### Specifications:

### Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 18" entering perpendicular on the 2' wide side and shall not exceed 24" (24" for R.C. arch pipe) on the 3' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12" with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 1 1/2" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.

### PIPE DISPLACEMENT REDUCTIONS

<table>
<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Wall T (Inches)</th>
<th>Class M6 Concrete (Cu. Yd.)</th>
</tr>
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<tbody>
<tr>
<td>12</td>
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<td>0.05</td>
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<tr>
<td>24</td>
<td>3</td>
<td>0.09</td>
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<table>
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<tr>
<th>R.C. Arch</th>
<th>R.C. P.</th>
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</thead>
<tbody>
<tr>
<td>18</td>
<td>2 1/2</td>
</tr>
<tr>
<td>24</td>
<td>3 1/2</td>
</tr>
</tbody>
</table>

### DROP INLETS FOR 12" TO 24" DIAMETER PIPE

#### PLAN VIEW

[Plan View Diagram]

#### BOTTOM SECTION

[Bottom Section Diagram]

### ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>Item</th>
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<th>Constant Quantity</th>
<th>Variable Quantity</th>
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<td>0.22H</td>
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<tr>
<td>Reinforcing Steel</td>
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<td>83.03</td>
<td>28.97H</td>
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<tr>
<td>Frame and Grate Assembly</td>
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REINFORCING SCHEDULE

<table>
<thead>
<tr>
<th>Mk. No.</th>
<th>Size</th>
<th>Length</th>
<th>Type</th>
<th>Bending Details</th>
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</thead>
<tbody>
<tr>
<td>a</td>
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<td>b</td>
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<td>5</td>
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<td>17</td>
</tr>
<tr>
<td>d</td>
<td>22</td>
<td>4</td>
<td>H-2&quot;</td>
<td>Str.</td>
</tr>
</tbody>
</table>

Note: All dimensions are out to out of bars.

DATE: 8-19-22

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

2' x 3' TYPE B
REINFORCED CONCRETE DROP INLET

N.T.S.
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 24" (24" for R.C. arch pipe) on the 3' wide side and shall not exceed 36" (30" for R.C. arch pipe) on the 4' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12" with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 2 1/2" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.
3' x 4' TYPE B
REINFORCED CONCRETE DROP INLET

REINFORCING SCHEDULE

<table>
<thead>
<tr>
<th>Mk.</th>
<th>No.</th>
<th>Size</th>
<th>Length</th>
<th>Type</th>
<th>Bending Details</th>
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</thead>
<tbody>
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<td>2.67H</td>
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<td>10'-0&quot;</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>7</td>
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<tr>
<td>c</td>
<td>7</td>
<td>4</td>
<td>6'-6&quot;</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>28</td>
<td>4</td>
<td>H + 9&quot;</td>
<td>517</td>
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<tr>
<td>e</td>
<td>28</td>
<td>4</td>
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<td>4</td>
<td>7'-0&quot;</td>
<td>17</td>
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</tr>
</tbody>
</table>

Note: All dimensions are out to out of bars.

Top of Wall Elevation, See Plans

Maximum "H" is 10'-0"

Drop Inlet

Maximum "H" is 10'-0"

SECTION A - A

SECTION B - B

DETAIL "X"

DATE: 8-19-22

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

3' x 4' TYPE B
REINFORCED CONCRETE DROP INLET

N.T.S.
DROP INLETS FOR 12'' TO 54'' DIAMETER PIPE

Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 24" (24" for R.C. arch pipe) on the 3' wide side and shall not exceed 54" (42" for R.C. arch pipe) on the 5.5' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars and e bars shall be lapped 12" with the c and b bars, respectively. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 2" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22
Sec. - Sht. 62-3a

3' x 5.5' TYPE B
REINFORCED CONCRETE DROP INLET
3' x 5.5' TYPE B
REINFORCED CONCRETE DROP INLET

REINFORCING SCHEDULE

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<tbody>
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<tr>
<td>c</td>
<td>8</td>
<td>4 6-6&quot;</td>
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<td>17</td>
</tr>
<tr>
<td>d</td>
<td>8</td>
<td>4 H+9&quot;</td>
<td>4 S17</td>
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<tr>
<td>e</td>
<td>8</td>
<td>4 H+18&quot;</td>
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<td>f</td>
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<td>4 S19</td>
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<td>g</td>
<td>2</td>
<td>4 7'-0&quot;</td>
<td>4</td>
<td>17</td>
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Bending Details

- Type S17
- Type S19

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22
Sec. - Sht. 62-3b
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 36" (30" for R. C. arch pipe) on the 4' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars and e bars shall be lapped 12" with the c and b bars, respectively. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 1 1/2" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.

