straightedge.

3.4 FILLING AND BACKFILLING:

- A. General: Do not fill or backfill until all debris, water, unsatisfactory soil materials, obstructions, and deleterious materials have been removed from excavation. For fill and backfill, use excavated materials and borrow meeting the criteria specified herein, as applicable. Borrow will be supplied at no additional cost to the Government. Do not use unsuitable excavated materials. Do not backfill until foundation walls have been completed above grade and adequately braced, waterproofing or dampproofing applied, foundation drainage, and pipes coming in contact with backfill have been installed and work inspected and approved by Resident Engineer.
- B. Placing: Place materials in horizontal layers not exceeding 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers and then compacted. Place backfill and fill

materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure. Place no material on surfaces that are muddy, frozen, or contain frost.

- C. Compaction: Compact with approved tamping rollers, sheepfoot rollers, pneumatic tired rollers, steel wheeled rollers, vibrator compactors, or other approved equipment (hand or mechanized) well suited to soil being compacted. Do not operate mechanized vibratory compaction equipment within 10 feet of new or existing building walls without prior approval of Resident Engineer.

Moisten or aerate material as necessary to provide moisture content that will readily facilitate obtaining specified compaction with equipment used. Compact soil to not less than the following percentages of maximum dry density, according to ASTM D698 or ASTM D1557 as specified below:

1. Fills, Embankments, and Backfill

- a. Under proposed structures, building slabs, steps, and paved areas, scarify and recompact top 300 mm (12 inches) of existing subgrade and each layer of backfill or fill material in accordance with ASTM D1557 to 95 percent.
- b. Curbs, curbs and gutters, ASTM D1557 to 95 percent.
- c. Under Sidewalks, scarify and recompact top 150 mm (6 inches) below subgrade and compact each layer of backfill or fill material in accordance with ASTM D1557 to 95 percent.
- d. Landscaped areas, top 400 mm (16 inches), ASTM D1557 to 85 percent.
- e. Landscaped areas, below 400 mm (16 inches) of finished grade, ASTM D1557 to 90 percent.

2. Natural Ground (Cut or Existing)

- a. Under building slabs, steps and paved areas, top 150 mm (6 inches), ASTM D1557 to 95 percent.
- b. Curbs, curbs and gutters, top 150 mm (6 inches), ASTM D1557 to 95 percent.
- c. Under sidewalks, top 150 mm (6 inches), ASTM D 1556 to 95 percent.

- D. Borrow Material: Borrow material shall be selected to meet the requirements and conditions of the particular fill or embankment for which it is to be used. Borrow material shall be obtained from the borrow areas within the limits of the project site, or from approved private sources. Unless otherwise provided in the contract, the Contractor shall obtain from the VA Resident Engineers the right to procure material, pay royalties and other charges involved, and bear the expense of developing the sources, including rights-of-way for hauling. Borrow material from approved sources on Government-controlled land may be obtained without payment of royalties. Unless specifically provided, no borrow shall be obtained within the limits of the project site without prior

written approval. Necessary clearing, grubbing, and satisfactory drainage of borrow pits and the disposal of debris thereon shall be considered related operations to the borrow excavation.

- E. Opening and Drainage of Excavation and Borrow Pits: The Contractor shall notify the Resident Engineer sufficiently in advance of the opening of any excavation or borrow pit to permit elevations and measurements of the undisturbed ground surface to be taken. Except as otherwise permitted, borrow pits and other excavation areas shall be excavated providing adequate drainage. Overburden and other spoil material shall be transported to designated spoil areas or otherwise disposed of as directed. Borrow pits shall be neatly trimmed and drained after the excavation is completed. The Contractor shall ensure that excavation of any area, operation of borrow pits, or dumping of spoil material results in minimum detrimental effects on natural environmental conditions.

3.5 GRADING:

- A. General: Uniformly grade the areas within the limits of this section, including adjacent transition areas. Smooth the finished surface within specified tolerance. Provide uniform levels or slopes between points where elevations are indicated, or between such points and existing finished grades. Provide a smooth transition between abrupt changes in slope.
- B. Cut rough or sloping rock to level beds for foundations. In pipe spaces or other unfinished areas, fill low spots and level off with coarse sand or fine gravel.
- C. Slope backfill outside building away from building walls for a minimum distance of 1800 mm (6 feet).
- D. Finish grade earth floors in pipe basements as shown to a level, uniform slope and leave clean.
- E. Finished grade shall be at least 150 mm (6 inches) below bottom line of window or other building wall openings unless greater depth is shown.
- F. Place crushed stone or gravel fill under concrete slabs on grade, tamped, and leveled. Thickness of fill shall be 150 mm (6 inches) unless otherwise shown.
- G. Finish subgrade in a condition acceptable to Resident Engineer at least one day in advance of paving operations. Maintain finished subgrade in a smooth and compacted condition until succeeding operation has been accomplished. Scarify, compact, and grade subgrade prior to further construction when approved compacted subgrade is disturbed by Contractor's subsequent operations or adverse weather.
- H. Grading for Paved Areas: Provide final grades for both subgrade and base course to +/- 6 mm (0.25 inches) of indicated grades.

3.6 DISPOSAL OF UNSUITABLE AND EXCESS EXCAVATED MATERIAL:

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Medical Center property.
- C. Place excess excavated materials suitable for fill and/or backfill on site where directed.
- D. Remove from site and dispose of any excess excavated materials after all fill and backfill operations have been completed.
- E. Segregate all excavated contaminated soil designated by the Resident Engineer from all other excavated soils, and stockpile on site on two 0.15 mm (6 mil) polyethylene sheets with a polyethylene cover. A designated area shall be selected for this purpose. Dispose of excavated contaminated material in accordance with State and Local requirements.

3.7 CLEAN UP:

Upon completion of earthwork operations, clean areas within contract limits, remove tools, and equipment. Provide site clear, clean, free of debris, and suitable for subsequent construction operations. Remove all debris, rubbish, and excess material from Medical Center.

----- E N D -----

**SECTION 32 05 23
CEMENT AND CONCRETE FOR EXTERIOR IMPROVEMENTS**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section shall cover site work concrete constructed upon the prepared subgrade and in conformance with the lines, grades, thickness, and cross sections shown. Construction shall include the following:
- B. Curb, gutter, and combination curb and gutter, wheel stop.
- C. Pedestrian Pavement: Walks, grade slabs, lawn mower strips, crossings, wheelchair curb ramps.
- D. Vehicular Pavement: Service courts driveways.

1.2 RELATED WORK

- A. Laboratory and Field Testing Requirements: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Subgrade Preparation: Section 31 20 00, EARTH MOVING.
- C. Concrete Materials, Quality, Mixing, Design and Other Requirements: Section 03 30 00, CAST-IN-PLACE-CONCRETE.
- D. Metal Components of Steps (Nosing and Railing): Section 05 50 00, METAL FABRICATIONS.

1.3 DESIGN REQUIREMENTS

Design all elements with the latest published version of applicable codes.

