



**SAN-6-23.58**

Calculated By: PES Date: 10/8/2019 Job No.: SFN: 7200812  
Checked By: PJP Date: 12/16/2019 Bridge No.: SAN-6-2358

CALC BY:  
CHECK BY: DATE:  
DATE:

**ESTIMATED QUANTITIES - Final Tracings**

| ITEM         | EXT      | QUANTITY | UNIT | DESCRIPTION   |
|--------------|----------|----------|------|---|
| 202          | 11003    | 1        | LS   | STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN   |
| 202          | 22900    | 81       | SY   | APPROACH SLAB REMOVED   |
| 202          | 23500    | 139      | SY   | WEARING COURSE REMOVED  |
| 503          | 11100    | 1        | LS   | COFFERDAMS AND EXCAVATION BRACING   |
| 503          | 21300    | 1        | LS   | UNCLASSIFIED EXCAVATION   |
| 505          | 11100    | 1        | LS   | PILE DRIVING EQUIPMENT MOBILIZATION   |
| 507          | 00500    | 640      | FT   | 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN   |
| 507          | 00550    | 720      | FT   | 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED  |
| 509          | 10000    | 16,565   | LB   | EPOXY COATED REINFORCING STEEL  |
| 511          | 31610    | 57       | CY   | CLASS QC2 CONCRETE, SUPERSTRUCTURE  |
| 511          | 43510    | 86       | CY   | CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING  |
| 512          | 10050    | 85       | SY   | SEALING OF CONCRETE SURFACES (NON-EPOXY)  |
| 515          | 12070    | 10       | EACH | PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB27-48 (BEAM LENGTH = 55'-6") |
| 516          | 13600    | 38       | SF   | 1" PREFORMED EXPANSION JOINT FILLER   |
| 516          | 14014    | 109      | FT   | INTEGRAL ABUTMENT EXPANSION JOINT SEAL  |
| 516          | 43100    | 20       | EACH | ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE), 8" x 10" x 1.5" THICK              |
| 517          | 70000    | 123      | FT   | RAILING (TWIN STEEL TUBE)   |
| 518          | 21200    | 67       | CY   | POROUS BACKFILL WITH GEOTEXTILE FABRIC  |
| SPECIAL      | 51822300 | 129      | FT   | STEEL DRIP STRIP  |
| 518          | 40000    | 114      | FT   | 6" PERFORATED CORRUGATED PLASTIC PIPE   |
| 518          | 40010    | 30       | FT   | 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS                                   |
| 523          | 20000    | 1        | EACH | DYNAMIC LOAD TESTING  |
| 526          | 25010    | 223      | SY   | REINFORCED CONCRETE APPROACH SLABS (T=15")  |
| 526          | 90011    | 80       | FT   | TYPE A INSTALLATION, AS PER PLAN  |
| 601          | 20000    | 3        | SY   | CRUSHED AGGREGATE SLOPE PROTECTION  |
| 601          | 32204    | 69       | CY   | ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC  |
| <b>TOTAL</b> |          |          |      |   |



One Easton Oval  
 Suite 400  
 Columbus, OH 43219  
 614-476-6000

**SAN-6-23.58**

|                |     |       |            |             |            |         |
|----------------|-----|-------|------------|-------------|------------|---------|
| Calculated By: | PES | Date: | 10/8/2019  | Job No.:    | SFN:       | 7200812 |
| Checked By:    | PJP | Date: | 12/16/2019 | Bridge No.: | SAN-6-2358 |         |

| 202 | 22900 | 81.00         | SY           | APPROACH SLAB REMOVED  |  |  |
|-----|-------|---------------|--------------|------------------------|--|--|
|     |       | 13.00         | ft           | length (rehab plans)   |  |  |
|     |       | 28.00         | ft           | width (rehab plans)    |  |  |
|     |       | 2.00          | ea           | number of approaches   |  |  |
|     |       | 728.00        | sq ft        | total area             |  |  |
|     |       | <b>80.89</b>  | <b>sq yd</b> | <b>total</b>           |  |  |
| 202 | 23500 | 139.00        | SY           | WEARING COURSE REMOVED |  |  |
|     |       | 43.00         | ft           | length (rehab plans)   |  |  |
|     |       | 29.00         | ft           | width (rehab plans)    |  |  |
|     |       | 1247.00       | sq ft        | total area             |  |  |
|     |       | <b>138.56</b> | <b>sq yd</b> | <b>total</b>           |  |  |

