1. **ADDITIONAL CONSTRUCTION DETAILS ARE PROVIDED ON SHEETS 1 AND 2.**

   - **ATTACHMENTS:**
     - SHEET 1: CONSTRUCTION DETAILS
     - SHEET 2: CONSTRUCTION DETAILS

2. **ADDITIONAL MATERIALS ARE PROVIDED ON SHEET 1 AND 2.**

3. **ADDITIONAL DIMENSIONS ARE PROVIDED ON SHEET 1 AND 2.**

4. **ADDITIONAL PROFILES ARE PROVIDED ON SHEET 1 AND 2.**

5. **ADDITIONAL ELEVATIONS ARE PROVIDED ON SHEET 1 AND 2.**

6. **ADDITIONAL PLANS ARE PROVIDED ON SHEET 1 AND 2.**

7. **ADDITIONAL LAYOUTS ARE PROVIDED ON SHEET 1 AND 2.**

8. **ADDITIONAL GENERAL NOTES ARE PROVIDED ON SHEET 1 AND 2.**

9. **ADDITIONAL REFERENCES ARE PROVIDED ON SHEET 1 AND 2.**

10. **ADDITIONAL DRAWINGS ARE PROVIDED ON SHEET 1 AND 2.**

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**GENERAL NOTES**

1. **DESIGN SPECIFICATIONS:**
   - **AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS**
   - **PENNDOT DESIGN MANUAL PART 4, VOLUME 1, PART B: DESIGN SPECIFICATIONS AND VOLUME 2, APPENDIX G**

2. **MATERIAL STANDARDS:**
   - **C-10 CONCRETE**
   - **A-36 STEEL**
   - **AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS**

3. **REINFORCEMENT STEEL:**
   - **F' = 60 ksi**
   - **Class A**
   - **Max. Diameter = 2.5 in.**

4. **CALCULATED VOLUME:**
   - **Concrete:**
     - **C1:** 1500 cu. ft.
     - **C2:** 1000 cu. ft.

5. **CONCRETE STRENGTH:**
   - **Class A**
   - **C1:** 5000 psi
   - **C2:** 4000 psi

6. **CONCRETE MIX DESIGN:**
   - **Superplasticizer:**
     - **Type:**
       - **Superplasticizer:**
         - **C1:** 300 psi
         - **C2:** 200 psi

7. **CONCRETE PLACING:**
   - **C1:** 1500 cu. ft.
   - **C2:** 1000 cu. ft.

8. **CONCRETE CURING:**
   - **C1:** 7 days
   - **C2:** 7 days

9. **CONCRETE COMPACTING:**
   - **C1:** 1500 cu. ft.
   - **C2:** 1000 cu. ft.

10. **CONCRETE PLACEMENT:**
    - **C1:** 1500 cu. ft.
    - **C2:** 1000 cu. ft.

11. **CONCRETE FINISHING:**
    - **C1:** 1500 cu. ft.
    - **C2:** 1000 cu. ft.

12. **CONCRETE QUALITY CONTROL:**
    - **C1:** 1500 cu. ft.
    - **C2:** 1000 cu. ft.

13. **CONCRETE ECONOMY:**
    - **C1:** 1500 cu. ft.
    - **C2:** 1000 cu. ft.
NOTCH
PAVING
VARIES
TROWEL SMOOTH SURFACE OF CONSTRUCTION JOINT DIRECTLY UNDER GIRDER AND AREA EXTENDING PROVIDE RAKED FINISH FOR THE REMAINDER OF CONSTRUCTION JOINT.

SECTION A-A
GIRDER WITH PILE

SECTION B-B
NO GIRDER, NO PILE

SECTION C-C
GIRDER WITHOUT PILE

SECTION D-D
PILE WITHOUT GIRDER

NOTES:
1. FOR SECTIONS A-A, B-B, C-C, AND D-D THE REINFORCEMENT AND WATERPROOFING IS INDICATED AS TYPICAL IN THE SECTIONS IS PRESENT IN ALL SECTIONS WHETHER SPECIFICALLY STATED OR NOT.