1.4 WEATHER LIMITATIONS

Placement of concrete shall be as specified under Article 3.8, COLD WEATHER and Article 3.7, HOT WEATHER of Section 03 30 00, CAST-IN-PLACE CONCRETE.

1.5 SELECT SUBBASE MATERIAL JOB-MIX

The Contractor shall retain and reimburse a testing laboratory to design a select subbase material mixture and submit a job-mix formula to the Resident Engineer, in writing, for approval. The formula shall include the source of materials, gradation, plasticity index, liquid limit, and laboratory compaction curves indicating maximum density at optimum moisture.

1.6 SUBMITTALS

Contractor shall submit the following.

- A. Manufacturers' Certificates and Data certifying that the following materials conform to the requirements specified.
 - 1. Expansion joint filler
 - 2. Hot poured sealing compound
 - 3. Reinforcement

D1.4/D1.4M (2005)..... Structural Welding Code - Reinforcing Steel

PART 2 - PRODUCTS

2.1 GENERAL

A. Concrete Type: Concrete shall be as per Table 1 – Concrete Type, air entrained.

TABLE I – CONCRETE TYPE

	Concrete Strength		Non-Air-Entrained	Air-Entrained	
	Min. 28 Day Comp. Str. Psi (MPa)	Min. Cement lbs/c. yd (kg/m ³)	Max. Water Cement Ratio	Min. Cement lbs/c. yd (kg/m ³)	Max. Water Cement Ratio
Type A	5000 (35) ^{1,3}	630 (375)	0.45	650 (385)	0.40
Type B	4000 (30) ^{1,3}	550 (325)	0.55	570 (340)	0.50
Type C	3000 (25) ^{1,3}	470 (280)	0.65	490 (290)	0.55
Type D	3000 (25) ^{1,2}	500 (300)	*	520 (310)	*

1. If trial mixes are used, the proposed mix design shall achieve a compressive strength 1200 psi (8.3 MPa) in excess of the compressed strength. For concrete strengths above 5000 psi (35 Mpa), the proposed mix design shall achieve a compressive strength 1400 psi (9.7 MPa) in excess of the compressed strength.
2. For concrete exposed to high sulfate content soils maximum water cement ratio is 0.44.
3. Determined by Laboratory in accordance with ACI 211.1 for normal concrete or ACI 211.2 for lightweight structural concrete.

B. Maximum Slump: Maximum slump, as determined by ASTM C143 with tolerances as established by ASTM C94, for concrete to be vibrated shall be as shown in Table II.

TABLE II – MAXIMUM SLUMP – INCHES (MM)

TYPE	MAXIMUM SLUMP*
Curb & Gutter	3 inches (75 mm)
Pedestrian Pavement	3 inches (75 mm)
Vehicular Pavement	2 inches (50 mm) (Machine Finished) 4 inches (100 mm) (Hand Finished)
Equipment Pad	3 to 4 inches (75 to 100 mm)
* For concrete to be vibrated: Slump as determined by ASTM C143. Tolerances as established by ASTM C94.	

4. If the elevation of the top layer is 13 mm (1/2 inch) or more below the grade, excavate the top layer and replace with new material to a depth of at least 75 mm (3 inches) in compacted thickness.

C. Compaction:

1. Perform compaction with approved equipment (hand or mechanical) well suited to the material being compacted.
2. Moisten or aerate the material as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used.
3. Compact each layer to at least 95 percent or 100 percent of maximum density as specified in Section 31 20 00, EARTHWORK.

D. Smoothness Test and Thickness Control:

Test the completed subbase for grade and cross section with a straight edge.

1. The surface of each layer shall not show any deviations in excess of 10 mm (3/8 inch).
2. The completed thickness shall be within 13 mm (1/2 inch) of the thickness as shown.

E. Protection:

1. Maintain the finished subbase in a smooth and compacted condition until the concrete has been placed.
2. When Contractor's subsequent operations or adverse weather disturbs the approved compacted subbase, excavate, and reconstruct it with new material meeting the requirements herein specified, at no additional cost to the Government.

3.3 SETTING FORMS

A. Base Support:

1. Compact the base material under the forms true to grade so that, when set, they will be uniformly supported for their entire length at the grade as shown.
2. Correct imperfections or variations in the base material grade by cutting or filling and compacting.

B. Form Setting:

1. Set forms sufficiently in advance of the placing of the concrete to permit the performance and approval of all operations required with and adjacent to the form lines.
2. Set forms to true line and grade and use stakes, clamps, spreaders, and braces to hold them rigidly in place so that the forms and joints are free from play or movement in any direction.
3. Forms shall conform to line and grade with an allowable tolerance of 3 mm (1/8 inch) when checked with a straightedge and shall not deviate from true line by more than 6 mm (1/4 inch) at any point.

**SECTION 32 12 16
ASPHALT PAVING**

PART 1 - GENERAL

1.1 DESCRIPTION

This work shall cover the composition, mixing, construction upon the prepared subgrade, and the protection of hot asphalt concrete pavement. The hot asphalt concrete pavement shall consist of an aggregate or asphalt base course and asphalt surface course constructed in conformity with the lines, grades, thickness, and cross sections as shown. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course.

1.2 RELATED WORK

- A. Laboratory and field testing requirements: Section 01 45 29, TESTING LABORATORY SERVICES.
- B. Subgrade Preparation: Paragraph 3.3 and Section 31 20 00, EARTH MOVING.
- C. Pavement Markings: Section 32 17 23, PAVEMENT MARKINGS.

1.3 INSPECTION OF PLANT AND EQUIPMENT

The Resident Engineer shall have access at all times to all parts of the material producing plants for checking the mixing operations and materials and the adequacy of the equipment in use.

1.4 ALIGNMENT AND GRADE CONTROL

The Contractor's Registered Professional Land Surveyor shall establish and control the pavement (aggregate or asphalt base course and asphalt surface course) alignments, grades, elevations, and cross sections as shown on the Drawings.

1.5 SUBMITTALS

- A. In accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES, furnish the following:
- B. Data and Test Reports:
 - 1. Aggregate Base Course: Sources, gradation, liquid limit, plasticity index, percentage of wear, and other tests required by State Highway Department.
 - 2. Asphalt Base/Surface Course: Aggregate source, gradation, soundness loss, percentage of wear, and other tests required by State Highway Department.
 - 3. Job-mix formula.
- C. Certifications:
 - 1. Asphalt prime and tack coat material certificate of conformance to State Highway Department requirements.
 - 2. Asphalt cement certificate of conformance to State Highway Department requirements.

3. Job-mix certification - Submit plant mix certification that mix equals or exceeds the State Highway Specification.

D. One copy of State Highway Department Specifications.

E. Provide MSDS (Material Safety Data Sheets) for all chemicals used on ground.

PART 2 - PRODUCTS

2.1 GENERAL

A. Aggregate base and asphalt concrete materials shall conform to the requirements of the following and other appropriate sections of the latest version of the State Highway Material Specifications, including amendments, addenda and errata. Where the term "Engineer" or "Commission" is referenced in the State Highway Specifications, it shall mean the VA Resident Engineer or VA Contracting Officer.