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| 503  | 21300   | 153.00 | CY | UNCLASSIFIED EXCAVATION                                |
|------|---------|--------|----|--|
| abut | 1.50    | ft     |    | avg width of ex. Abutment                              |
|      | 582.48  | ft     |    | elev top   |
|      | 570.14  | ft     |    | elev top footing                                       |
|      | 574.21  | ft     |    | avg ex ground elev at front                            |
|      | 12.34   | ft     |    | excavation height at back                              |
|      | 8.27    | ft     |    | excavation height at front                             |
|      | 1.00    | ft     |    | additional 1ft bound for excavation                    |
|      | 39.12   | sq ft  |    | area excavation  |
|      | 34.75   | ft     |    | length abutment  |
|      | 1359.42 | cu ft  |    | volume excavation                                      |
| wing | 1.50    | ft     |    | avg width of ex. Wing                                  |
|      | 580.23  | ft     |    | avg top elev   |
|      | 570.14  | ft     |    | elev top footing                                       |
|      | 574.21  | ft     |    | avg ex ground elev at front                            |
|      | 10.09   | ft     |    | excavation height at back                              |
|      | 6.02    | ft     |    | excavation height at front                             |
|      | 1.00    | ft     |    | additional 1ft bound for excavation                    |
|      | 31.25   | sq ft  |    | area excavation  |
|      | 11.25   | ft     |    | length wings   |
|      | 2.00    |        |    | x 2 wings  |
|      | 703.01  | cu ft  |    | volume excavation                                      |
|      | 2.00    |        |    | x2 abutments   |
|      | 4124.87 | cu ft  |    | subtotal   |
|      | 152.77  | cu yd  |    | total  |
| 507  | 00500   | 640.00 | FT | 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN    |
|      | 40.00   | ft     |    | rear abutment pile length (geotech report)             |
|      | 8.00    | ea     |    | number of rear piles                                   |
|      | 40.00   | ft     |    | forward abutment pile length (geotech report)          |
|      | 8.00    | ea     |    | number of fwd piles                                    |
|      | 640.00  | ft     |    | total length   |
| 507  | 00550   | 720.00 | FT | 12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED |
|      | 45.00   | ft     |    | rear abutment pile length (geotech report)             |
|      | 8.00    | ea     |    | number of rear piles                                   |
|      | 45.00   | ft     |    | forward abutment pile length (geotech report)          |
|      | 8.00    | ea     |    | number of fwd piles                                    |
|      | 720.00  | ft     |    | total length   |

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| 509        | 10000 | 16,565          | LB           | EPOXY COATED REINFORCING STEEL                   |
|------------|-------|-----------------|--------------|--|
|            |       | 7086.00         | lb           | superstructure (# from steel calcs)              |
|            |       | 9479.00         | lb           | abutment (# from steel calcs)                    |
|            |       | <b>16565.00</b> | <b>lb</b>    | <b>total</b>                                     |
| 511        | 31610 | 57              | CY           | CLASS QC2 CONCRETE, SUPERSTRUCTURE               |
| deck       |       | 6.31            | in           | deck thickness                                   |
|            |       | 57.50           | ft           | length   |
|            |       | 40.18           | ft           | width  |
|            |       | 1215.44         | cu ft        | deck subtotal                                    |
| diaphragms |       | 582.54          | ft           | top of deck elev.                                |
|            |       | 582.22          | ft           | avg. edge deck elev.                             |
|            |       | 6.00            | in           | deck thickness                                   |
|            |       | 27.00           | in           | beam height                                      |
|            |       | 1.50            | in           | bearing height                                   |
|            |       | 579.67          | ft           | max beam seat elev                               |
|            |       | 579.35          | ft           | min beam seat elev                               |
|            |       | 2.38            | ft           | max diaphragm height                             |
|            |       | 2.38            | ft           | min diaphragm height                             |
|            |       | 2.38            | ft           | avg diaphragm height                             |
|            |       | 40.00           | ft           | length under deck                                |
|            |       | 1.50            | ft           | width behind beam                                |
|            |       | 25.88           | cu ft        | additional volume under TST rail                 |
|            |       | 20.00           | cu ft        | area at appr. seat (to be removed from quantity) |
|            |       | 148.38          | cu ft        | diaphragm subtotal                               |
|            |       | 2.00            |              | x2 abutments                                     |
|            |       | 296.75          | cu ft        | diaphragm total                                  |
|            |       | 1512.19         | cu ft        | subtotal   |
|            |       | <b>56.01</b>    | <b>cu yd</b> | <b>Total</b>                                     |