2. DETAILS SHOWN ARE FOR STEEL BEAMS, DETAILS SIMILAR FOR P/S BEAMS.

3. FOR SECTION C-C, D-D, E-E AND E-T SEE SHEET 2.

4. FOR BAR SIZES OF PILE CAP BEAM TOP AND BOTTOM REINFORCEMENT, SEE NOTE 2.

5. SEE SHEET 8 FOR INSERT LOCATIONS.

6. MATERIALS SHOWN P/S BEAMS SIMILAR. SEE SHEET 3 AND PARTIAL WATERPROOFING INDICATED AS TYPICAL IN THE SECTIONS IS PRESENT IN ALL SECTIONS WHETHER SPECIFICALLY STATED OR NOT.

7. REFER TO WATERPROOFING DETAIL ON SHEET 4 FOR ADDITIONAL INFORMATION.

8. DECK REINFORCEMENT IS NOT SHOWN FOR CLARITY.
**COMMONWEALTH OF PENNSYLVANIA**  
**DEPARTMENT OF TRANSPORTATION**  
**STANDARD**  
BD-667M  
**INTEGRAL ABUTMENT**  
**DETAILS**  
**SECTION E-E**  

**CHIEF BRIDGE ENGINEER**

**STREAMBED**  
**GEOTEXTILE, CLASS 4, TYPE A**

**CONSTRUCTION JOINT**

**FRONT FACE**  
**REAR FACE**  
**AND ABUTMENT**  
**F.F. OF CAP BEAM**  
**SHEET**  

**9" #8 (TYP.)**

**MIN. BENCH**  
**DEPTH**  
**BELOW ANTICIPATED SCOUR**  
**TYP.**

**BEARING STIFFENER**  
**FOR STEEL BEAMS**  
**FOR P/S BEAMS**

**LENGTH OF BARS BETWEEN GIRDER:**

- **FOR BARS BETWEEN INTERIOR BEAMS,** USE **MINIMUM BAR LENGTH EQUAL TO 3" THREADING + THE BARS SHOULD EXTEND TO WITHIN 3" OF THE ADJACENT BEAMS.**

- **LAP SPLICE LENGTH IS GREATER THAN THE GIRDER CLEAR SPACING, GIRDER CLEAR SPACING + LAP LENGTH.**

- **IF THE LAP SPLICE LENGTH IS GREATER THAN THE GIRDER CLEAR SPACING,** USE **MINIMUM BAR LENGTH EQUAL TO THE CLEAR SPACING + LAP LENGTH.**

- **FOR BARS BETWEEN INTERIOR BEAMS,** USE **MINIMUM BAR LENGTH EQUAL TO THE CLEAR SPACING + LAP LENGTH**

- **FOR STEEL BEAMS**

**BELT ANTI-DIAPHRAGM**

**ROCK, CLASS R-8 CHOKED WITH R-4**

**SELECTED BORROW EXCAVATION**

**9" MIN.**

**12" MIN.**

**3" (TYP.)**

**SCOUR PROTECTION DETAIL**

**NOTES:**

1. **MAXIMUM CAP BEAM DEPTH EQUALS 4'-9". IF CAP BEAM EXTENDS BELOW BOTTOM OF FASCIA, USE MINIMUM CUSHION = 9" BENT LEG AND INCLUDE 3" THREADED.**

2. **NO.8 COARSE AGGREGATE MAY BE USED IN LIEU OF THE NO.57 COURSE AGGREGATE FOR THE GEOTEXTILE.**

3. **PLACE GEOTEXTILE ALONG A VERTICAL REAR EXCAVATION FACE, IF POSSIBLE. IF A VERTICAL REJECTION FOOT CANT BE OBTAINED, GEOTEXTILE MAY BE PLACED ALONG THE EXCAVATION SLOPE NOT TO EXCEED 1.50 TO 1.00.**

