**GENERAL NOTES**

**SPECIFICATIONS:** Slope wall is to be constructed according to details shown and to Section 703 of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.

**INCIDENTALS:** Include the cost of steel reinforcement, drain tile, preformed expansion joint material, aggregate, excavation, and all labor and materials required to complete the work in accordance with the plans and Specifications in the price for 6" Concrete Slope wall.

**SKEW:** A 45° Skew is detailed on this sheet. Details for other skews are similar.

**ROCK EXCAVATION:** Excavate the rock to plan depth and slope as near as possible to reduce the quantity of Concrete. Class "A" required to maintain a minimum slope wall thickness. Include the cost of additional concrete required to fill voids in the rock and maintain the slope wall thickness in the bid for 6" Concrete Slope wall.

**SLOPEWALL REINFORCEMENT:** Use No. 4 bars at 18" centers in each direction or an equivalent area of welded deformed steel fabric to reinforce the slope wall.
STENCIL FOR YEAR AND DESIGN LOADING
When year only is used place year in center of plate

STENCIL FOR DRAWING NUMBER

GENERAL NOTES

STENCILS: Fabricate all stencils from recessed panels with beveled edges with raised letters and figures in accordance with Subsection 601.03.19 of the Specifications.

YEAR AND DESIGN LOADING STENCIL: Show the year that the contract is executed and the design load as shown on the contract plans. The design load is required on all structures classified as bridges by Subsection 101.03 of the Specifications and on other structures as referenced on plans.

DRAWING NUMBER STENCIL: Use this stencil on all structures. The number to be placed on the stencil shall be taken from the contract plans.

CONTRACTOR STENCIL: Place on all bridges, the name of the prime contractor and subcontractor(s), when applicable, in proximity to other stencils required.

LOCATION OF STENCILS ON BRIDGES

LOCATION OF STENCILS

PLAN

ELEVATION A-A
Single Culvert

ELEVATION A-A
Multiple Span Culvert

ELEVATION A-A

Location of Stencils

Plate is midpoint of parapet

Location of Stencils

Stream Line

Inlet End*

Location of Stencils

Outlet End*

* Use the outlet end for outlet only extensions
TYPICAL EXPANSION DAM TREATMENT

Slurry Treatment

Area to Receive Epoxy Slurry Treatment

Existing Joint Backing Rod.

Styrofoam Joint Sealer

New Preformed or Waterstop Copper Strip below New Deck Surface

1" Sealant to a level in accordance with 606 of Spec.

Remove deteriorated concrete shown in cross-hatched area in accordance with 606 of Spec.

Structural Steel weights given are approximate and the Contractor is responsible for all measurements.

Determine dimension Z for thickness of the built-up plates as the minimum specified thickness of overlay minus ¼".

Steel is to be furnished in 3-foot minimum lengths welded together as directed by the Engineer.

FIGURE NO. 1

FIGURE NO. 2

FIGURE NO. 3

FIGURE NO. 4
## Description of Soil Compactness or Consistency

<table>
<thead>
<tr>
<th>SOIL TYPE</th>
<th>COMPACTNESS OR CONSISTENCY</th>
<th>RANGE OF PENETRATION RESISTANCE</th>
<th>RANGE OF UNCONFINED COMPRESSIVE STRENGTH</th>
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</thead>
<tbody>
<tr>
<td>Coarse grained soils (More than half of material is larger than No. 200 sieve size.)</td>
<td>Very loose Loose Medium compact Compact Very compact</td>
<td>Less than 4 blows per ft. 4 to 10 10 to 30 30 to 50 Greater than 50</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Fine grained soils (More than half of material is smaller than No. 200 sieve size.)</td>
<td>Very soft Soft Medium stiff Stiff Very stiff Hard</td>
<td>Not applicable</td>
<td>Less than 0.25 tsf 0.25 to 0.50 0.50 to 1.0 1.0 to 2.0 2.0 to 4.0 Greater than 4.0</td>
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</table>