2.2 AGGREGATES

A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable mineral materials processed and blended, and naturally combined.

B. Subbase aggregate (where required) maximum size: 38mm(1-1/2").

C. Base aggregate maximum size:

1. Base course over 152mm(6") thick: 38mm(1-1/2");

2. Other base courses: 19mm(3/4").

D. Asphaltic base course:

1. Maximum particle size not to exceed 25.4mm(1").

2. Where conflicts arise between this specification and the requirements in the latest version of the State Highway Specifications, the State Specifications shall control.

E. Aggregates for asphaltic concrete paving: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

<u>Sieve Sizes</u>	<u>Percentage Passing</u>
19mm(3/4")	100
9.5mm(3/8")	67 to 85
6.4mm(1/4")	50 to 65
2.4mm(No. 8 mesh)	37 to 50
600µm(No. 30 mesh)	15 to 25
75µm(No. 200 mesh)	3 to 8

plus 50/60 penetration liquid asphalt at 5 percent to 6-1/2 percent of the combined dry aggregates.

2.3 ASPHALTS

- A. Comply with provisions of Asphalt Institute Specification SS2:
 - 1. Asphalt cement: Penetration grade 50/60
 - 2. Prime coat: Cut-back type, grade MC-250
 - 3. Tack coat: Uniformly emulsified, grade SS-1H

2.4 SEALER

- A. Provide a sealer consisting of suitable fibrated chemical type asphalt base binders and fillers having a container consistency suitable for troweling after thorough stirring, and containing no clay or other deleterious substance.
- B. Where conflicts arise between this specification and the requirements in the latest version of the State Highway Specifications, the State Specifications shall control.

PART 3 - EXECUTION

3.1 GENERAL

The Asphalt Concrete Paving equipment, weather limitations, job-mix formula, mixing, construction methods, compaction, finishing, tolerance, and protection shall conform to the requirements of the appropriate sections of the State Highway Specifications for the type of material specified.

3.2 MIXING ASPHALTIC CONCRETE MATERIALS

- A. Provide hot plant-mixed asphaltic concrete paving materials.
 - 1. Temperature leaving the plant: 143 degrees C(290 degrees F) minimum, 160 degrees C(320 degrees F) maximum.
 - 2. Temperature at time of placing: 138 degrees C(280 degrees F) minimum.

3.3 SUBGRADE

- A. Shape to line and grade and compact with self-propelled rollers.
- B. All depressions that develop under rolling shall be filled with acceptable material and the area re-rolled.
- C. Soft areas shall be removed and filled with acceptable materials and the area re-rolled.
- D. Should the subgrade become rutted or displaced prior to the placing of the subbase, it shall be reworked to bring to line and grade.
- E. Proof-roll the subgrade with maximum 45 tonne (50 ton) gross weight dump truck as directed by VA Resident Engineer or VA Contracting Officer. If pumping, pushing, or other movement is observed, rework the area to provide a stable and compacted subgrade.

3.4 BASE COURSES

- A. Subbase
 - 1. Spread and compact to the thickness shown on the drawings.
 - 2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
 - 3. After completion of the subbase rolling there shall be no hauling over the subbase other than the delivery of material for the top course.
- B. Base
 - 1. Spread and compact to the thickness shown on the drawings.
 - 2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
 - 3. After completion of the base rolling there shall be no hauling over the base other than the delivery of material for the top course.
- C. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0mm (0.0") to plus 12.7mm (0.5").
- D. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 5mm in 3m (3/16 inch in ten feet).
- E. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

3.5 PLACEMENT OF ASPHALTIC CONCRETE PAVING

- A. Remove all loose materials from the compacted base.
- B. Apply the specified prime coat, and tack coat where required, and allow to dry in accordance with the manufacturer's recommendations as approved by the Architect or Engineer.
- C. Receipt of asphaltic concrete materials:
 - 1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 130 degrees C(280 degrees F).
 - 2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 10 degrees C (50 degrees F), not during fog, rain, or other unsuitable conditions.
- D. Spreading:
 - 1. Spread material in a manner that requires the least handling.
 - 2. Where thickness of finished paving will be 76mm (3") or less, spread in one layer.
- E. Rolling:
 - 1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the drawings.
 - 2. Roll in at least two directions until no roller marks are visible.

3. Finished paving smoothness tolerance:
 - a. No depressions which will retain standing water.
 - b. No deviation greater than 3mm in 1.8m (1/8" in six feet).

3.6 APPLICATION OF SEAL COAT

- A. Prepare the surfaces, mix the seal coat material, and apply in accordance with the manufacturer's recommendations as approved by the Architect or Engineer.
- B. Apply one coat of the specified sealer.
- C. Achieve a finished surface seal which, when dry and thoroughly set, is smooth, tough, resilient, of uniform black color, and free from coarse textured areas, lap marks, ridges, and other surface irregularities.

3.7 PROTECTION

Protect the asphaltic concrete paved areas from traffic until the sealer is set and cured and does not pick up under foot or wheeled traffic.

3.8 FINAL CLEAN-UP

Remove all debris, rubbish, and excess material from the work area.

--- E N D ---

Vertical Datum

NAVD 88 RELATIVE TO CITY OF SEATTLE BENCHMARK 2602, PUBLISHED ELEV= 346.236, AND CITY OF SEATTLE BENCHMARK 2603, PUBLISHED ELEV= 329.154. ELEV'S WERE EXTENDED TO THE SITE USING CLOSED-LOOP, DIFFERENTIAL LEVELING METHODS.

