Each bearing plate shall be straight and perpendicular to the bearing plate.

Note:
- Refer to AVAR shop drawings for location of grout vents if required.

Grout Vent Detail

Stressing Clearances

Edge Form Hole Pattern

Dimension Table

Strand Position

General Notes

Prestressing Steel:
- 1/2" x 270 KSI, 7-wire strand, low relaxation (ASTM A-416, incl. Supplement 1)
- Ultimate strength: 41.3 KPS
- Max. temporary force (70%): 31.0 KPS
- Initial force (70%): 28.9 KPS
- Area:
  - 0.153 sq. in.
  - 28,000 KSI
- Modulus of elasticity: 28,000 KSI

Bearing Plates:
- Material: ASTM A536 GR. 80–55–06
- Anchorage buildouts, blockouts, including vent pipe blockouts and construction of forms to attach post-tensioning anchorages.

ANCHORHEAD:
- Material: ASTM A536, GR. 80–55–06
- Anchorage:
  - Spiral: 10/0.375/0.0375
  - Pitch: 3"
- Anchorage:
  - Spiral: 8/0.375/0.0375
  - Pitch: 3"

Wedges:
- Material: AISI 11L17 or 12L14 (L = 1.46 in.)
- Size:
  - As shown in table

Duct:
- Material: SPIRO-TYPE, RIGID, GALVANIZED DUCT

General Notes:
- Placing, stressing and grouting procedures are to conform to the standard specifications and as modified by the special provisions.

General Contractor to be responsible for end blockheads, buildouts, blockouts, including vent pipe blockouts and construction of forms to attach post-tensioning anchorages.

Reinforcing bars shall be adjusted, or relocated, during the installation of the tendon enclosures to provide planned clearances to the post-tensioning tendons, anchorages and stressing equipment as directed by the engineer.

In case of conflict between reinforcing steel and post-tensioning tendons, the location of the tendons shall take precedence. The general contractor shall coordinate the detailing and placement of all reinforcing steel to eliminate conflict with required prestressing steel locations.

All forms shall be braced and anchored to support the weight of the bearing plates.

Location of strands in anchorhead:
- All outside holes shall be filled first.

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Issued:
- B1b
- Rev. 0

For Information
GENERAL NOTES

PRESTRESSING STEEL:

0.67 # 270 KSI, 7-WIRE STRAND, LOW RELAXATION (ASTM A-416 INCL. SUPPLEMENT 1)

ULTIMATE STRENGTH: 58.6 KIPS

MAX. TEMPORARY FORCE (75%) 44.0 KIPS

INITIAL FORCE (70%) 41.0 KIPS

AREA: 0.217 SQ. IN.

MODULUS OF ELASTICITY: 28,000 KSI

ANCHOR HEAD:

MATERIAL: ASTM A536 GR. 80-55-06 (Ductile Casting)

WEDGES:

MATERIAL: AISI 11L17 OR 12L14 (L = 1.81 IN.)

DUCT:

MATERIAL: SPIRO-TYPE, RIGID, GALVANIZED DUCT

SIZE: AS SHOWN IN SHOP DRAWING

GENERAL NOTES:

PLACING, STRESSING AND GROUTING PROCEDURES ARE TO CONFORM TO THE STANDARD SPECIFICATIONS AND AS MODIFIED BY THE SPECIAL PROVISIONS.

GENERAL CONTRACTOR TO BE RESPONSIBLE FOR BLOCKOUTS AND CONSTRUCTION OF FORMS TO ATTACH POST-TENSIONING ANCHORAGE.

REINFORCING BARS SHALL BE ADJUSTED, OR RELOCATED, DURING THE EXTENSION NOSE TO PROVIDE PLANNED MULTI-STRAND ANCHORHEAD CLEARANCES TO THE POST-TENSIONING TENDONS, ANCHORAGES AND STRESSING EQUIPMENT AS DIRECTED BY THE ENGINEER.

IN CASE OF CONFLICT BETWEEN REINFORCING STEEL AND POST-TENSIONING TENDONS, THE LOCATION OF THE TENDONS SHALL TAKE PRECEDENCE.

NOTE: A MIN. OF 5 FT OF THE TENDON BEHIND ROUND (O.D) FLAT CHECKED BY: MP DATE: 3-30-10

PERPENDICULAR TO THE BEARING PLATE. ACS-4.6 1 THRU 4

PROJECT: PROJECT NO: CONTRACT NO:

CONTRACTOR: DRAFTS: DRAFTS: DATE: 3-30-10

NOTE: AS SHOWN IN SHOP DRAWING

PRESTRESSING DETAILS

GENERAL NOTES AND ANCHORAGE DETAILS

UNIT STRAND ROUND (O.D) PLATE

ACS MP 4.6/7.5 ANCHORAGE

STRESSING JACK ASSEMBLY

DIMENSION TABLE

UNIT STRAND DUCT

ACS MP 4.6 1 THRU 4 2" 1" x 3"
**INSTALLATION PROCEDURE**

1. Reassemble the multi-plane anchor, bolted spiral, and PE trumpet. Lightly grease mounting studs to facilitate removal.

2. Bolt the multi-plane anchor assembly to the formwork as shown. The anchor must be oriented such that the grip hole is at the top. Tape the grip hole to prevent concrete leakage.

3. Insert ducts as shown on shop drawings (tolerance = ±1/4") connect duct to transition trumpet as shown on this drawing. Tape all joints to ensure leak-tight connections.

