Estimated Quantities

<table>
<thead>
<tr>
<th>Item</th>
<th>Substr.</th>
<th>Superstr.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Approach Slab (Bridge)</td>
<td>220</td>
<td>220</td>
<td>440</td>
</tr>
<tr>
<td>Structural Steel Bars (in.)</td>
<td>456</td>
<td>456</td>
<td>912</td>
</tr>
<tr>
<td>Pile Bedding</td>
<td>189</td>
<td>189</td>
<td>378</td>
</tr>
<tr>
<td>Bridge Pile Foundation</td>
<td>22</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>Slab on Concrete Girder</td>
<td>66.0</td>
<td>66.0</td>
<td>132.0</td>
</tr>
<tr>
<td>Safety Barrier Curb</td>
<td>321</td>
<td>321</td>
<td>642</td>
</tr>
<tr>
<td>Prestressed Concrete Girder, 48 ft. Span</td>
<td>16</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Reinforcement Steel (Bridges)</td>
<td>5,080</td>
<td>5,080</td>
<td>10,160</td>
</tr>
<tr>
<td>Slab (Bridges)</td>
<td>24</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>Reinforcement at End Bents</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Plain Reinforcement Beam Pad</td>
<td>22</td>
<td>22</td>
<td>44</td>
</tr>
</tbody>
</table>

*Safety Barrier Curb shall be cast-in-place option or slip-form option.

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete Girder.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete Girder.

All reinforcement in the intermediate bent concrete diaphragm exists reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete Girder.

All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete Girder.

Plain and Laminated Reinforcement Pad beams shall be in accordance with Sec. 176.

Estimated Quantities

<table>
<thead>
<tr>
<th>Item</th>
<th>Substr.</th>
<th>Superstr.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class B-2 Concrete</td>
<td>132.9</td>
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</tr>
<tr>
<td>Reinforcement</td>
<td></td>
<td></td>
<td>5,400</td>
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<tr>
<td>Reinforcing Steel (Expo Coiled)</td>
<td>43.640</td>
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</tr>
</tbody>
</table>

The table of Estimated Quantities for Slab on Concrete Girder represents the quantities used by the State in computing the cost estimates for concrete slabs. The depth of the concrete slab is the average of the depth shown on the plans. The reinforcing steel is shown on the plans of slabs. Payment for prestressed panels, conventional forms, all concrete and coated and uncoated reinforcing steel will be considered separately covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec. 103.

All concrete for forming the slab to be left in place as permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish Type I, II, or III.

The Estimated Quantities for Slab on Concrete Girder are based on skewed or non-skewed prestressed panels.

Class B-2 Concrete quantity is based on minimum top flange thickness and minimum joint material thickness.

The prestressed panel quantities are not included in the table of Estimated Quantities for Slab on Concrete Girder.

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General Notes:

Design Specifications:
- 2002 ASHPO 17th Edition
- Load Factor Design
- Seismic Performance Category A

Design Loadings:
- H20 with I-50
- 30 mph, ft, future loading surfacing
- 120 mph, ft, applicable fluid pressure 45k/ft, ft
- Superstructure and Foundation: 1000 kip/ft for dead load, 1000 kip/ft for live load.

Design Unit Stresses:
- Class B-2 Concrete (superstructure):
  - Compression: 4,000 psi
  - Tension: 3,000 psi
- Prestressed Girder and Cast-in-Place Curb:
  - Compression: 4,000 psi
  - Tension: 2,000 psi

Reinforcing Steel:
- Minimum diameter to reinforcing steel shall be 1/4", unless otherwise shown.

Traffic Loadings:
- Traffic to be maintained on existing structure (A-638) during construction.
- See roadway plans.

Structural Steel Protective Coatings:
- All exposed surfaces of structural steel girders shall have protective coatings applied in accordance with Sec. 102.

Miscellaneous:
- Each refers to the sections in the standard and supplemental specifications unless specified otherwise.

---

Pile Data

<table>
<thead>
<tr>
<th>Pile No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>Number</td>
<td>5</td>
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<td>Acme/90co Length</td>
<td>21</td>
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<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Design Bearing</td>
<td>61</td>
<td>62</td>
<td>62</td>
<td>61</td>
</tr>
<tr>
<td>Minimum Energy Required</td>
<td>15.700</td>
<td>14.400</td>
<td>12.600</td>
<td>15.700</td>
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</tbody>
</table>

All piles shall be driven to practical refusal. Preload for girders at Bents No. 2, 3 to Elevation 88.00. Manufactured pile point reinforcement shall be used on all piles in this structure.
BORING DATA

NOTE:
For location of borings and notice and Disclaimer
Regarding Boring Log Data, see Sheet No. 1.