## Unified Soil Classifications

<table>
<thead>
<tr>
<th>MAJOR DIVISION</th>
<th>SYMBOL</th>
<th>NAME</th>
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<tbody>
<tr>
<td>COARSE GRAINED SOILS</td>
<td>GW</td>
<td>Well graded gravels or gravel-sand mixtures, little or no fines.</td>
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<tr>
<td></td>
<td>GP</td>
<td>Poorly graded gravels or gravel-sand-mixtures, little or no fines.</td>
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<tr>
<td></td>
<td>GM</td>
<td>Silty gravels, gravel-sand-silt mixtures.</td>
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<tr>
<td></td>
<td>GC</td>
<td>Clayey gravels, gravel-sand-clay mixtures.</td>
</tr>
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<td>SW</td>
<td>Well graded sands or gravelly sands, little or no fines.</td>
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<tr>
<td>SAND AND SANDY SOILS</td>
<td>SP</td>
<td>Poorly graded sands or gravelly sands, little or no fines.</td>
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<tr>
<td></td>
<td>SM</td>
<td>Silty sands, sand-silt mixtures.</td>
</tr>
<tr>
<td></td>
<td>SC</td>
<td>Clayey sands, sand-clay mixtures.</td>
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<tr>
<td>FINE GRAINED SOILS</td>
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<td>Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.</td>
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<td></td>
<td>CL</td>
<td>Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.</td>
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<td></td>
<td>MH</td>
<td>Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silts.</td>
</tr>
<tr>
<td></td>
<td>CH</td>
<td>Inorganic clays of high plasticity, fat clays</td>
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<tr>
<td>UNCLASSIFIED MATERIAL</td>
<td>NONE</td>
<td>Non-classified material (i.e. overburden, pavement, slag, etc.) include visual desc.</td>
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### Relation of RQD and in situ Rock Quality

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<tr>
<th>RQD (%)</th>
<th>Rock Quality</th>
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<tr>
<td>90 - 100</td>
<td>Excellent</td>
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<tr>
<td>75 - 90</td>
<td>Good</td>
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<td>Fair</td>
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<tr>
<td>25 - 50</td>
<td>Poor</td>
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<tr>
<td>0 - 25</td>
<td>Very Poor</td>
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</table>

### Typical applications:
- Approximate Footing Elevation
- Slope Inclinometer Installation
- Rock Core
- Disturbed Sample Boring & Rock Core
- Standard Penetration Test Sample
- Thin-walled Tube Sample
- Unconsolidated, Undrained Triaxial Test
- Unconfined Compressive Strength
- Moisture Content
- Rock Quality Designation
- Slake Durability Index (Jar Slake Test)
- Core Recovery
- Angle of Internal Friction
- Effective Angle of Internal Friction
- Cohesion
- Effective Cohesion
- Total Unit Weight
- Rock Disintegration Zone
- Overburden Bench
- Intermediate Bench
- Refusal Not Encountered
- Field Vane Shear Strength
NOTE: Reposition barrier stirrups in manner shown as to not interfere with drain opening.

SECTION THROUGH DRAIN  PLAN OF DRAIN (Barrier not in place)

NOTE: Field bend top transverse slab reinforcement in the area of the drain to maintain 2\(\frac{1}{2}\)" of concrete cover through the drain. Bend reinforcement approximately 1'-0" from the gutter line. Transverse slab reinforcement adjacent to the opening is not to be bent. Longitudinal reinforcement is not to be tied to the transverse reinforcement adjacent to the drain for a distance sufficient to allow the reinforcement to sag under the bent reinforcement in the drain area.

THROUGH BARRIER DRAIN DETAILS

NOTE: Reposition curb stirrups in manner shown as to not interfere with drain opening.

SECTION THROUGH DRAIN  PLAN OF DRAIN (Curb not in place)

NOTE: Field bend top transverse slab reinforcement in the area of the drain to maintain 2\(\frac{1}{2}\)" of concrete cover through the drain. Bend reinforcement approximately 1'-0" from the gutter line. Transverse slab reinforcement adjacent to the opening is not to be bent. Longitudinal reinforcement is not to be tied to the transverse reinforcement adjacent to the drain for a distance sufficient to allow the reinforcement to sag under the bent reinforcement in the drain area.