N.T.S.

CITY OF RAPID CITY

PUBLIC WORKS DEPARTMENT

DATE: 8-19-22

Sec. - Sht. 62-4a

4' x 4' TYPE B
REINFORCED CONCRETE DROP INLET
4' x 4' TYPE B
REINFORCED CONCRETE DROP INLET

REINFORCING SCHEDULE

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<th>No.</th>
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<th>Length</th>
<th>Type</th>
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<td>c</td>
<td>18</td>
<td>4</td>
<td>H + 15&quot;</td>
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<td>d</td>
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<tr>
<td>e</td>
<td>18</td>
<td>4</td>
<td>2'-6&quot;</td>
<td>S19</td>
</tr>
<tr>
<td>f</td>
<td>18</td>
<td>4</td>
<td>2'-3&quot;</td>
<td>S19</td>
</tr>
<tr>
<td>g</td>
<td>2</td>
<td>4</td>
<td>7'-0&quot;</td>
<td>17</td>
</tr>
</tbody>
</table>

Bending Details

Note:
All dimensions are out to out of bars.

DATE: 8-19-22
N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

Sec. - Sht. 62-4b
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 54" (42" for R. C. arch pipe) on the 5.5' wide side and shall not exceed 24" (24" for R.C. arch pipe) on the 3' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars and e bars shall be lapped 12" with the c and b bars, respectively. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 2" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.

DROP INLETS FOR 12" TO 54" DIAMETER PIPE

PIPE DISPLACEMENT REDUCTIONS

<table>
<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Wall T (Inches)</th>
<th>Class M6 Concrete (Cu. Yd.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2</td>
<td>0.03</td>
</tr>
<tr>
<td>15</td>
<td>2 1/4</td>
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<td>18</td>
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<td>3 1/2</td>
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<tr>
<td>36</td>
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<td>0.20</td>
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<td>60</td>
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DOR INLETS FOR 5.5" X 3" TYPE B
REINFORCED CONCRETE DROP INLET
5.5' x 3' TYPE B
REINFORCED CONCRETE DROP INLET

See Detail "X"

Top of Wall Elevation, See Plans

Floor Elevation, See Plans

*Maximum "H" is 10'-0"

REINFORCING SCHEDULE

<table>
<thead>
<tr>
<th>Mk. No.</th>
<th>Size</th>
<th>Length</th>
<th>Type</th>
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<tbody>
<tr>
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<tr>
<td>b</td>
<td>8</td>
<td>9'-0&quot;</td>
<td>17</td>
</tr>
<tr>
<td>c</td>
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<td>17</td>
</tr>
<tr>
<td>d</td>
<td>16</td>
<td>H-2''</td>
<td>Str.</td>
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<tr>
<td>e</td>
<td>16</td>
<td>H+24''</td>
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<td>f</td>
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<td>S19</td>
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<td>g</td>
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<td>17</td>
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Note:
All dimensions are out to out of bars.

N.T.S.

DATE: 8-19-22
N.T.S.
CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
Sec. - Sht.
62-5b
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 54" (42" for R. C. arch pipe) of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The c bars shall be lapped 12" with the b bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 2 1/2" clear cover on all reinforcing steel unless otherwise noted.
8. Apply a thin layer of grout between the inlet walls and the cover to ensure uniform bearing.
9. The dimension of H is in feet. Maximum H is 10'.
5.5' x 5.5' TYPE B
REINFORCED CONCRETE DROP INLET
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 24" (24" for R. C. arch pipe) on the 3' wide side and shall not exceed 36" (30" for R.C. arch pipe) on the 4' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars and e bars shall be lapped 12" with the c and b bars, respectively. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 1 1/2" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.

4' x 3' TYPE B
REINFORCED CONCRETE DROP INLET
**REINFORCING SCHEDULE**

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<th>Type</th>
<th>Bending Details</th>
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<td>c</td>
<td>9</td>
<td>4 6'-0&quot;</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>18</td>
<td>4 H-2&quot; Str.</td>
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<td></td>
</tr>
<tr>
<td>e</td>
<td>14</td>
<td>4 H+15&quot;     S17</td>
<td></td>
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<td>f</td>
<td>14</td>
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<tr>
<td>g</td>
<td>2</td>
<td>4 6'-9&quot;     17</td>
<td></td>
<td></td>
</tr>
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Note: All dimensions are out to out of bars.