POLK COUNTY
A7004
PLAN OF BEAM SHOWING REINFORCEMENT

NOTES:
For details of End Bent No. 1 not shown, see Sheets No. 5, 6 and 7.
For details of vertical drain at end bent, see Sheet No. 8.
All U-bars and Pr. V-bars in End Bent are to be placed parallel to E Roadway.

DETAILS OF END BENT NO. 1

POLK COUNTY

Sheet No. 4 of 29
NOTES:
For details of End Bent No. 1 not shown, see Sheets No. 4, 6 and 7.
For Steel Pile Splice details, see Sheet No. 4.
For locations of MS - W4 Strand Tie Bar and Cali Tie Rods, see Sheet No. 15.
For Elevations 4-1 & 4-2 and section thru wing, see Sheet No. 7.
For details of vertical drain at end bent, see Sheet No. 8.
For details and reinforcement of safety barrier curb not shown, see Sheet No. 23.
For details of approach slab, see Sheet No. 25.
Bend MS - W4 x 6 bars in field to clear girders.
Steel girders shall be field bent or, if necessary, cut in field to maintain 15° minimum clearance to face of end bent.
All vertical reinforcing bars in the substructure beam shall be field adjusted to clear piles by at least 1/4.
All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

PLAN OF BEAM SHOWING DIMENSIONS

TYPICAL SECTION THRU KEY

PART PLAN

DETAILS OF END BENT NO. 1

Note: This drawing is not to scale. Follow dimensions.
Sheet No. 5 of 28
NOTES:
For location of Elevations A-A and B-B, see Sheet No. 5.
For details of End Bent No. 1 not shown, see Sheets No. 4, 5 and 6.
For reinforcement of Safety Barrier Curb not shown, see Sheet No. 23.
ELEVATION OF WING

Upper beam

Cut coupling flush with ground line.

Ground line

Detail "C"

ELEVATION AT END BENT

SECTION A-A

Vertical drain core

Perforated drain pipe

Cap

Underdrained drain pipe

Coupler

Detail "B"

Unperforated drain pipe

Roofing Screen

DETAIL "C"

Cut coupling to slope of ground line.

VERTICAL DRAIN AT END BENTS

Note:

Drain pipe may be either 4" diameter corrugated metal (preferred) or 6" diameter corrugated polyethylene (PE) drain pipe. If 4" diameter corrugated polyethylene (PE) drain pipe is used, follow pipe placement and installation guidelines in project specifications.

Place drain pipe at fill face of end bent and slope to lowest grade of ground line, also marking the lower bench of end bent by 1' x 1'-0". (See elevation at end bent.)

Perforated pipe shall be placed at fill face side of end bent and drain pipe shall be used where the vertical drain ends to the exit of ground line.

Sheet No. 8 of 30
PLAN OF BEAM SHOWING REINFORCEMENT

DETAILS OF END BENT NO. 4

NOTES:
For Steel Pile Splice Detail, see Sheet No. 4.
For details of vertical origin or end bent, see Sheet No. 8.
For details of End Bent No. 4 not shown, see Sheets Nos. 12, 13 and 14.
All girders and Pn. Viaduct in End Bent area to be placed parallel to 20'-00'-00" Roadway.

Polk County A7004

NOTE: This drawing is not to scale. Follow dimensions.
NOTES:
For location of Elevations A-A and B-B, see Sheet No. 12.
For details of End Bent No. 4 not shown, see Sheets No. 11, 12 and 13.
For reinforcement of Safety Barrier Curb not shown, see Sheet No. 23.

ELEVATION A-A

ELEVATION B-B

DETAILS OF END BENT NO. 4

Note: This drawing is not to scale. Follow dimensions.
HALF SECTION NEAR INTERMEDIATE BENTS

SECTION A-A

DETAILS OF CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS NO. 2 AND 3

NOTES:
Diaphragms on Intermediate Bents shall be built vertical.
For location of H201 & H202, see Sheet No. 15.
All O-Doors in Diaphragms are to be placed parallel to E Roadway.
PART SECTION NEAR DRAIN

PART SECTION SHOWING BRACKET ASSEMBLY

SLAB DRAIN DETAILS

SLAB DRAIN DETAILS

PART PLAN OF SLAB AT DRAIN

DETAILS OF DRAINS TRANSVERSE TO ROADWAY

NOTE: Longitudinal dimensions shown are horizontal along exterior girder.
GIRDER CAMBER DIAGRAM

Conversion factor for girder camber:
0.25 ft. = 0.1725 x 0.5 ft.