THROUGH CURB DRAIN DETAILS

NOTE: Assembled drains shall be galvanized in accordance with ASTM A123.

SECTION THROUGH DRAIN

THROUGH DECK DRAIN DETAILS

NOTE: Assembled drains shall be galvanized in accordance with ASTM A123.
Class "A" Concrete is to be used. CONCRETE: in accordance with ASTM A 615, Grade 60. **REINFORCEMENT:** All steel reinforcement is #4 bars in accordance with ASTM A 615, Grade 60. **CONCRETE:** Class "A" Concrete is to be used.
Payment for armored edges and structural granular backfill shall be made separately.

**Approach Slab**

**Typical Section @ Bridge End**

**Typical Section @ Sleeper Slab End**

**General Notes**

1. The joint opening width shall be 2.5 in for expansion lengths of 150 feet or less, regardless of the joint setting temperature. For expansion lengths greater than 150 feet, the joint opening width shall be based on the actual ambient temperature at the time of construction, with the manufacturer's joint setting table. The expansion length must be shown in the plans.

   The precompressed foam joint shall be able to accommodate both the minimum and the maximum joint opening widths as shown below:

   Concrete Bridge Expansion length less than 347 feet and Steel Bridge Expansion Length less than 275 feet.

   \( W_{\text{min}} = 1.0 \) inch

   \( W_{\text{max}} = 4.0 \) inches

   This standard is not applicable for concrete bridge expansion lengths greater than 347 feet or Steel bridge expansion lengths must be done and placed within the plans using a joint capable of greater movements greater than 275 feet. For bridges exceeding these limits a special design must be done and placed within the plans using a joint capable of greater movements.

   **Concrete Bridge Expansion**

   - Standard: No. 5 Bars @ 1' = 10' (Bot. & Top of Ftg.)
   - Special Provision No. 69)

   **Steel Bridge Expansion**

   - Standard: No. 8 Bars @ 1'$= 5'-0" (Bot. & Top of Ftg.)
   - Special Provision No. 69)
General Notes

Construct junction boxes from 1/8" A36 steel plate and the junction box cover from 1/8" A36 plate. Hot dip galvanize box and cover after fabrication and in accordance with ASTM A123 and the Standard Specifications. Cover plate shall include (5) Stainless Steel screw taps with wing nuts and a Rubber Gasket for all sides where screws are installed.

Fittings shall be UL listed and CSA-certified concrete tight on the outside of the Junction Box conduit connection. Use a sealing lock nut and a rigid PVC conduit bushing on the inside for all conduit penetrations.

Liberally coat the threads of the cover fasteners with anti-seize compound during construction and before final closure.

Protect cover of J.B. from damage/disfigurement from masonry coating application and other sources by taping or wrapping during construction. Remove protection prior to final electrical inspection and repair any damage or disfigurement to the satisfaction of the Engineer and at no cost to the Department.

When properly installed, box cover will be flush with barrier face and box bottom will slope to drain approximately 1/2" / ft. in all cases.

The price bid for Junction Box - 24" shall include all costs to furnish and install the junction box in accordance with these plans and the Specifications.

Mount box so cover is flush with barrier face.

Stainless Steel Wing Nut (5 required)

Bushing Detail at J.B. Conduit Entry
General Notes

Construct junction boxes from \( \frac{1}{4}'' \) A36 steel plate and the junction box cover from \( \frac{3}{4}'' \) A36 plate. Hot dip galvanize box and cover after fabrication and in accordance with ASTM A123 and the Standard Specifications. Cover plate shall include (5) Stainless Steel screw taps with wing nuts and a Rubber Gasket for all sides where screws are installed.

Fittings shall be UL listed and CSA-certified concrete tight on the outside of the Junction Box conduit connection. Use a sealing lock nut and a rigid PVC conduit bushing on the inside for all conduit penetrations.

