

**March 15, 2012**

**ADDENDUM NUMBER 1 TO  
BID NUMBER 08-2012 (1 ITEMS)**

**28<sup>TH</sup> STREET MULTI-USE PATH (BASELINE RD TO COLORADO AVE)**

**ITEM NO. 1 – COLORADO DEPARTMENT OF TRANSPORTATION CITY OF BOULDER  
STANDARD SPECIAL PROVISIONS**

**Revision of Section 504 Concrete Block Facing MSE Wall**

Sheet 29 and 30 – Delete reinforced concrete cap reference. Precast cap blocks will be used as shown on plans. Cap blocks will not be measured and paid for separately but shall be included in the work.

directly below it, shall be pinned and internally grouted together with a minimum of two #4 rebars per block. The concrete block shall have cells to accommodate grouted pins and modifications shall be made for blocks that do

29

#### REVISION OF SECTION 504 CONCRETE BLOCK FACING MSE WALL

not have such cells. Grout is limited to penetrate a maximum depth of three blocks measured from the top of fill for each operation. For grout more than three blocks in height, if specified on the plans, multiple grout operations are required. A layer of fabric shall retain the grout in the lowest grouted block layer. The aggregate for grout shall be modified according to cell size and geogrid aperture. Grout in any 20 foot long wall segment shall be placed and consolidated by a minimum of two simultaneously working concrete vibrators. ~~Precast cap blocks shall not be used in lieu of a cast-in-place reinforced concrete cap. All concrete used for cast-in-place cap and grout shall have a minimum 28-day compression strength of 4500 psi.~~

For walls with rail anchoring slabs, the top of block elevations shall be within 2 inches of the bottom of the anchoring slab. Cast-in-place concrete or sawcut partial height blocks may be used to accomplish this without extra cost to the project.

Where the Geomembrane for drainage interferes with the continuation of reinforcement, the blocks beyond the termination shall be reinforced or shimmed with the same grade of soil reinforcing material to maintain the reinforcing at the constant block elevation.

As shown on the plans, facing blocks directly exposed to spray from deiced pavements and indirect windborne spray shall have three coats of water resistant or repellant concrete sealer applied to the front face of the wall before the wall is opened to traffic.

**504.24 Fill under Leveling Pad.** For walls requiring fill under the planned elevation of the leveling pad, the Contractor may lower the elevation of the leveling pad as approved by the Engineer, except that the finished elevation at the top of the wall shall not be altered. As requested by the Contractor, and with the Engineer's approval, the higher wall shall be redesigned with longer reinforcement length and revised reinforcement schedule.

#### METHOD OF MEASUREMENT

**504.25** MSE retaining walls will not be measured for payment in the field, but will be paid for by the calculated quantities shown on the plans for the five major components of the wall: structure excavation, structure backfill, block facing, mechanical reinforcement of soil, and geomembrane. The Contractor's construction of a system that requires increased or decreased quantities of any of the components to complete the wall to the dimensions shown will not result in a change in pay quantities. Exceptions will be made when field changes are ordered or when it is determined that there are discrepancies on the plans in an amount of at least plus or minus five percent of the plan quantity.

- (1) The block facing quantity was calculated for the square foot of wall front face area from the top of the leveling pad (or average pad elevations) as shown on the plans to the top of the anchoring slab for walls with railing, or to the top of the cast in place coping for walls without railing.
- (2) The structure excavation quantity was calculated for the total volume of earth to be removed before the installation of the reinforced zone as shown on the plans.
- (3) The structure backfill quantity was calculated for the total volume behind the wall (the retained structure backfill zone) including the material in the reinforced zone as shown on the plans.
- (4) The mechanical reinforcement of soil quantity was calculated for the total volume of the reinforced zone as shown on the plans.
- (5) Geomembrane was calculated as the design height (DH) plus soil reinforcement length (RL) plus 1.5 feet, disregarding the slope of the membrane.

The square foot and cubic yard quantities computed for payment are the wall plan quantities based on the height measured at 20 foot maximum intervals along the wall layout line.

13  
REVISION OF SECTION 504  
CONCRETE BLOCK FACING MSE WALL

**BASIS OF PAYMENT**

**504.26** The accepted quantities will be paid for at the contract unit price per unit of measurement for the pay items listed below:

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Block Facing	Square Foot

Structure excavation will be paid for under the Section 206 Pay Item Structure Excavation. Structure backfill will be paid for under the Section 206 Pay Item Structure Backfill (Class 1). Soil reinforcement will be paid for under the Section 206 Pay Item Mechanical Reinforcement of Soil. Geomembrane will be paid for under the Section 420 Pay Item Geomembrane.

Rail anchoring systems (slabs) at the tops of walls and leveling pads at the bottom of wall will be measured and paid for separately under the Section 601 Pay Item Concrete and the Section 602 Pay Item Reinforcing Steel.

Payment will be full compensation for all work and materials required to construct the concrete block facing MSE wall. Miscellaneous items such as, **precast cap blocks**, dual track welding of Geomembrane, drainage ditches, rundowns, filter material, filter fabric, grout, pins, shimming material, concrete block coating and providing a technical representative will not be measured and paid for separately but shall be included in the work.

**504.27 Block Facing Payment Reductions.** In this subsection, “block” refers to either a concrete block or a hybrid unit.

- (1) A dislocated block is where the edge of an individual block is offset outward more than ¼ inch or placed with a vertical joint more than ¼ inch from the edge of adjacent blocks.
- (2) A cracked block is an individual block with any visible crack visible in natural light from a distance equal to the wall height.
- (3) A corner knock-off is a block with any missing facial corners or any side longer than ½ inch at the corner.
- (4) Substandard blocks are concrete blocks installed in any wall segments that do not meet the certified values of compression strength, water absorption rate, or freeze/thaw cycles; substandard blocks include blocks actually in the wall for which the Contractor does not provide reports and certifications as required in subsection 504.12.

In the completed wall, or completed portion of the wall, if the number of defective blocks (cracked blocks, corner knock-off blocks, dislocated blocks, efflorescence or cement blemished blocks and substandard blocks) and blocks failing the straightedge test exceeds 3 percent of the total number of blocks in any wall segment of 40 foot horizontal or arc length, a price reduction will be applied to that portion of the wall. The price reduction shall be 3 percent for each percent of defective blocks in this portion of the wall exceeding 3 percent. This percentage shall accumulate thereafter to a maximum reduction of 21 percent. For blocks subject to price reduction, if the defects are repairable or the overall quality of wall can be improved, with the consent from the Engineer, the Contractor may repair and reduce the percentage of price reduction. A walkthrough inspection will be made as requested by the Contractor before final payment.