GIRDER NO. 1
Girder No. 2
Girder No. 3
Girder No. 4
Girder No. 5

Bottom of Slab
Top of Girder

4 equal spaces
46'-6"'

SPAN (1-2)
SPAN (2-3)
SPAN (3-4)

THEORETICAL SLAB HAUNCHING DIAGRAM

Concrete in the slab haunches is included in the Estimated Euctilities for Slab on Concrete Girder.

Theoretical Bottom of Slab Elevations at % of Girder (Prior to Forming for Slab)***

* Elevations are based on a constant slab thickness of 8" and include allowance for Theoretical deep 1000 deflections due to weight of slab (including precast girders) and barrier curb.

Theoretical Bottom of Slab Elevation at % of Girder (Prior to Forming for Slab)

Deflections due to weight of slab and barrier curb

FINISHED BOTTOM OF SLAB ELEVATIONS DIAGRAM

NOTE:
If girder camber is different from that shown in the camber diagram, adjustment of the slab haunches or increase in slab thickness at a noise in grade uniformity throughout the structure shall be necessary. No attempt will be made for additions, rigor or materials required for variation in camber of adjustment.

POLK COUNTY

NOTE: This drawing is not to scale. Follow dimensions.

Sheet no. 19 of 20
SLAB POURING SEQUENCE

<table>
<thead>
<tr>
<th>Sequence of Pours</th>
<th>Min. rate of pour (cu. yds/hr.)</th>
<th>With retarder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic sequence:</td>
<td>End to 2</td>
<td>2</td>
</tr>
<tr>
<td>Alternate &quot;A&quot; pour</td>
<td>End to 3</td>
<td>5</td>
</tr>
<tr>
<td>Alternate &quot;B&quot; pour</td>
<td>1 to 3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1 x 2 x 3</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: The contractor shall furnish an approved retarder to retard the set of the concrete in 2 to 3 hours, and shall pour and satisfactorily finish the slab pour at the rate given. The concrete chipper of the intermediate bents and integral end bents shall be poured a minimum of 25 minutes and a maximum of 2 hours before the slab is poured.

SLAB CONSTRUCTION JOINT DETAILS

- Adjust the construction joint to a clearance of 6 inches minimum from the panel joint.
- Finish each side of joint with 1/4 radius edging tool.
- Key to extend full width of slab cantilever.

Note: This drawing is not to scale. Follow dimensions.
## Bill of Reinforcing Steel

### Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>H</th>
<th>K</th>
<th>LBS.</th>
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<tbody>
<tr>
<td>W x H</td>
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### Weight

<table>
<thead>
<tr>
<th>Weight</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>H</th>
<th>K</th>
<th>LBS.</th>
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<tbody>
<tr>
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</table>

### MARKING

<table>
<thead>
<tr>
<th>Marking No.</th>
<th>Location</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>H</th>
<th>K</th>
<th>LBS.</th>
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</thead>
<tbody>
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</tbody>
</table>

### Bending Diagrams

- **Shape 15**: Bending diagrams for various sections of the steel. Each diagram indicates the curvature and bending radius for different sections of the steel. For instance, shape 15 shows the bending radius for a specific section of the steel.

- **Shape 20**: Additional bending diagrams are provided for sections that are not part of the main structure. These diagrams are crucial for understanding the stress distribution and ensuring the structural integrity of the reinforced steel.

### Notes

- The bill includes all necessary dimensions and weights for the reinforcing steel. Dimensions are given in feet and inches, and weights are in pounds.
- All measurements are taken from the top views of the sections and are marked accordingly.
- The bending diagrams provide detailed instructions for bending the steel to achieve the desired shape.
- The bill is a comprehensive guide for the installation and quality control of the reinforcing steel in the construction project.
**PART PLAN SHOWING PILE NUMBERING FOR RECORDING "AS BUILT PILE" DATA**

**"AS BUILT PILE" DATA**

<table>
<thead>
<tr>
<th>PILE NO.</th>
<th>LENGTH IN PLACE (FT.)</th>
<th>COMPUTED DEPTH (TOE)</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
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<tr>
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<table>
<thead>
<tr>
<th>PILE NO.</th>
<th>LENGTH IN PLACE (FT.)</th>
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<th>REMARKS</th>
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<tr>
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</tbody>
</table>

**NOTE:**
- Indicate in REMARKS COLUMN:
  - A if Piling was driven to practical refusal
  - B if Batten of other than shown on bent detail sheet
  - C if type of Piling used

**NOTE:**
This sheet to be completed by Moody Construction Personnel.