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| 511           | 43510 | 86      | CY    | CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING |
|---------------|-------|---------|-------|--|
| stem          |       | 579.67  | ft    | max beam seat elev.                            |
|               |       | 579.35  | ft    | min beam seat elev.                            |
|               |       | 579.51  | ft    | avg beam seat elev.                            |
|               |       | 573.22  | ft    | bottom of footing elev                         |
|               |       | 3.00    | ft    | footing height                                 |
|               |       | 3.28    | ft    | avg stem height                                |
|               |       | 43.00   | ft    | length under diaphragm                         |
|               |       | 3.00    | ft    | width  |
|               |       | 423.76  | cu ft | subtotal stem volume                           |
| left wall     |       | 582.22  | ft    | top of wall elev                               |
| above footing |       | 576.22  | ft    | top footing elev                               |
|               |       | 6.00    | ft    | max. wall height                               |
|               |       | 3.67    | ft    | min. wall height                               |
|               |       | 2.08    | ft    | max height wall length                         |
|               |       | 4.92    | ft    | sloped wall length (approx. 2:1)               |
|               |       | 36.26   | sq ft | area left wall face                            |
|               |       | 3.00    | ft    | width  |
|               |       | 108.79  | cu ft | total left wall volume                         |
| right wall    |       | 582.22  | ft    | top of wall elev                               |
| above footing |       | 576.22  | ft    | top footing elev                               |
|               |       | 6.00    | ft    | max. wall height                               |
|               |       | 3.67    | ft    | min. wall height                               |
|               |       | 2.08    | ft    | flat wall length                               |
|               |       | 4.92    | ft    | sloped wall length (approx. 2:1)               |
|               |       | 36.26   | sq ft | area right wall face                           |
|               |       | 3.00    | ft    | width  |
|               |       | 108.79  | cu ft | total right wall volume                        |
| footing       |       | 3.00    | ft    | height   |
|               |       | 57.00   | ft    | length   |
|               |       | 3.00    | ft    | width  |
|               |       | 513.00  | cu ft | total footing                                  |
|               |       | 2.00    |       | x 2 abutments                                  |
|               |       | 2308.68 | cu ft | total concrete                                 |
|               |       | 85.51   | cu yd | <b>Total volume</b>                            |
| 512           | 10050 | 38.00   | SY    | SEALING OF CONCRETE SURFACES (NON-EPOXY)       |
| beams         |       | 33.00   | in    | depth of beam and deck                         |
|               |       | 6.00    | in    | additional width at bottom flng                |
|               |       | 52.50   | ft    | length between diaphragms                      |
|               |       | 2.00    | ea    | number of sides                                |
|               |       | 341.25  | sq ft | area   |
|               |       | 37.92   | sq yd | <b>total</b>                                   |