0 30 60 120

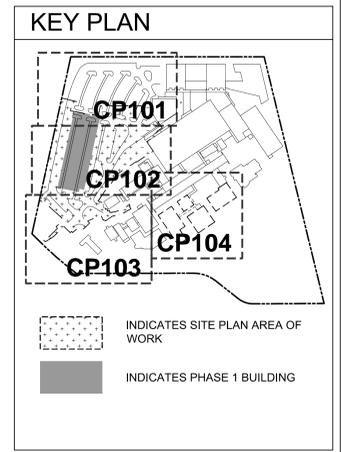
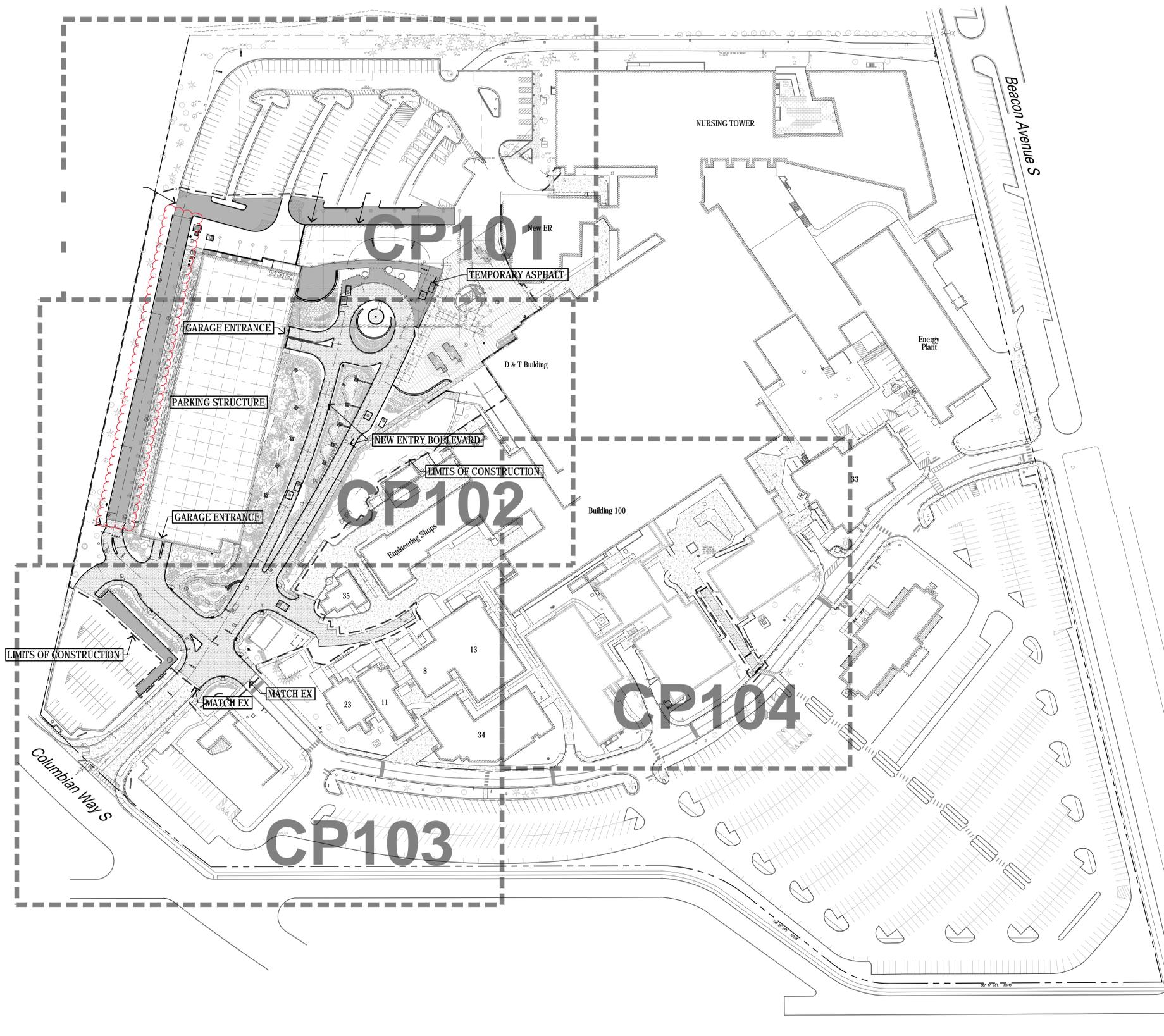
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Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

General Paving Notes

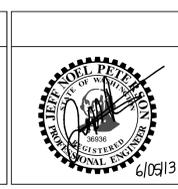
1. A COPY OF THE APPROVED PLANS SHALL BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMIT PRIOR TO BEGINNING CONSTRUCTION.
2. ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY AND AVAILABLE RECORDS AND SHOULD THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
3. ALL ASPHALT CONCRETE WORK IN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF SEATTLE STANDARDS AND SPECIFICATIONS.
4. ALL ASPHALT CONCRETE WORK ON THE PROJECT SITE SHALL CONFORM TO THE "2012 WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION".
5. ALL ASPHALT CONCRETE PAVEMENT SHALL BE PLACED IN ACCORDANCE WITH WSDOT/APWA SECTION 5-04 UNLESS OTHERWISE SPECIFICALLY NOTED.
6. SUB-GRADE SHALL BE COMPACTED TO 95% MAX DENSITY, PROOF ROLL AND REMOVE ANY SOFT SPOTS. REPLACE REMOVED MATERIAL WITH STRUCTURAL FILL PER THE GEOTECHNICAL REPORT DATED 9-30-2010. CONTRACTOR SHALL TEST AND VERIFY SUBGRADE MEETS COMPACTION REQUIREMENTS PRIOR TO PAVING COORDINATE WITH PROJECT GEOTECH.
7. AGGREGATE SHALL BE TYPE CLASS B, 1/2 INCH MAXIMUM MEDIUM GRADING, CONFORMING TO SECTION 9-3.8 OF THE WSDOT-APWA. ASPHALT BINDER SHALL BE PAVING ASPHALT, GRADE AR-4000, AND SHALL COMPLY WITH SECTION 9-02.1 OF WSDOT-APWA. ASPHALT CONCRETE MIXING AND PROPORTIONING SHALL COMPLY WITH SECTION 9-03.8 OF THE WSDOT-APWA.
8. CRUSHED SURFACING SHALL BE PLACED IN ACCORDANCE WITH WSDOT- APWA SECTION 4-04 AND SHALL MEET THE REQUIREMENTS OF WSDOT-APWA 9-03.9(3).
9. CONTRACTOR SHALL PREPARE THE EXISTING ASPHALT PAVEMENT SURFACE TO BE OVERLAID IN ACCORDANCE WITH WSDOT-APWA 5-04.3(5).
10. SAWCUT EXISTING ASPHALT FULL DEPTH WHERE NEW PAVEMENT ABUTS EXISTING.
11. APPLY TACK COAT TO ALL EXISTING PAVEMENT SURFACES TO BE OVERLAID OR ABUTTED WITH NEW ASPHALT PAVEMENT. TACK COAT SHALL NOT BE APPLIED IN TEMPERATURES BELOW 50 DEGREES F.
12. CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING FEATURES TO REMAIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR REPAIRING OR REPLACING TO THE VA RESIDENT ENGINEERS' SATISFACTION ANY AREA THAT DEFACEMENT OR DAMAGED HAS OCCURRED AT NO COST TO THE VA.
13. CONTRACTOR SHALL AVOID UNNECESSARY DISTURBANCE TO STEEP SLOPES AS TO NOT INCREASE THE POTENTIAL FOR INSTABILITY.
14. CONTRACTOR SHALL PROTECT ALL FINISHED SURFACES. ALLOW NO HEAVY OBJECTS TO BE MOVED OVER FINISHED SURFACES. CONTRACTOR SHALL REPAIR AT NO COST TO THE VA RE ANY RUTS, AREAS SHOWING SETTLEMENT, AND ANY OBSTRUCTIONS TO POSITIVE DRAINAGE. CONTRACTOR SHALL NOT ALLOW VEHICULAR TRAFFIC ON ASPHALT PAVEMENT UNTIL IT IS COOLED AND HARDENED AND IN NO CASE SOONER THAN 6 HOURS AFTER PLACING.
15. THE CONTRACTOR SHALL REPAIR RACKS, UNSATISFACTORY ELEVATION IRREGULARITIES IMMEDIATELY UPON NOTIFICATION, AND REPLACE ANY PAVING NOT DRAINING PROPERLY AT THE CONTRACTORS SOLE EXPENSE AS DETERMINED BY THE VA RE, IN ACCORDANCE W/ THE CONTRACT DOCUMENTS.
16. LEAVE PREMISES CLEAN AND FREE OF RESIDUE OF WORK FROM PAVING.
17. SEE CHANNELIZATION PLANS FOR STRIPING REQUIREMENTS.
18. PAVING NOTES ARE CONTINUED ON DETAIL 1, SHEET CP201.