**SECTION A - A**

- **Top of Wall Elevation, See Plans**
- **Floor Elevation, See Plans**  
  - Maximum "H" is 10'-0"

**SECTION B - B**

- **Top of Wall Elevation, See Plans**
- **Floor Elevation, See Plans**  
  - Maximum "H" is 10'-0"

**DETAIL "X"**

- **Drop Inlet**
- **6" CI**
- **1'-6"**

**4' x 3' TYPE B**

**REINFORCED CONCRETE DROP INLET**
DROP INLETS FOR 12" TO 36" DIAMETER PIPE

**ESTIMATED QUANTITIES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Constant Quantity</th>
<th>Variable Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class M6 Concrete</td>
<td>Cu. Yd.</td>
<td>0.43</td>
<td>0.30H</td>
</tr>
<tr>
<td>Reinforcing Steel</td>
<td>Lb.</td>
<td>90.90</td>
<td>40.53H</td>
</tr>
<tr>
<td>Frame and Grate Assembly</td>
<td>Each</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**DROP INLETS FOR 12" TO 36" DIAMETER PIPE**

**Specifications:**

**Notes:**
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 24" (24" for R. C. arch pipe) on the 3' wide side and shall not exceed 36" (30" for R.C. arch pipe) on the 4' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12" with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 2 1/2" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10 feet.

**N.T.S.**

CITY OF RAPID CITY

PUBLIC WORKS DEPARTMENT

3' x 4' TYPE C
REINFORCED CONCRETE DROP INLET

DATE: 8-19-22
Sec. - Sht. 62-8a
REINFORCING SCHEDULE

<table>
<thead>
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<th>Bending Details</th>
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</tr>
<tr>
<td>b</td>
<td>7</td>
<td>7' - 3''</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>c</td>
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</tr>
<tr>
<td>d</td>
<td>34</td>
<td>H - 2''</td>
<td>Str</td>
<td></td>
</tr>
</tbody>
</table>

Note:
All dimensions are out to out of bars.

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22
Sec. - Sht. 62-8b

3' x 4' TYPE C
REINFORCED CONCRETE DROP INLET
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Inlet may be precast. If precast inlet is used, and details differ from that shown, the precast inlet shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners and must fit between the inside face of walls.
5. Maximum R.C. pipe diameter shall not exceed 36" (30" for R. C. arch pipe) on the 4' wide side of the drop inlet and shall not exceed 48" (36" for R. C. arch pipe) on the 5' wide side of the drop inlet.
6. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12" with the b and c bars, respectively. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
7. Use minimum 2 1/4" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.

N.T.S.

CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT

DATE: 8-19-22

Sec. - Sht. 62-9a

4' x 5' TYPE C
REINFORCED CONCRETE DROP INLET
4' x 5' TYPE C
REINFORCED CONCRETE DROP INLET

N.T.S.
Specifications:

Notes:
1. The dimension H is in feet.
3. Cut and bend reinforcing steel during construction as necessary to accommodate pipe outlet. All reinforcing steel shall conform to ASTM A615 grade 60.
4. All Concrete shall be Class M6.
5. All angles shall conform to ASTM A36. Tubes shall conform to ASTM A500 grade B.
6. All exposed edges shall be chamfered 3/4".
7. Use 1 1/2" clear cover on all reinforcing steel except as shown.
8. After welding is complete, galvanize the frame and grate assembly in accordance with AASHTO M111 (ASTM A123). For information only, the estimated weight of the frame and grate assembly is 338 pounds.
9. Type L Median Drain shall be paid for at the contract unit price per each, which shall be full compensation for furnishing all materials and labor including casting, concrete collars for pipe connections, and necessary excavation and backfill required to construct one complete drain.
9. The location and size of pipe outlet from the drain shall be as noted on plan sheets. All pipes entering the structure shall leave a minimum 3" wall on each side of the pipe penetration.

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

TYPE L MEDIAN DRAIN
FOR 6:1 INSLOPE

DATE: 8-19-22
Sec. - Sht. 62-10a
TYPE L MEDIAN DRAIN
FOR 6:1 INSLOPE

REINFORCING SCHEDULE
(For 1 Drain)

<table>
<thead>
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<th>Type</th>
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<td>H + 4''</td>
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<td>a2</td>
<td>2</td>
<td>4</td>
<td>H + 6''</td>
</tr>
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<td>4</td>
<td>H + 7''</td>
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<td>a4</td>
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<td>4</td>
<td>H + 9''</td>
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<td>a5</td>
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<td>H + 10''</td>
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<td>a6</td>
<td>6</td>
<td>4</td>
<td>H + 10''</td>
</tr>
<tr>
<td>b</td>
<td>18</td>
<td>4</td>
<td>4''-9''</td>
</tr>
<tr>
<td>c</td>
<td>19</td>
<td>4</td>
<td>3''-9''</td>
</tr>
<tr>
<td>d</td>
<td>2</td>
<td>4</td>
<td>2''-4''</td>
</tr>
</tbody>
</table>

Note:
All dimensions are out to out of bars.