Liberally coat the threads of the cover fasteners with anti-seize compound during construction and before final closure.

Protect cover of J.B. from damage/disfigurement from masonry coating application and other sources by taping or wrapping during construction. Remove protection prior to final electrical inspection and repair any damage or disfigurement to the satisfaction of the Engineer and at no cost to the Department.

When properly installed, box cover will be flush with barrier face and box bottom will slope to drain approximately \( \frac{1}{2}'' \) / ft. in all cases.

The price bid for Junction Box - 24" shall include all costs to furnish and install the junction box in accordance with these plans and the Specifications.
**GENERAL NOTES**

The bid for junction boxes shall include furnishing and installing specified junction box in accordance with the specifications. Junction box, Type A, shall include No. 57 aggregate as shown on this sheet, backfilling and restoration of disturbed areas to the satisfaction of the resident engineer, and concrete (if required).

Provide and install conduit caps and sleeve type expansion devices capable of sustaining a 1", 2" total movement at each integral end bents. All conduit shall have copper grounding bushings installed. The cost of the caps, expansion devices, and copper grounding bushings is incidental to the 3" conduit.

The 3" conduit in each barrier is to be schedule 80 PVC and is a separate pay item.

**CONDUIT, DUCTED CABLE AND WARNING TAPE TRENCH**

**ELEVATION - EXPANSION AND CONDUIT DETAILS**

**PLAN - EXPANSION AND CONDUIT DETAILS**

**CONCRETE CABLE MARKERS**

**JUNCTION BOX INSTALLATION**
GENERAL NOTES

Mastic Tape - Mastic Tape used to seal joints is to meet the requirements of ASTM C-877, Type I, II, or III. The joint is to be covered with 12-inch wide mastic tape. Prior to application, the joint surface shall be clean and free of dirt, debris, or deleterious materials. Primer, if required by the tape mfgr., shall be applied for a minimum width of nine inches on each side of the joint.

Mastic Tape shall be either:

- EZ-TECT RUBBER by PRESS SEAL GASKET CORPORATION
- SEAL WRAP by MAR MAC MANUFACTURING CO. INC.
- EZ-WRAP RUBBER by PRESS-SEAL GASKET CORPORATION

Mastic Tape shall be either:

- CADILLOC by the UP RUBBER CO. INC.
- SEAL WRAP by MAR MAC MANUFACTURING CO. INC.
- EZ-WRAP RUBBER by PRESS-SEAL GASKET CORPORATION

Mastic Tape shall be either:

- Mastic Tape shall be considered incidental to the unit price bid for Concrete Class "A" and no separate measurement or payment shall be made.

Mastic Tape shall be applied for a minimum width of nine inches on each side of the joint.

The cost of labor, materials, and incidental items for furnishing and installing Mastic Tape shall be considered incidental to the unit price bid for Concrete Class "A" and no separate measurement or payment shall be made.

Mastic Tape shall cover the joint continuously unless otherwise shown in the plans. Mastic Tape shall be applied by lapping a minimum of six inches and in accordance with the mfgrs recommendations with the overlap running downhill.

At preformed expansion joint material, caulking, mastic tape, pipe sleeve and equipment and labor necessary to complete the joints are incidental to the square foot bid for Retaining Walls.
**CASES I, II, AND III**

- Fabric wrapped drain at each weep hole
- 4" pipe for weep holes spaced 8' on centers

*SPECIAL DESIGNS REQUIRED* if wall is subject to standing or flowing water regardless of case.

**CASES V AND VI**

- Fabric wrapped drain at each weep hole
- 4" pipe for weep holes spaced 8' on centers

*HS* = height of backslope,
If *hs* > *H* for Case VI, use Case III.
If *hs* > *H/2* for Case V, use Case II.