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| #REF!    | 10050  | 47.00  | SY    | SEALING OF CONCRETE SURFACES (NON-EPOXY) |
|----------|--------|--------|-------|--|
| abut     | 579.51 | ft     |       | avg beam seat elev.                      |
|          | 577.88 | ft     |       | avg ground surface elev at abut face     |
|          | 1.63   | ft     |       | height                                   |
|          | 40.00  | ft     |       | length of abutment not incl. wingwalls   |
|          | 65.00  | sq ft  |       | area on front face                       |
| wingwall | face   | 582.22 | ft    | max wingwall elev                        |
|          |        | 579.89 | ft    | min wingwall elev                        |
|          |        | 577.88 | ft    | avg ground surface at wingwall face      |
|          |        | 3.58   | ft    | flat wall length + length under TST      |
|          |        | 4.92   | ft    | sloped wall length (approx. 2:1)         |
|          |        | 4.34   | ft    | max height                               |
|          |        | 2.01   | ft    | min height                               |
|          |        | 31.15  | sq ft | area right wall face                     |
|          | top    | 3.00   | ft    | width                                    |
|          |        | 8.50   | ft    | wingwall + length under TST              |
|          |        | 25.50  | sq ft | area top wall                            |
|          | back   | 1.00   | ft    | height                                   |
|          |        | 8.50   | ft    | length                                   |
|          |        | 8.50   | sq ft | area back wall                           |
|          | side   | 579.89 | ft    | min wall elev                            |
|          |        | 577.88 | ft    | avg ground slope elev                    |
|          |        | 2.01   | ft    | height                                   |
|          |        | 3.00   | ft    | width                                    |
|          |        | 6.02   | sq ft | slope area on wall                       |
|          |        | 71.17  | sq ft | subtotal wingwall area                   |
|          |        | 2.00   | ea    | number wingwalls                         |
|          |        | 142.35 | sq ft | subtotal rear wingwall                   |
|          |        | 2.00   |       | x 2 abutments                            |
|          |        | 414.69 | sq ft | total abut + wingwalls                   |
|          |        | 414.69 | sq ft | total                                    |
|          |        | 46.08  | sq yd | total                                    |

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| Item No.  | Quantity      | Unit         | Description  |
|---|---------------|--------------|--|
| <b>516 13600 38.00 SF 1" PREFORMED EXPANSION JOINT FILLER</b>     |               |              |  |
| abut deck   | 0.50          | ft           | width of approach slab seat                                      |
|   | 1.50          | ft           | depth of approach slab seat                                      |
|   | 0.75          | sq ft        | area per side  |
|   | 2.00          | ea.          | side count   |
|   | 1.50          | sq ft        | subtotal deck  |
| wing  | 582.22        | ft           | top wall elev  |
|   | 579.35        | ft           | beam seat elev   |
|   | 2.88          | ft           | joint height   |
|   | 3.00          | ft           | width wall   |
|   | 2.00          |              | number of sides  |
|   | 17.25         | sq ft        | subtotal   |
|   | 2.00          |              | x2 abutments   |
|   | <b>37.50</b>  | <b>sq ft</b> | <b>total</b>   |
| <b>516 14014 109.00 FT INTEGRAL ABUTMENT EXPANSION JOINT SEAL</b> |               |              |  |
|   | 43.08         | ft           | length of diaphragm (C/C 1" PEJFs)                               |
|   | 1.50          | ft           | additional neoprene each side (horiz)                            |
|   | 4.13          | ft           | avg height vertical neoprene                                     |
|   | 2.00          |              | number vertical sides  |
|   | 2.00          |              | x2 abutments   |
|   | <b>108.67</b> | <b>ft</b>    | <b>total</b>   |
| <b>517 70000 123.00 FT RAILING (TWIN STEEL TUBE)</b>              |               |              |  |
|   | 56.25         | ft           | length between end posts   |
|   | 4.92          | ft           | additional 4'-11" (from SCD TST-1-99 method of measurement note) |
|   | 2.00          | ea           | number of sides  |
|   | <b>122.33</b> | <b>ea</b>    | <b>total</b>   |
| <b>518 21200 67 CY POROUS BACKFILL WITH GEOTEXTILE FABRIC</b>     |               |              |  |
| abut  | 2.00          | ft           | thickness  |
|   | 582.54        | ft           | top of deck elev.  |
|   | 573.22        | ft           | bottom of footing elev.  |
|   | 15.00         | in           | approach slab thick  |
|   | 8.07          | ft           | height (below deck)  |
|   | 40.00         | ft           | abutment length under deck                                       |
|   | 645.60        | cu ft        | subtotal rear abut   |
| wingwall  | 2.00          | ft           | thickness  |
|   | 582.22        | ft           | top wall elev.   |
|   | 573.22        | ft           | bottom of footing elev.  |
|   | 1.00          | ft           | depth under wall   |
|   | 8.00          | ft           | height   |
|   | 8.50          | ft           | length wingwall + abut under TST                                 |
|   | 68.00         | sq ft        | total wall area  |
|   | 5.73          | sq ft        | slope area to remove   |
|   | 62.27         | sq ft        | wall area = total - slope area                                   |
|   | 124.54        | cu ft        | per wall   |
|   | 2.00          | ea.          | wall count   |
|   | 249.08        | cu ft        | subtotal rear wingwall   |
|   | 2.00          |              | x2 abutments   |
|   | 1789.36       | cu ft        | total  |
|   | <b>66.27</b>  | <b>cu yd</b> | <b>total volume</b>  |