Station and Offset, Referred to in Plans, See Detail Sheet A

This point is intersection of inslope and ditch bottom. Elevation is equal to ditch flow line elevation at location noted on plans.

Weld #3 x 0'' - 10'' Rebar to Angle

Type L Frame and Grate Assembly

Weld #3 x 0'' - 10'' Rebar to Angle

Maximum H is 4'' - 0''

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT
DATE: 8-19-22
Sec. - Sht. 62-10b
Specifications:

Notes:
1. The dimension H is in feet.
3. Median drain may be precast. If precast median drain details differ from this standard plate, submit a checked design done by a SD registered P.E., prior SDDOT approval, and shop plans to the Public Works Director for approval.
4. Cut and bend reinforcing steel during construction as necessary to accommodate pipe outlet. All reinforcing steel shall conform to ASTM A615 grade 60.
5. All Concrete shall be Class M6.
6. All angles shall conform to ASTM A36. Tubes shall conform to ASTM A500 grade B.
7. All exposed edges shall be chamfered 3/4".
8. Use 1 1/2" clear cover on all reinforcing steel except as shown.
9. After welding is complete, galvanize the frame and grate assembly in accordance with AASHTO M111 (ASTM A123). For information only, the estimated weight of the frame and grate assembly is 338 pounds.
10. Type L Median Drain shall be paid for at the contract unit price per each, which shall be full compensation for furnishing all materials and labor including casting, concrete collars for pipe connections, and necessary excavation and backfill required to construct one complete drain.
11. The location and size of pipe outlet from the drain shall be as noted on plan sheets. All pipes entering the structure shall leave a minimum 3" wall on each side of the pipe penetration

N.T.S.
Specifications:

Notes:
2. Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12" with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.
3. Median drain may be precast. If precast median drain details differ from this standard plate, submit a checked design done by a SD registered P.E., prior SDDOT approval, and shop plans to the Public Works Director for approval.
4. Median drain shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering median drain must fit between the inside face of walls and shall not enter through the corners.
5. Structural steel for angles and plates shall conform to ASTM A36. Structural steel for rectangular HSS shall conform to ASTM A500 grade B. For informational purpose, the approximate weight of the frame is 104 pounds and the approximate weight of the grate is 254 pounds.
6. Maximum R.C. pipe diameter shall not exceed 30" (18" R. C. arch pipe) on the 3'-6" wide side and shall not exceed 42" (36" for R. C. arch pipe) on the 5'-6" wide side of the median drain.
7. The dimension of H is in feet. Maximum H is 4'.

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22

Sec. - Sht.
62-12a

TYPE M MEDIUM DRAIN

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>CONSTANT QUANTITY</th>
<th>VARIABLE QUANTITY</th>
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<td>0.30H</td>
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<tr>
<td>Reinforcing Steel</td>
<td>Lb.</td>
<td>72.01</td>
<td>33.87H</td>
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<tr>
<td>Type M Frame and Grate Assembly</td>
<td>Each</td>
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<td></td>
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ESTIMATED QUANTITIES

PIPE DISPLACEMENT REDUCTIONS

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<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Wall T (Inches)</th>
<th>Class M6 Concrete (Cu. Yd.)</th>
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</thead>
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<tr>
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<td>0.03</td>
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<tr>
<td>15</td>
<td>2 1/4</td>
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<tr>
<td>18</td>
<td>2 1/2</td>
<td>0.05</td>
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<tr>
<td>24</td>
<td>3</td>
<td>0.09</td>
</tr>
<tr>
<td>30</td>
<td>1 1/2</td>
<td>0.14</td>
</tr>
<tr>
<td>36</td>
<td>4</td>
<td>0.20</td>
</tr>
<tr>
<td>42</td>
<td>4 1/2</td>
<td>0.26</td>
</tr>
<tr>
<td>18</td>
<td>2 1/2</td>
<td>0.05</td>
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<tr>
<td>24</td>
<td>3 1/2</td>
<td>0.09</td>
</tr>
<tr>
<td>30</td>
<td>4</td>
<td>0.14</td>
</tr>
<tr>
<td>36</td>
<td>4 1/2</td>
<td>0.19</td>
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REINFORCING SCHEDULE

<table>
<thead>
<tr>
<th>Mk. No.</th>
<th>Size</th>
<th>Length</th>
<th>Type</th>
<th>Bending Details</th>
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</thead>
<tbody>
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<tr>
<td>b</td>
<td>5</td>
<td>5</td>
<td>7' - 6&quot;</td>
<td>17</td>
</tr>
<tr>
<td>c</td>
<td>8</td>
<td>4</td>
<td>5' - 9&quot;</td>
<td>17</td>
</tr>
<tr>
<td>d</td>
<td>2</td>
<td>4</td>
<td>H + 1 1/2&quot; Str.</td>
<td></td>
</tr>
<tr>
<td>d1</td>
<td>14</td>
<td>4</td>
<td>H + 3&quot; Str.</td>
<td></td>
</tr>
<tr>
<td>d2</td>
<td>8</td>
<td>4</td>
<td>H Str.</td>
<td></td>
</tr>
</tbody>
</table>

Note: All dimensions are out to out of bars.