4. **REFER TO WATERPROOFING DETAIL FOR ADDITIONAL INFORMATION.**

**NOTES PROVIDE WATERPROOFING MEMBRANE IN ACCORDANCE WITH PUBLICATION 408, SECTION 600.3. ADHESIVE ROCK-WELDED PREFORMED MEMBRANE.**

**LEGEND:**

1. **LENGTH OF SPANS BETWEEN SUPPORT**

   - **FOR P/S BEAMS**

2. **NOTE:**

   - **MIN. (TYP.) (SEE NOTES 1 & 2).**

   - **ALONG ENTIRE LENGTH OF ABUTMENT IN 12" LAYERS (MAX.) PLACED WITH NO.57 COARSE AGGREGATE GEOTEXTILE CLASS 4, TYPE A.**

**SHEET 9 OF 9**  
**RECOMMENDED APR. 29, 2016**  
**APR. 29, 2016**

**FOR CLARITY**

(CASING NOT SHOWN H-PILE OR PIPE-PILE)

**DIRECTOR, BUR. OF PROJECT DELIVERY**

**BUREAU OF PROJECT DELIVERY**

**DEPARTMENT OF TRANSPORTATION**

**COMMONWEALTH OF PENNSYLVANIA**
PARTIAL SECTION THRU DETACHED WINGWALL EXPANSION JOINT

SECTION Q-Q
SECTION R-R

VIEW S-S
SECTION T-T

NOTE:
APPROVED WATERPROOFING MEMBRANE
(SEE NOTE 4 OF DETACHED WINGWALL DETAILS)

APPROVED WATERPROOFING MEMBRANE
WITH 6" MINIMUM SLACK
(SEE NOTE 4 OF DETACHED WINGWALL DETAILS)

APPROVED WATERPROOFING MEMBRANE
WITH 6" MINIMUM SLACK
EXISTING FOUNDATION
SLOPE PROTECTION
SUBSTRUCTURE UNIT FOR
DETAIL FOR USING EXISTING
NOTE:
MISCELLANEOUS DETAILS
NOTE:
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
STANDARD
BD-667M
INTEGRAL ABUTMENT
CHIEF BRIDGE ENGINEER
SHEET 9 OF 9
RECOMMENDED APR.29, 2016 RECOMMENDED APR.29, 2016
BUREAU OF PROJECT DELIVERY
INTEGRAL ABUTMENT
WITH R-4 CLASS R-8 CHOKED
EXCAVATION ROCK
SELECTED BORROW
RECOMMENDED
DIRECTOR, BUR. OF PROJECT DELIVERY
ABUTMENT
INTEGRAL
FIXITY ARRANGEMENT FOR
MULTI SPAN STRUCTURES
NOTES:
- FOR THIS SPANNING ARRANGEMENT THE PIER SHOULD BE
  FIXED TO WITHSTAND LONGITUDINAL SUPERSTRUCTURE
  FORCES AT ABUTMENTS.
- FOR ADDITIONAL SPANS PIER STIFFNESS MUST BE
  CONSIDERED TO DEVELOP THE MOST EFFICIENT
  DESIGNS AND MINIMIZE MOVEMENT.

MIXED SUBSTRUCTURE TYPES
NOTE:
INTERNAL ADJACENT MAY BE USED WITH OTHER
ADJACENT TYPES TO MEET SITE REQUIREMENTS
FOR GEOMETRY OR GEOTECHNICAL FEATURES.
INTERNAL ADJACENT MAY BE USED WITH OTHER
ADJACENT TYPES TO MEET SITE REQUIREMENTS
FOR GEOMETRY OR GEOTECHNICAL FEATURES.
INTERNAL ADJACENT MAY BE USED WITH OTHER
ADJACENT TYPES TO MEET SITE REQUIREMENTS
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