**BEDROCK**

- Bedrock
- Class II or better fabric

**GRANULAR FOUNDATION REPLACEMENT**

- Class II or better fabric
- Granular foundation replacement

**BEARING ON BEDROCK**

- Bedrock
- Class II or better fabric

**GRAVITY WALL**

- Standard
- BGX-023

**STATE HIGHWAY ENGINEER**

- DATE
- SUBMITTED
- APPROVED
STANDARD GRAVITY WALL NOTES

The retaining walls depicted on these drawings shall be used when the height (H) of the wall is 12'-0" or less provided the following conditions are met:

CASE I - Wall backfill slopes down, is level, or slopes up from wall at 20H:IV or flatter slope. This low slope allows for backfills that would be level except for the slope required to facilitate proper drainage.

CASE II - Backfill slopes steeper than 20H:IV but no more than 4H:IV.

CASE III - Backfill slopes steeper than 4H:IV but no more than 2H:IV.

CASE IV - Backfill slopes down, is level, or slopes up from wall at 20H:IV or flatter slope (as needed to facilitate proper drainage) and has a maximum live load surcharge of 250 pounds per square foot applied to the level portion of the backfill. If the height of the backfill to the slope break equals or exceeds one-half the height of the wall (Hs ≥ H/2), use CASE II.

CASE V - Broken-back backfill slopes no more than 4H:IV to a level surface (except for slope needed to facilitate proper drainage) and has a maximum live load surcharge of 250 pounds per square foot applied to the level portion of the backfill. If the height of the backfill to the slope break equals or exceeds one-half the height of the wall (Hs ≥ H/2), use CASE I.

CASE VI - Broken-back backfill slopes up steeper than 4H:IV but no more than 2H:IV to a level surface (except for slope needed to facilitate proper drainage) and has a maximum live load surcharge of 250 pounds per square foot applied to the level portion of the backfill. If the height of the backfill to the slope break equals or exceeds one-half the height of the wall (Hs ≥ H/2), use CASE I.

Special Designs shall be required when the following conditions exist:

1. Wall height is greater than 12'-0".
2. Backfill slopes are steeper than 2H:IV.
3. The wall is surcharged with a live load exceeding 250 pounds per square foot within the limits of a 1:1 slope extending from the base of the wall.
4. The wall is surcharged with a dead load (i.e., buildings, structures, or other permanent facilities) within the limits of a 1:1 slope extending from the base of the wall.
5. Minimum embedment value is 2'-0" for all cases.
6. Backfill (b) shall be as follows: Cases I, II, a, and b - For H < 12'-0" use 12V:1H. For H ≥ 12'-0" use 12V:1H. Case III - For H < 7'-0" use 12V:1H. For H ≥ 7'-0" use 6V:1H. Cases IV, V, a, b, and VI - For H < 6'-0" use 12V:1H. For H ≥ 6'-0" use 6V:1H.
7. Fabric wrapped drains and 4" pipe for weep holes shall be included in the unit price bid for gravity type retaining walls.

Granular backfill, granular foundation replacement to bedrock, or a wall bearing directly on competent unweathered bedrock is required for the following cases:

Case II b For H > 9.5'

Case III - For H > 8'

Case V b For H > 10.5'

Case VI - For H > 9'

Walls subject to standing or flowing water (adjacent to streams, ponds, lakes, rivers, detention basins, etc.) shall have granular backfill meeting the requirements below regardless of the Case.

Granular backfill or granular foundation replacement to bedrock (when required) shall meet the requirements of "Granular Backfill" in Section 805 of the Standard Specifications, current edition, except that the maximum size is 4 inches with a minus No. 200 content not exceeding 5.0 percent. Use material that classified as nonerosive, as defined in Section 805 of the Standard Specifications, current edition. Granular or sands, crushed or uncrushed, shall not be allowed. Place Class II or better Geotextile Fabric in accordance with Sections 214 and 843 of the Standard Specifications, current edition, as shown below, where there is a soil-granular material interface.

Construct standard gravity retaining walls according to Section 613 of the Standard Specifications, current edition, with the exceptions that the wall shall be constructed according to this Standard Drawing and that the wall's base width shall exceed 1/2 vertical height when required by plan notes or this Standard Drawing. Gravity walls meeting the criteria for Standard Gravity Wall defined herein may still require a Geotechnical Investigation. Conditions warranting a site investigation and geotechnical exploration shall be as defined in this Standard Drawing and KYTC Geotechnical Policy Manual Section 400, current edition.