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22
Sec. - Sht. 62-12b

TYPE M MEDIAN DRAIN
TYPE M MEDIAN DRAIN

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22
Sec. - Sht. 62-12c

[Diagram of TYPE M MEDIAN DRAIN]
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Base is intended for use with a Precast Concrete Type S Drop Inlet Lid, Standard Detail 62-13c. Base may be precast. If precast base used, and details differ from that shown, the precast base shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 36" (30" for R.C. arch pipe) entering perpendicular on the 4' wide side and shall not exceed 54" (48" for R.C. arch pipe) entering perpendicular on the 6' wide side of the Drop Inlet. Pipes entering the structure at an angle shall leave a minimum 3" wall on each side of the pipe penetration on the 4' wide side, and shall leave a minimum 4 1/2" wall on each side of the pipe penetration on the 6' wide side.
6. Reinforcing steel shall conform to ASTM A615 grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the inlet wall.
7. Use 1" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 8'.
9. All costs associated with furnishing and installing the precast concrete Type S drop inlet lid and base including the Type S manhole frame and lid, shims, inserts, dowels and concrete collars for pipe connections shall be included in the contract unit price per each for "4' x 6' Concrete Type S Drop Inlet".

N.T.S.
4' X 6' TYPE S DROP INLET BASE

SECTION A - A

Top of Wall Elevation, See Plans

DROP INLET BASE

SECTION B - B

Floor Elevation, See Plans

N.T.S.

DATE:  8-19-22

CITY OF RAPID CITY

PUBLIC WORKS DEPARTMENT

4' X 6' TYPE S DROP INLET BASE

REINFORCING SCHEDULE

<table>
<thead>
<tr>
<th>Mk. No.</th>
<th>Size</th>
<th>Length</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
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<td>5' - 6''</td>
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<td>b</td>
<td>10</td>
<td>5' - 6''</td>
<td>17</td>
</tr>
<tr>
<td>c</td>
<td>2H</td>
<td>4' - 5''</td>
<td>17</td>
</tr>
<tr>
<td>d</td>
<td>2H</td>
<td>4' - 7''</td>
<td>17</td>
</tr>
<tr>
<td>e</td>
<td>44</td>
<td>4' - H + 2''</td>
<td>17</td>
</tr>
</tbody>
</table>

Bending Details

Note:
All dimensions are out to out of bars.

Type 17

PIPE DISPLACEMENT REDUCTIONS

<table>
<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Wall T (Inches)</th>
<th>Class M6 Concrete (Cu. Yd.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2</td>
<td>0.03</td>
</tr>
<tr>
<td>15</td>
<td>2 1/4</td>
<td>0.04</td>
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<tr>
<td>18</td>
<td>2 1/2</td>
<td>0.05</td>
</tr>
<tr>
<td>24</td>
<td>3</td>
<td>0.09</td>
</tr>
<tr>
<td>30</td>
<td>3 1/2</td>
<td>0.14</td>
</tr>
<tr>
<td>36</td>
<td>4</td>
<td>0.20</td>
</tr>
<tr>
<td>42</td>
<td>4 1/2</td>
<td>0.26</td>
</tr>
<tr>
<td>48</td>
<td>5</td>
<td>0.34</td>
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<tr>
<td>54</td>
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<tr>
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<td>48</td>
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ESTIMATED QUANTITIES