CONSTRUCTION DOCUMENTS - CD2	06.05.2013
Revisions:	Date

CONSULTANTS:

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ARCHITECT

STANTEC | THE DESIGN PARTNERSHIP

Drawing Title
 Site Development
 Paving & Horizontal Control Index Plan

Drawing Scale
 As Shown

Approved: Project Director

Project Title
 Parking Structure and Entry Drive VAPSHCS Seattle Division
 Phase 1
 PARKING STRUCTURE AND ENTRY DRIVE

Location
 1660 South Columbian Way, Seattle, WA 98105

Date
 JUNE 5, 2013

Checked
 JCF, JNP

Drawn
 SAS

Project Number
 VA# 663-405A

Building Number

Drawing Number
 VOL. 2

CP100

Office of Construction and Facilities Management

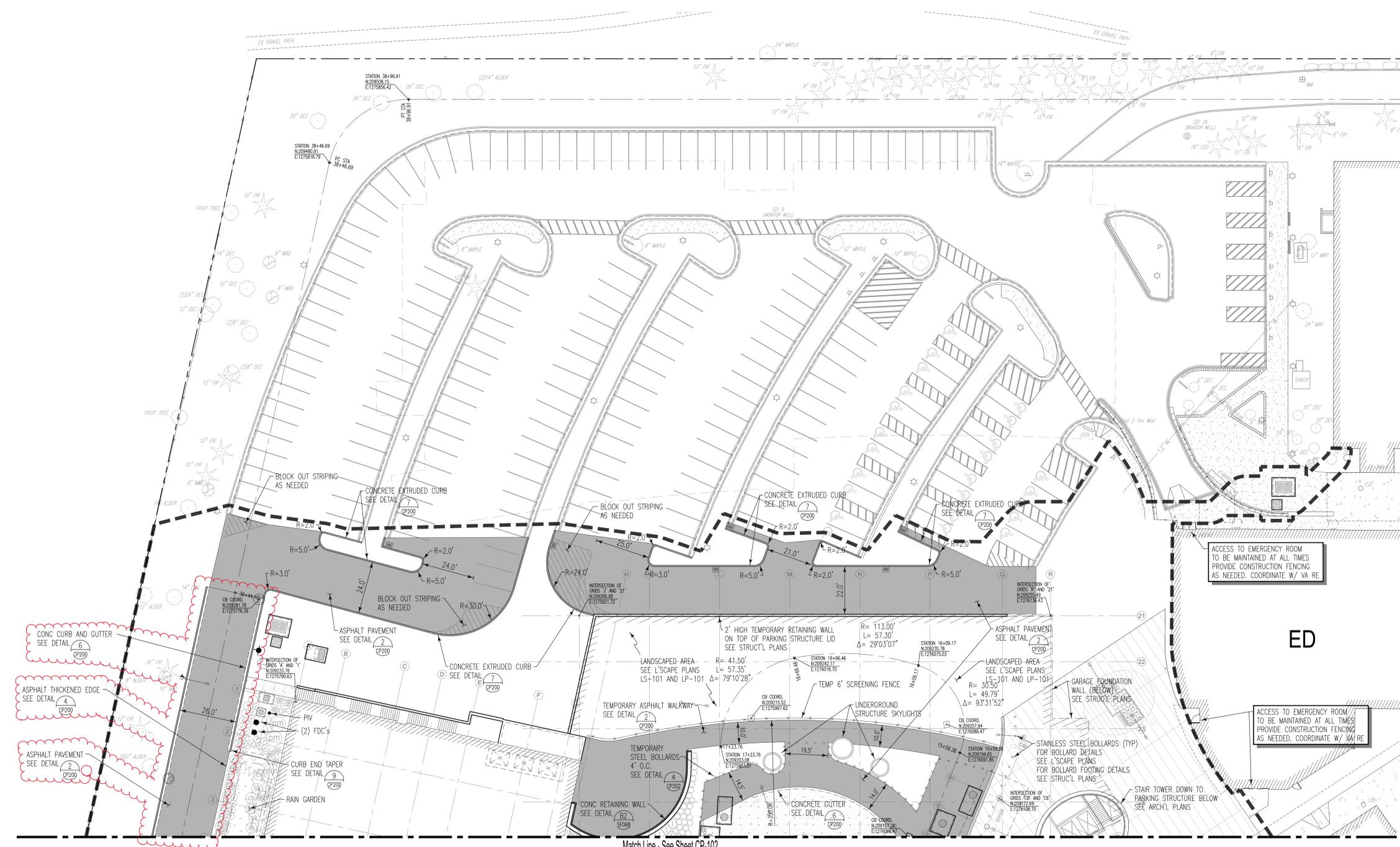
Department of Veterans Affairs

CONSTRUCTION DOCUMENT 2 FULLY SPRINKLERED

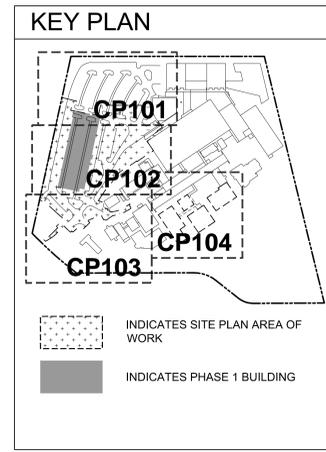
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General Notes
 1. FOR STANDARD STORM STRUCTURE NORTHING AND EASTING LOCATION COORDINATES - SEE STRUCTURE ALIGNMENT DETAILS T2/CP202
 2. OTHER UTILITY NORTHING AND EASTINGS ARE TO CENTER OF STRUCTURE OR PIPE JOINT

Nursing Tower



Match Line - See Sheet CP-102



LEGEND

EXISTING	REMOVE	PROPOSED	EXISTING	REMOVE	PROPOSED
ASPHALT PAVING			TREE W/ PROTECTION		
CONCRETE PAVING			WATER METER/VALVE/FH		
BUILDINGS			STORM CB/MH		
CURBING			SANITARY SEWER MH/CO		
ROCKERY			GAS VALVE/METER		
WATER LINE			STREET LIGHT ASSEMBLY		
STORM DRAINAGE LINE			CONSTRUCTION LIMITS		
SANITARY SEWER LINE					
POWER					
COMM LINE					
GAS LINE					

NOTES:
 RAIN GARDENS - SEE GRADING AND DRAINAGE SHEETS FOR DESIGN INFORMATION
 CONCRETE JOINTS, LOCATIONS AND FINISHES - SEE LANDSCAPE PLANS

CONSULTANTS:

COUGHLIN PORTER LUNDEEN
 A CONSULTING STRUCTURAL AND CIVIL ENGINEERING CORPORATION
 413 PINE STREET - SUITE 300 SEATTLE, WA 98101
 P: 206/343-0460 F: 206/343-5691



ARCHITECT

STANTEC | THE DESIGN PARTNERSHIP

Drawing Title
 Site Development Paving & Horizontal Control Plan

Drawing Scale
 As Shown

Approved: Project Director

Project Title
 Parking Structure and Entry Drive VAPSHCS Seattle Division Phase 1 PARKING STRUCTURE AND ENTRY DRIVE

Location
 1660 South Columbian Way, Seattle, WA 98105

Date
 JUNE 5, 2013

Checked
 JCF, JNP

Drawn
 SAS

Project Number
 VA# 663-405A

Building Number

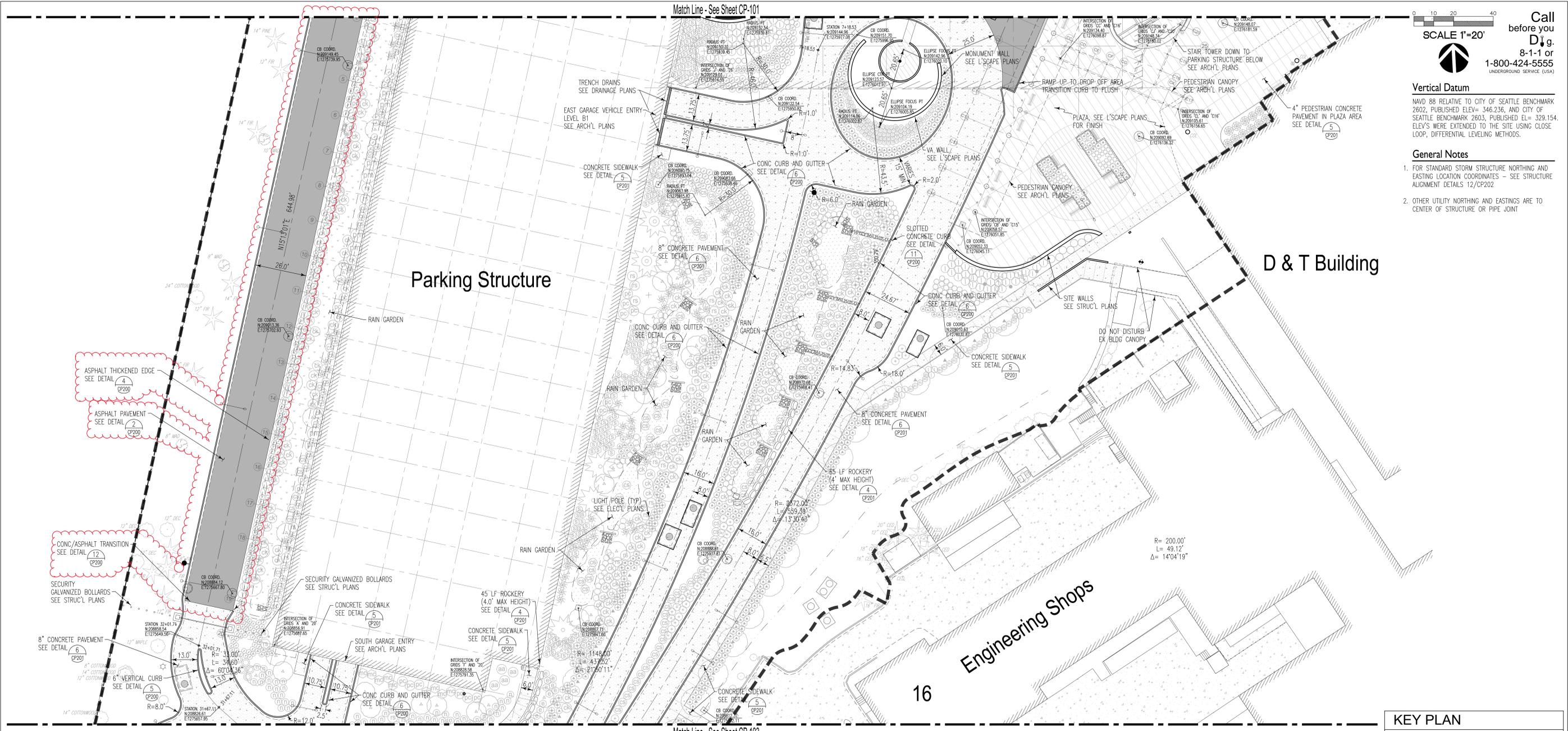
Drawing Number
 VOL. 2
 CP101

Office of Construction and Facilities Management

Department of Veterans Affairs

CONSTRUCTION DOCUMENT 2 FULLY SPRINKLERED

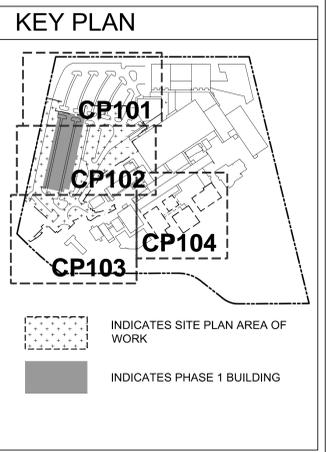
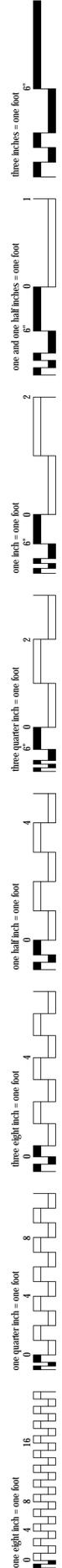
three inches = one foot
 one and one half inches = one foot
 one inch = one foot
 three quarter inch = one foot
 one half inch = one foot
 three eighth inch = one foot
 one eighth inch = one foot
 one quarter inch = one foot
 one eighth inch = one foot



Call before you Dig.
8-1-1 or 1-800-424-5555
UNDERGROUND SERVICE (USA)

Vertical Datum
NAVD 88 RELATIVE TO CITY OF SEATTLE BENCHMARK 2602, PUBLISHED ELEV= 346.236, AND CITY OF SEATTLE BENCHMARK 2603, PUBLISHED EL= 329.154. ELEV'S WERE EXTENDED TO THE SITE USING CLOSE LOOP, DIFFERENTIAL LEVELING METHODS.