4. Ducts must be tied at maximum 6" centers to prevent movement during concrete placement.

5. After initial cure and removal of formwork, install strands leaving sufficient length for stressing.

6. Inspect hardware for rust, dirt, and grit. Disassemble rusty wedges. If necessary, clean wedge plate holes with wire brush.

7. Install wedge plate and wedges. Loosely seat wedges into holes.

8. Stressing may now proceed per plans.

9. After stressing, cut off strand tails approximately 3/4" from wedge face.

10. Lightly grease grout cap and install over wedge plate with seal.

11. Thread grit tube with attached valve into threaded hole at top of anchor.

12. Vent grit tube using 1/8" tee and seal with golf tee.

**CONCRETE PLACEMENT MAY NOW PROCEED**

13. After grout has cured, remove grout caps for reuse. Cut off grit tube flush with anchor face.

14. Lightly grease grout cap and install over wedge plate with seal.

15. Thread grit tube with attached valve into threaded hole at top of anchor.


**STRESSING MAY NOW PROCEED**

17. After grout has cured, remove grout caps for reuse. Cut off grit tube flush with anchor face.

18. Lightly grease grout cap and install over wedge plate with seal.

19. Thread grit tube with attached valve into threaded hole at top of anchor.

20. Vent grit tube using 1/8" tee and seal with golf tee.

**NOTES:**

1. For tendon sizes less than system capacity, eliminate the use of wedge holes concentrically from the center of the wedge plate outward.

2. The multi-plane anchorages may be used as stressing or dead-end anchorages.

3. Not all systems shown on this sheet may be required for this project.

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**TYPICAL LONGITUDINAL SECTION OF DYWIDAG MA-ANCHORAGE**

**EMBEDDED MATERIALS**

<table>
<thead>
<tr>
<th>PART DESCRIPTION</th>
<th>MATERIAL SPECIFICATION</th>
<th>PART NO./ ORDER NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAST WEDGE PLATE</td>
<td>2-1/8&quot; CAST WEDGE PLATE</td>
<td>68 05 044</td>
</tr>
<tr>
<td>SPIRAL</td>
<td>5-0.6&quot; SPIRAL</td>
<td>68 05 212</td>
</tr>
<tr>
<td>MULTI-PLANE ANCHOR CASTING</td>
<td>GALVANIZED, CORRUGATED SHEET METAL, 24G, 26GAUGE 26</td>
<td>68 05 088</td>
</tr>
<tr>
<td>DUCT COUPLER</td>
<td>GALVANIZED, CORRUGATED SHEET METAL, 24G, 26GAUGE 26</td>
<td>68 05 214</td>
</tr>
<tr>
<td>5-0.6&quot; STANDARD SPIRAL</td>
<td>#4 GR. 6, ASTM A416, 7 3/4&quot; D. O. 1 7/8&quot; PITCH, 6 FUL TURNS</td>
<td>68 05 088</td>
</tr>
</tbody>
</table>

**STRESSING CLEARANCE - CROSS SECTION**

**INTERMEDIATE VENT DETAILS**

*Use only when indicated on layout drawing*

**STRESSING CLEARANCE - PLAN VIEW**

**NOTE:**

Contractor shall provide a hole (3/4") in formwork for access to the inside of the tendon. This hole shall be located at the center of the anchorage. (See F7 details for location)
**POST TENSIONING GENERAL NOTES**

**PRESTRESSING STEEL**

- Prestressing steel strand supplied for the SDI PT system shall be clean and free from deleterious corrosion. Strand will be shipped in reel, less than 1000 feet for field fabrication and placement. Steel shall conform to ASTM A416, Grade 270 Low Relaxation Type.

  - Nominal strand diameter (Grade 270 KSI) 0.61 in
  - Cross-sectional area (assumed) 0.217 sq in
  - Modulus of elasticity (assumed) 29,300 KSI
  - Guaranteed ultimate tensile strength (duties) 58.6 KSI
  - Maximum stressing force per strand (75% GUTS) 44 KIPS
  - Wedge seating 0.375 in
  - Friction coefficient varies
  - Wobble coefficient 0.0002/FT

**BEARING PLATE AND ANCHOR HEADS**

- Material for the casting of bearing plates and anchor heads shall conform to ASTM A238 OR 80-50-58.

**WEIGHTS**

- For all wedges shall conform to ASI 111.17 or 1214.

**Duct**

- RIGID SPANO-GALVANIZED STEEL

**INSTALLATION**

- Installation and grouting of all post-tensioning shall conform to the State standard specifications issued by the Department of Transportation and as modified by the project specific special provisions. Only trained, qualified personnel are allowed in the immediate vicinity of placement during use, as the stressing and anchoring equipment is considered dangerous. Only trained personnel shall be allowed to operate such equipment. The manufacturer should be contacted to certify anyone to stand directly behind the jack or dead end during stressing. Improper care and/or use of stressing equipment may result in property damage and/or personnel injury.

- In case of conflict between reinforcing steel and post-tensioning tendons, the location of the tendons shall take precedence. The general contractor shall coordinate the detailing and placement of all reinforcing steel to eliminate conflict with pre-stressing steel or stressing equipment. General contractor shall be responsible for all forework, blockouts, pourbacks and the coordination and adjustment of all pre-stressing steel.

**VENTING**

- Grout vents shall be placed on top of all anchorages and within 3' of one high point on all tendons exceeding 400 feet in length. See drawings for locations and details.

**OTHERS**

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