<table>
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<tr>
<th>Item</th>
<th>Unit</th>
<th>Constant Quantity</th>
<th>Variable Quantity</th>
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</thead>
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<td>0.41H</td>
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<tr>
<td>Reinforcing Steel</td>
<td>Lb.</td>
<td>253.77</td>
<td>46.76H</td>
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</tbody>
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Note:
All dimensions are out to out of bars.
Notes:
1. The Precast Concrete Type S Drop Inlet Lid and the shims shall be on the current approved list available through proper channels from the SDDOT Office of Bridge Design. To qualify for addition to the approved list, submit a checked design, done by South Dakota Registered Professional Engineers, and shop plans to the Office of Bridge Design for approval. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
2. Design Live Load shall be HL-93.
3. Concrete mix shall be as per fabricator’s design, however, minimum compressive strength shall not be less than 4500 psi. Type II Cement is required.
4. The Type S Manhole Frame and Lid shall conform to AASHTO M105, Class 30.
5. Structural Steel shall conform to ASTM A36. The 3/4" diameter Headed Type A Steel Studs shall conform to Section 7 of the current edition of AWS DI.1 Structural Steel Welding Code.
6. The 3/4" diameter Concrete Inserts shall be galvanized or made of a corrosion resistant material. Provide 3/4" diameter x 1' - 6" long dowels conforming to ASTM A615, grade 60 threaded to fit Inserts with each lid.
7. All costs associated with furnishing and installing the Precast Concrete Type S Drop Inlet lid and base including the Type S manhole frame, shims, inserts, and dowels shall be included in the contract unit price per each for "4' x 6' Concrete Type S Drop Inlet".

N.T.S.
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Base is intended for use with a Precast Concrete Type S Drop Inlet Lid, Standard Detail 62-14c. Base may be precast. If precast base used, and details differ from that shown, the precast base shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 36" (30" for R.C. arch pipe) entering perpendicular on the 4' wide side. Pipes entering the structure at an angle shall leave a minimum 3" wall on each side of the pipe penetration on the 4' wide side, and shall leave a minimum 4 1/2" wall on each side of the pipe penetration on the 6' wide side.
6. Reinforcing steel shall conform to ASTM A615 grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the inlet wall.
7. Use 1" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 8'.
9. All costs associated with furnishing and installing the precast concrete Type S drop inlet lid and base including the type S manhole frame and lid, shims, inserts, dowels and concrete collars for pipe connections shall be included in the contract unit price per each for "4' x 11' Concrete Type S Drop Inlet".

N.T.S.

CITY OF RAPID CITY

PUBLIC WORKS DEPARTMENT

DATE: 8-19-22

4' X 11' TYPE S DROP INLET BASE
**PIECE DISPLACEMENT REDUCTIONS**

<table>
<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Wall T (Inches)</th>
<th>Class M6 Concrete (Cu. Yd.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2</td>
<td>0.03</td>
</tr>
<tr>
<td>15</td>
<td>2 1/4</td>
<td>0.04</td>
</tr>
<tr>
<td>18</td>
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<td>0.09</td>
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<td>3 1/2</td>
<td>0.14</td>
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<tr>
<td>36</td>
<td>4</td>
<td>0.20</td>
</tr>
<tr>
<td>42</td>
<td>4 1/2</td>
<td>0.26</td>
</tr>
<tr>
<td>48</td>
<td>5</td>
<td>0.34</td>
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<tr>
<td>54</td>
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**REINFORCING SCHEDULE**

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<th>Length</th>
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<th>Bending Details</th>
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<tr>
<td>c</td>
<td>2H</td>
<td>4</td>
<td>5'-6&quot;</td>
<td>17</td>
<td></td>
</tr>
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<td>d</td>
<td>2H</td>
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<td>12'-6&quot;</td>
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<td>e</td>
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<td>4</td>
<td>H - 2&quot;</td>
<td>Str.</td>
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**ESTIMATED QUANTITIES**

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<th>Item</th>
<th>Unit</th>
<th>Constant Quantity</th>
<th>Variable Quantity</th>
</tr>
</thead>
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**Note:** All dimensions are out to out of bars.

---

**SECTION A - A**

- 1" CI, TYP
- Drop Inlet Base
- Top of Wall Elevation, See Plans
- Floor Elevation, See Plans
- a - 23 Spaces @ 6" = 11'-6"
- 12'-0"

**SECTION B - B**

- 1" CI, TYP
- Top of Wall Elevation, See Plans
- Floor Elevation, See Plans
- b - 9 Spaces @ 6" = 4'-6"
- 3" x 3"
- 4'-0"
- 5'-0"

**N.T.S.**

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22
Sec. - Sht. 62-14b

**4' X 11' TYPE S DROP INLET BASE**
Notes:
1. The Precast Concrete Type S Drop Inlet Lid shall be manufactured by a precast facility that is approved to supply precast structures to the SDDOT. Shims shall be on the SDDOT approved products list.
2. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
3. Design Live Load shall be HL - 93.
4. Concrete mix shall be as per fabricator's design, however, minimum compressive strength shall not be less than 4500 psi. Type II cement is required.
5. The Type S Manhole Frame and Lid shall conform to AASHTO M105, Class 30.
6. Structural Steel shall conform to ASTM A36. The 3/4" diameter Headed Type A Steel Studs shall conform to Section 7 of the current edition of AWS D1.1 Structural Steel Welding Code.
7. The 3/4" diameter Concrete Inserts shall be galvanized or made of a corrosion resistant material. Provide 3/4" diameter x 1'-6" long dowels conforming to ASTM A615, grade 60 threaded to fit Inserts with each lid.
8. All costs associated with furnishing and installing the precast concrete Type S drop inlet lid and base including the Type S manhole frame, shims, inserts, dowels and concrete collars for pipe connections shall be included in the contract unit price per each for "4' x 11' Concrete Type S Drop Inlet".