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| <b>SPECIAL 51822300 129.00 FT STEEL DRIP STRIP</b>                                      |  |               |              |  |  |                                   |
|---|--|---------------|--------------|--|--|-----------------------------------|
|   |  | 52.50         | ft           |  |  | length along bridge               |
|   |  | 8.00          | ea           |  |  | number of railing posts each side |
|   |  | 1.50          | ft           |  |  | additional strip length at posts  |
|   |  | 12.00         | ft           |  |  | strip at posts total              |
|   |  | 64.50         | ft           |  |  | total per side                    |
|   |  | 2.00          | ft           |  |  | number of sides                   |
|   |  | <b>129.00</b> | <b>ft</b>    |  |  | <b>total length</b>               |
| <b>518 40000 114.00 FT 6" PERFORATED CORRUGATED PLASTIC PIPE</b>                        |  |               |              |  |  |                                   |
|   |  | 57.00         | ft           |  |  | rear abut length                  |
|   |  | 57.00         | ft           |  |  | fwd abut length                   |
|   |  | <b>114.00</b> | <b>ft</b>    |  |  | <b>total</b>                      |
| <b>518 40010 30.00 FT 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS</b> |  |               |              |  |  |                                   |
| rear abut   |  | 14.17         | ft           |  |  | length left side (NW)             |
|   |  | 0.00          | ft           |  |  | length right side (SW)            |
| fwd abut  |  | 0.00          | ft           |  |  | length left side (SE)             |
|   |  | 15.50         | ft           |  |  | length right side (NE)            |
|   |  | <b>29.67</b>  | <b>ft</b>    |  |  | <b>total</b>                      |
| <b>526 25010 223 SY REINFORCED CONCRETE APPROACH SLABS (T=15")</b>                      |  |               |              |  |  |                                   |
|   |  | 40.00         | ft           |  |  | out to out width                  |
|   |  | 25.00         | ft           |  |  | approach slab length              |
|   |  | 2.00          | ea           |  |  | number of approaches              |
|   |  | 2000.00       | sq ft        |  |  | total                             |
|   |  | <b>223.00</b> | <b>sq yd</b> |  |  | <b>total</b>                      |
| <b>526 90011 80.00 FT TYPE A INSTALLATION, AS PER PLAN</b>                              |  |               |              |  |  |                                   |
|   |  | 40.00         | ft           |  |  | approach slab width               |
|   |  | 0.00          | degrees      |  |  | skew                              |
|   |  | 40.00         | ft           |  |  | width along skew                  |
|   |  | 2.00          | ea           |  |  | number of approach slabs          |
|   |  | <b>80.00</b>  | <b>FT</b>    |  |  | <b>total</b>                      |
| <b>601 20000 3.00 SY CRUSHED AGGREGATE SLOPE PROTECTION</b>                             |  |               |              |  |  |                                   |
|   |  | 4.00          | ft           |  |  | diameter                          |
|   |  | 12.57         | sq ft        |  |  | area                              |
|   |  | 2.00          | ea           |  |  | number outlets                    |
|   |  | 25.13         | sq ft        |  |  | area                              |
|   |  | <b>2.79</b>   | <b>sq yd</b> |  |  | <b>volume</b>                     |