General Notes
1. FOR STANDARD STORM STRUCTURE NORTHING AND EASTING LOCATION COORDINATES - SEE STRUCTURE ALIGNMENT DETAILS 12/CP202
2. OTHER UTILITY NORTHINGS AND EASTINGS ARE TO CENTER OF STRUCTURE OR PIPE JOINT



LEGEND

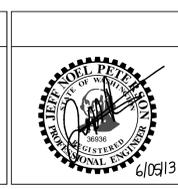
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CONCRETE PAVING	[Pattern]	[Pattern]	[Pattern]	WATER METER/VALVE/FH	[Symbol]	[Symbol]	[Symbol]
BUILDINGS	[Pattern]	[Pattern]	[Pattern]	STORM CB/MH	[Symbol]	[Symbol]	[Symbol]
CURBING	[Pattern]	[Pattern]	[Pattern]	SANITARY SEWER MH/CO	[Symbol]	[Symbol]	[Symbol]
ROCKERY	[Pattern]	[Pattern]	[Pattern]	GAS VALVE/METER	[Symbol]	[Symbol]	[Symbol]
RECORD UTILITIES	[Pattern]	[Pattern]	[Pattern]	STREET LIGHT ASSEMBLY	[Symbol]	[Symbol]	[Symbol]
WATER LINE	[Symbol]	[Symbol]	[Symbol]	CONSTRUCTION LIMITS	[Symbol]	[Symbol]	[Symbol]
STORM DRAINAGE LINE	[Symbol]	[Symbol]	[Symbol]				
SANITARY SEWER LINE	[Symbol]	[Symbol]	[Symbol]				
POWER	[Symbol]	[Symbol]	[Symbol]				
COMM LINE	[Symbol]	[Symbol]	[Symbol]				
GAS LINE	[Symbol]	[Symbol]	[Symbol]				

CONSTRUCTION DOCUMENT 2
FULLY SPRINKLERED

CONSTRUCTION DOCUMENTS - CD2	06.05.2013
Revisions:	Date

CONSULTANTS:

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ARCHITECT

STANTEC | THE DESIGN PARTNERSHIP

Drawing Title
Site Development Paving & Horizontal Control Plan

Drawing Scale
As Shown

Approved: Project Director

Project Title
Parking Structure and Entry Drive VAPSHCS Seattle Division Phase 1 PARKING STRUCTURE AND ENTRY DRIVE

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1680 South Columbian Way, Seattle, WA 98105

Date
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Checked
JCF, JNP

Drawn
SAS

Project Number
VA# 663-405A

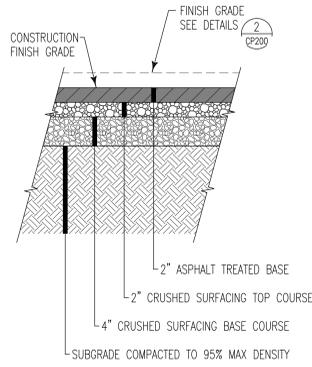
Building Number

Drawing Number
VOL. 2

CP102

Office of Construction and Facilities Management

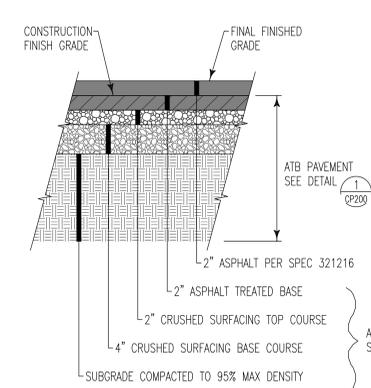
Department of Veterans Affairs



Asphalt Treated Base (ATB) Pavement

NOTES:

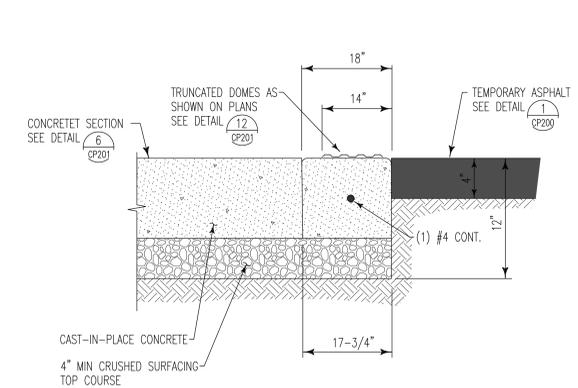
- SEE SPECIFICATIONS FOR GENERAL ASPHALT PAVING NOTES
- TRENCHES OR EXCAVATIONS THROUGH THE ATB SURFACE SHALL BE BACKFILLED TO MATCH THE CONSTRUCTION SURFACE PRIOR TO PLACING FINAL LIFT OF ASPHALT. DAMAGED PORTIONS OF CONSTRUCTION SURFACE SHALL BE REPAIRED PRIOR TO PLACING FINAL LIFT OF ASPHALT.
- ASPHALT TREATED BASE SHALL CONFORM WITH SECTION 9-03.6 OF THE WASHINGTON STATE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 2012 EDITION.



Asphalt Pavement

NOTES:

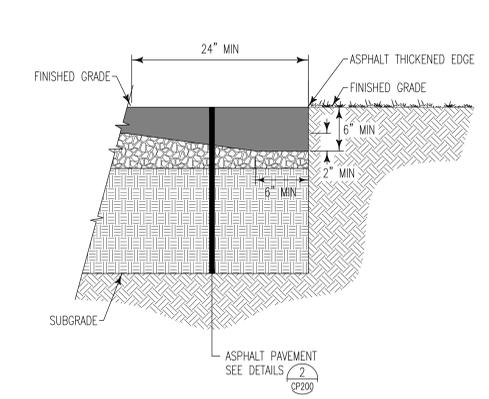
- SEE SPECIFICATIONS FOR GENERAL ASPHALT PAVING NOTES
- TRENCHES OR EXCAVATIONS THROUGH THE ATB SURFACE SHALL BE BACKFILLED TO MATCH THE CONSTRUCTION SURFACE PRIOR TO PLACING FINAL LIFT OF ASPHALT. DAMAGED PORTIONS OF CONSTRUCTION SURFACE SHALL BE REPAIRED PRIOR TO PLACING FINAL LIFT OF ASPHALT.



Concrete Flush Curb

NOTE:

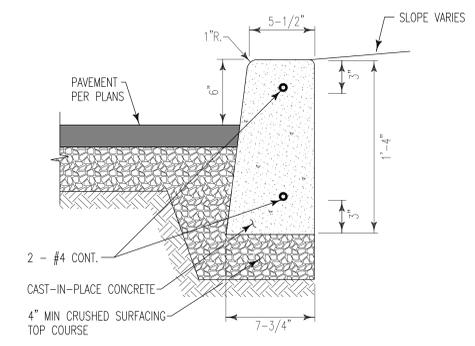
IN AREAS OF INTERIM ATB FINISH CONDITION, THE CURB TO BE INSTALLED IS TO PROVIDE A 6" CURB FACE FOLLOWING FUTURE ASPHALT PAVING. THE INTERIM DIMENSION IS TO BE 9" ON CURB FACE.