N.T.S.
Specifications:

Notes:
1. Design Live Load: HL-93 loading. No construction loading in excess of legal load was considered.
2. Base is intended for use with a Precast Concrete Type S Drop Inlet Lid, Standard Detail 62-14c. Base may be precast. If precast base used, and details differ from that shown, the precast base shall receive prior approval by the City.
3. To qualify for alternate design approval, submit: prior SDDOT approval, checked design by a South Dakota Registered Professional Engineer, and shop plans to the City of Rapid City. Design shall be in accordance with the current edition of the AASHTO LRFD Bridge Design Specifications.
4. Inlets shown may be modified by the addition or omission of connecting pipes as shown on the layouts. Connecting pipes shall not enter the inlet through the corners.
5. Maximum R.C. pipe diameter shall not exceed 66" (54" for R.C. arch pipe) on the 7' wide side of the Drop Inlet. Pipes entering the structure at an angle shall leave a minimum 3" wall on each side of the pipe penetration on the 7' wide side, and shall leave a minimum 4 1/2" wall on each side of the pipe penetration on the 11' wide side.
6. Reinforcing steel shall conform to ASTM A615 grade 60. Cut and bend reinforcing steel as required to place pipe(s) through the inlet wall.
7. Use 1" clear cover on all reinforcing steel unless otherwise noted.
8. The dimension of H is in feet. Maximum H is 10'.
9. All costs associated with furnishing and installing the precast concrete Type S drop inlet lid and base including the type S manhole frame and lid, shims, inserts, dowels and concrete collars for pipe connections shall be included in the contract unit price per each for "7' x 11' Concrete Type S Drop Inlet".

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

7' X 11' TYPE S DROP INLET BASE

DATE: 8-19-22
Sec. - Sht. 62-15a
7' X 11' TYPE S DROP INLET BASE

LEGEND FOR PLACING RE-STEEL

T.T.S. - Top of Top Slab
B.T.S. - Bottom of Top Slab
T.B.S. - Top of Bottom Slab
B.B.S. - Bottom of Bottom Slab

DATE: 8-19-22

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

Sec. - Sht.
62-15b
7' X 11' TYPE S DROP INLET BASE

maximum H is 10'-0"

view C - C (Pipe Not Shown)

sec. b - b

n.t.s.

Legend for placing re-steel

O.F.W. - Outside Face of Wall
I.F.W. - Inside Face of Wall

* Maximum H is 10' - 0"
REINFORCING SCHEDULE

<table>
<thead>
<tr>
<th>Mk.</th>
<th>No.</th>
<th>Size</th>
<th>Length</th>
<th>Type</th>
<th>Bending Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>19</td>
<td>4</td>
<td>1' 1&quot;</td>
<td>9''</td>
<td>Str.</td>
</tr>
<tr>
<td>c</td>
<td>15</td>
<td>2</td>
<td>7&quot;</td>
<td>9''</td>
<td>Str.</td>
</tr>
<tr>
<td>c1</td>
<td>2</td>
<td>4</td>
<td>11&quot;</td>
<td>10''</td>
<td>17</td>
</tr>
<tr>
<td>q1</td>
<td>23</td>
<td>5</td>
<td>7&quot;</td>
<td>9''</td>
<td>Str.</td>
</tr>
<tr>
<td>h</td>
<td>46</td>
<td>5</td>
<td>H + 5&quot;</td>
<td></td>
<td>Str.</td>
</tr>
<tr>
<td>k</td>
<td>40</td>
<td>5</td>
<td>H + 5&quot;</td>
<td></td>
<td>Str.</td>
</tr>
<tr>
<td>q</td>
<td>76</td>
<td>5</td>
<td>5&quot;</td>
<td>6''</td>
<td>17A</td>
</tr>
<tr>
<td>g1</td>
<td>23</td>
<td>5</td>
<td>8&quot;</td>
<td>8''</td>
<td>17A</td>
</tr>
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</table>

Note: All dimensions are out to out of bars

ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Constant Quantity</th>
<th>Variable Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class M6 Concrete</td>
<td>Cu. Yd.</td>
<td>3.65</td>
<td>0.83H</td>
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<tr>
<td>Reinforcing Steel</td>
<td>Lb.</td>
<td>1266</td>
<td>147.26H</td>
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PIPE DISPLACEMENT REDUCTIONS