**REQUIRED BASE WIDTH, B' FT**

<table>
<thead>
<tr>
<th>H(ft)</th>
<th>Case I</th>
<th>Case II a</th>
<th>Case II b</th>
<th>Case III</th>
<th>Case IV</th>
<th>Case V a</th>
<th>Case V b</th>
<th>Case VI</th>
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* Requires Granular Backfill, Granular Foundation replacement to bedrock, or bearing directly on competent unweathered bedrock.

**DESIGN PARAMETERS**

Large block retaining walls without reinforced backfill are suitable alternatives to Standard Gravity Walls. Approved large block retaining wall suppliers can be found on the Structural Design web site. Contractors shall submit to the Engineer for review and approval a design for a large block wall alternative using the following design parameters unless site-specific geotechnical information is provided or required. The wall design shall be in accordance with the AASHTO Standard Specifications for Highway Bridges, current edition.

- **Soil Backfill**
  - $c' = 60$ psf, $\phi = 28°$, $\gamma = 120$ pcf

- **Granular Backfill or foundation replacement**
  - $c' = 1200$ psf, $\phi = 0$, $\gamma = 120$ pcf
  - $c = 6$, $\phi = 38°$, $\gamma = 115$ pcf

**Pay Items:**
- Concrete, Class B
- Structure Excavation
- Granular Embankment (when required)
- Geotextile Fabric (when required)

**KENTUCKY DEPARTMENT OF HIGHWAYS**

**STANDARD GRAVITY WALL**

**STANDARD DRAWING NO. B6X-024**

**APPROVED**

**02-26-20**
**GENERAL NOTES**

**SPECIFICATIONS:** Unless otherwise noted, vinyl coating all materials used in the fabrication of the pedestrian cage, stair and ramp fence and handrail in accordance with AASHTO Standard Specification H 181, current edition.

**POST:** Ensure fence posts are NPS Designation 2½" @ 3.66 lbs./ft., Grade 1.

**RAILS AND HANDRAIL:** Ensure rails are NPS Designation 1½" @ 2.28 lbs./foot, Grade 1.

**CHAIN LINK FABRIC:** Use Polystyrene Chloride (PVC) coated steel fence Type IV for this project with the color of coating to be Dark Green with the size of fence being in accordance with Section 817 of the Specifications. Tie the fabric to the posts and rails at 2 ft. centers (maximum)

**ANCHOR PLATES:** Place plates prior to pouring the concrete. Drilling of concrete to place anchor plates is not an option. Ensure anchor plates, handrail plates, and U-shaped rods conform to AASHTO M183 or SAE specification H 1020 and galvanized in accordance with ASTM A153. Apply a vinyl finish coat on all exposed surfaces of the anchor places after the posts are in place.

**DAMAGE COATING:** After the installation of the chain link fabric, clean any damaged areas of any of the fence components by washing with mineral spirit solvent sufficient to remove any contaminants. After cleaning, apply a vinyl washing primer to the surfaces with dry film thickness of 0.3 mil to 0.5 mil before the final vinyl finish coat is applied.

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**SECTION A-A**

**DETAIL "A" - Anchor**

**TYPICAL HALF SECTION OF PEDESTRIAN CAGE FOR OVERPASSES**

**TYPICAL SECTION THROUGH RAMP OR STAIRS**

**TYPICAL ENDPOST**

**RAIL TREATMENT**

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KENTUCKY DEPARTMENT OF HIGHWAYS

CHAINLINK FENCE

STANDARD DRAWING NO. BGX-025

LAMINATED

02-28-20

REVISED

02-28-20
1" I.D. Plastic Pipe
Field Bend as Shown

**NOTE:** When Slab is used and high water expected over bottom of beam elevation, place 1" plastic pipe above beams 4'-0" from each end. Work and material is incidental to superstructure concrete.

**AIR VENT DETAIL**