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| 601  | 32204 | 69      | CY    | ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC |
|------|-------|---------|-------|--|
| rear |       | 8.67    | ft    | width rear   |
| fwd  |       | 7.50    | ft    | width forward  |
|      |       | 57.00   | ft    | length abut  |
|      |       | 921.52  | sq ft | area at abutments                                      |
|      |       | 2.00    | ft    | thickness  |
|      |       |         |       | area at 36" pipe (from microstation)                   |
|      |       |         |       | area at 18" pipe (from microstation)                   |
|      |       | 1843.04 | cu ft | volume   |
|      |       | 68.26   | cu yd | volume   |

|                 |                 |   |    |    |   |
|-----------------|-----------------|---|----|----|---|
| <b>WOOLPERT</b> |                 |  |    |    |   |
| Project Number: | 108868          |   |    |    |   |
| Client:         | ODOT District 2 | Page  | 1  | of | 1 |
| Project:        | SAN-6-23.58     |   |    |    |   |
| Computed by:    | CAG             | Checked by:   | ms |    |   |

\*\*\*All lengths are CADD measured\*\*\*

**Item 626 - Barrier Reflector, Type 3**

***Bridge Location***

| # | Station to Station (Side) | Total Barrier with Dc<br>< 5° (FT) | Total Barrier with Dc<br>>= 5° (FT) |
|---|---------------------------|------------------------------------|-------------------------------------|
|   | left                      | 6                                  |                                     |
|   | right                     | 6                                  |                                     |

**Total Barrier Reflectors = 12 EA**

**Item 202 - Pavement removed**

|                     |            |          |
|---------------------|------------|----------|
| Area 1 (West side)= | 3,043.6 sf | 338.2 SY |
| Area 2 (East side)= | 3,083.8 sf | 342.6 SY |
|                     | Sum=       | 680.8 SY |



**Seeding and Mulching Calculations**

Road: US-6  
 Project Name: SAN-6-23.58  
 Municipality: ODOT  
 Revised: 9/4/2020

The calculations shown below are as described in the ODOT Seeding and Mulching designer note.

Enter Area to be Seeded and Mulched 1,175 SY

**ITEM 659 SEEDING AND MULCHING**

1,175 SY

**ITEM 659 TOPSOIL**

111 CY PER 1000 SY OF PERMANENT SEEDING

111 X 1,175 /1000=

130 CY

**ITEM 659 SOIL ANALYSIS TEST**

ONE TEST PER 10000 CY TOPSOIL, WITH A MINIMUM OF TWO

2 EACH

**ITEM 659 COMMERCIAL FERTILIZER**

30 LBS PER 1000 SF OF PERMANENT SEEDING

30 X 1,175 X 9 / 1000 / 2000 = 0.16

20 LBS PER 1000 SF OF INTER SEEDING

20 X 59 X 9 / 1000 / 2000 = 0.01

TOTAL COMMERCIAL FERTILIZER =

0.16 TONS

**ITEM 659 WATER**

2 APPLICATIONS AT 300 GALLONS PER 1000 SF (PERMANENT)

1,175 X 9 / 1000 X (2 X 300) / 1000 = 6 MGAL

1 APPLICATIONS AT 300 GALLONS PER 1000 SF (INTER SEEDING)

59 X 9 / 1000 X 300 / 1000 = 0 MGAL

TOTAL WATER =

7 MGAL

**ITEM 659 INTER SEEDING**

5% OF PERMANENT SEEDING AND MULCHING

5% X 1,175 =

59 SY

**ITEM 659 LIME**

1,175 X 9 / 43560 =

0.24 ACRES

**ITEM 659 REPAIR SEEDING AND MULCHING**

5% OF PERMANENT SEEDING AND MULCHING

5% X 1,175 =

59 SY