Asphalt Thickened Edge

NOTE:

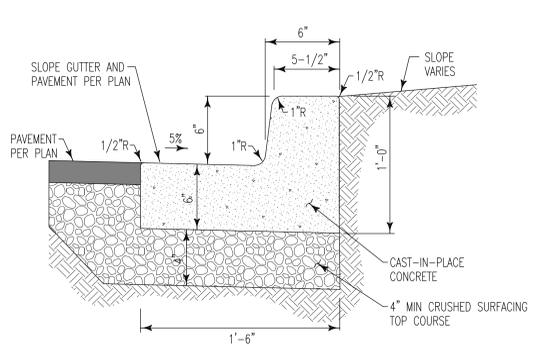
- SEE SPECIFICATIONS FOR GENERAL ASPHALT PAVING NOTES
- ASPHALT THICKENED EDGE IS REQUIRED WHERE ASPHALT ABUTS LANDSCAPING



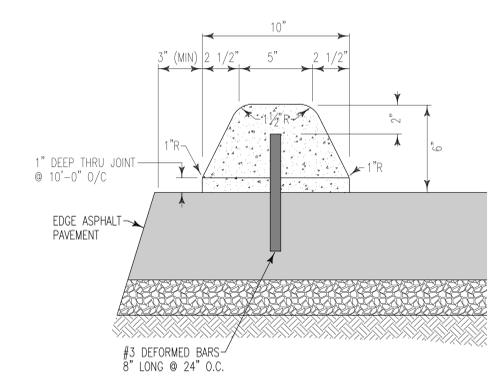
Concrete Vertical Curb

NOTES:

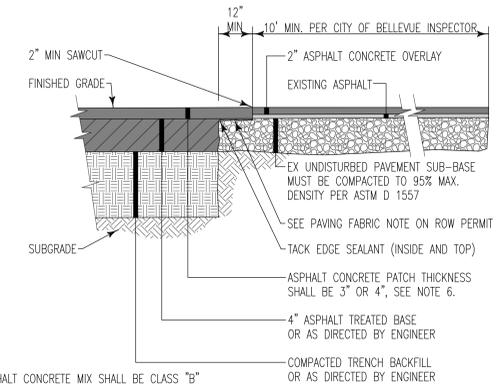
- SEE SPECIFICATIONS FOR GENERAL ASPHALT PAVING NOTES
- TRENCHES OR EXCAVATIONS THROUGH THE ATB SURFACE SHALL BE BACKFILLED TO MATCH THE CONSTRUCTION SURFACE PRIOR TO PLACING FINAL LIFT OF ASPHALT. DAMAGED PORTIONS OF CONSTRUCTION SURFACE SHALL BE REPAIRED PRIOR TO PLACING FINAL LIFT OF ASPHALT.



Concrete Curb and Gutter



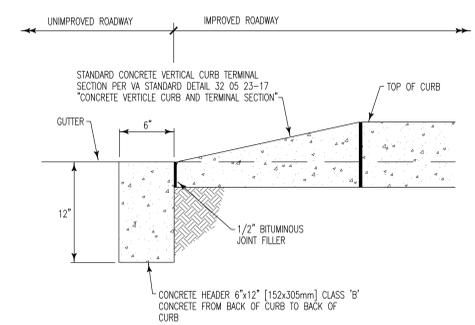
Concrete Extruded Curb



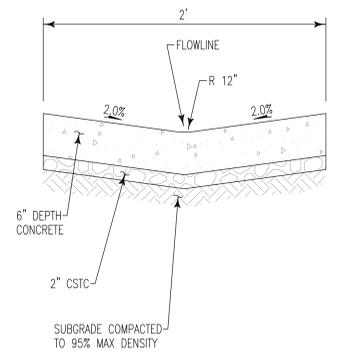
Pavement Restoration

NOTES:

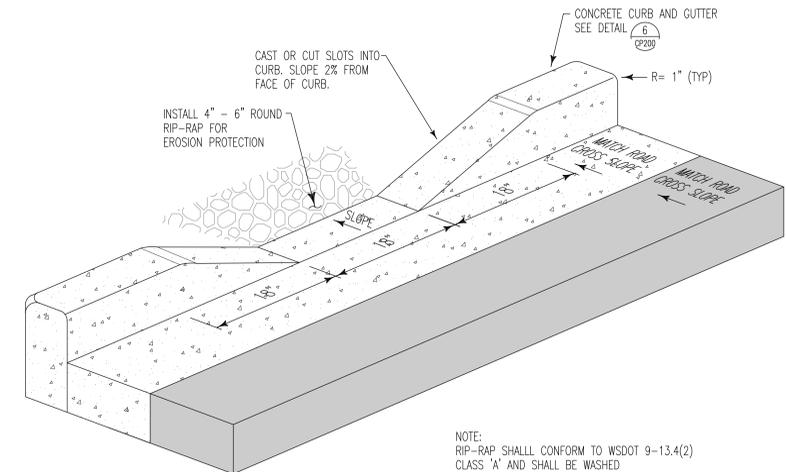
- ASPHALT CONCRETE MIX SHALL BE CLASS "B"
- ALL TRENCH BACKFILL SHALL BE CRUSHED
- CLASS "B" ASPHALT CONCRETE MIX MAY BE SUBSTITUTED FOR ATB
- PATCH MUST ALWAYS BE 1" DEEPER THAN EXISTING ASPHALT
- TOP SEAL - USE AR4000W AND PROVIDE A SAND BLANKET TO ALLEVIATE TRAILING
- PATCH THICKNESS SHALL BE 3" WHEN TRENCH IS PARALLEL TO ROADWAY, AND 4" WHEN TRENCH IS PERPENDICULAR TO ROADWAY, SEE PLANS FOR PATCH ALIGNMENT
- PROVIDE ASPHALT OVERLAY MINIMUM 10' EITHER SIDE OF THE TRENCHING. OVERLAY SHALL BE FULL WIDTH OF THE ROADWAY AS DIRECTED BY THE CITY OF BELLEVUE.
- ASPHALT CONCRETE PATCH PLUS ASPHALT TREATED BASE SHALL BE 8" MIN OR MATCH EX



Concrete Flush Header



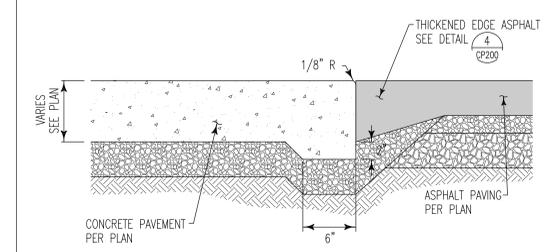
Concrete Gutter



Slotted Concrete Curb

NOTE:

RIIP-RAP SHALL CONFORM TO WSDOT 9-13.4(2) CLASS 'A' AND SHALL BE WASHED



Concrete / Asphalt Transition

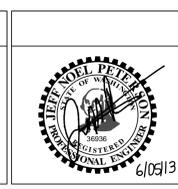
NOTE:

- SEE SPECIFICATIONS FOR GENERAL ASPHALT PAVING NOTES
- IN AREAS WHERE NEW CONCRETE IS INSTALLED ADJACENT TO ATB PAVING, INSTALL ATB RAMP TO CONCRETE AT 12:1 SLOPE.

CONSTRUCTION DOCUMENTS - CD2	06.05.2013
Revisions:	Date

CONSULTANTS:

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ARCHITECT

STANTEC | THE DESIGN PARTNERSHIP

Drawing Title
Site Development Paving Details

Drawing Scale
As Shown

Approved: Project Director

Project Title
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Department of Veterans Affairs