<table>
<thead>
<tr>
<th>Diameter (Inches)</th>
<th>Wall T (Inches)</th>
<th>Class M6 Concrete (Cu. Yd.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2</td>
<td>0.03</td>
</tr>
<tr>
<td>15</td>
<td>2 1/4</td>
<td>0.04</td>
</tr>
<tr>
<td>18</td>
<td>2 1/2</td>
<td>0.06</td>
</tr>
<tr>
<td>24</td>
<td>3</td>
<td>0.11</td>
</tr>
<tr>
<td>30</td>
<td>3 1/2</td>
<td>0.16</td>
</tr>
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<td>36</td>
<td>4</td>
<td>0.23</td>
</tr>
<tr>
<td>42</td>
<td>4 1/2</td>
<td>0.31</td>
</tr>
<tr>
<td>48</td>
<td>5</td>
<td>0.40</td>
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<tr>
<td>54</td>
<td>5 1/2</td>
<td>0.50</td>
</tr>
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<td>60</td>
<td>6</td>
<td>0.61</td>
</tr>
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<td>72</td>
<td>7</td>
<td>0.82</td>
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<td>84</td>
<td>8</td>
<td>1.09</td>
</tr>
</tbody>
</table>

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 8-19-22
Sec. - Sht. 62-15d

7' X 11' TYPE S DROP INLET BASE
INSTALLATION DETAILS FOR
PRECAST CONCRETE TYPE S DROP INLET LID

Sawcut and remove or shim as necessary to match top of lid to finish elevation. The type of shims provided shall be on the SDDOT approved products list.

Precast Concrete Type S Drop Inlet Lid

Precast or Cast-in-Place Type S Reinforced Concrete Drop Inlet Base

(4'x11' Type S Drop Inlet Base, Shown for Illustration Purpose Only)

Concrete Gutter Detail

(Edges and Back, Adjacent to Sidewalk)

Precast or Cast-in-Place Type S Reinforced Concrete Drop Inlet Base

Sidewalk as Shown Elsewhere in Plans

Dowel

Grout gap with same type of material as that used to connect the pipes to the drop inlets.

Precast or Cast-in-Place Type S Reinforced Concrete Drop Inlet Base

DATE: 8-19-22

N.T.S.

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

INSTALLATION DETAILS FOR
PRECAST CONCRETE TYPE S DROP INLET LID

DATE: 8-19-22
Sec. - Sht. 62-16a
Notes:
1. Dowels shall be used to anchor the precast concrete Type S drop inlet lid to the concrete gutter. See Standard Detail 62-16a or 60-7b as applicable.
2. If there is sidewalk adjacent, dowels shall be used to anchor the precast concrete Type S drop inlet lid to the sidewalk. If there is sidewalk adjacent to the drop inlet, the precast lid shall match the finish elevations and cross slopes of the sidewalk.
3. The sidewalk shall be steel reinforced when the sidewalk adjoins the precast lid. Refer to Standard Detail 61-6a and 61-6b for reinforced concrete sidewalk details.

<table>
<thead>
<tr>
<th>Drop Inlet Base Unit Size</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4' x 6'</td>
<td>1' - 5 1/2''</td>
</tr>
<tr>
<td>4' x 11'</td>
<td>1' - 5 1/2''</td>
</tr>
<tr>
<td>7' x 11'</td>
<td>2' - 11 3/2''</td>
</tr>
</tbody>
</table>

N.T.S. 
CITY OF RAPID CITY
INSTALLATION DETAILS FOR PRECAST CONCRETE TYPE S DROP INLET LID
DATE: 8-19-22
PUBLIC WORKS DEPARTMENT
Sec. - Sht. 62-16b
Note:
Total weight of the assembly shall be 490 Lbs. minimum and the curb box shall be adjustable 6" to 9".

N.T.S.

CITY OF RAPID CITY   PUBLIC WORKS DEPARTMENT
DATE: 8-19-22
Sec. - Sht. 62-17a

TYPE B FRAME AND GRATE ASSEMBLY
Note:
Top of grate elevation shall be 0.04' below theoretical elevation of gutter.
Note:
The total weight of the frame and grate shall be 850 pounds minimum.

N.T.S.
CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT
DATE: 8-19-22
Sec. - Sht. 62-18

TYPE C FRAME AND GRATE
Notes:
The total weight of frame and grate shall be 810 pounds minimum.
The Type E frame and grate is used typically with valley gutter.

N.T.S.
CITY OF RAPID CITY                                               PUBLIC WORKS DEPARTMENT
DATE: 8-19-22
Sec. - Sht. 62-19

TYPE E FRAME AND GRATE
PRECAST DROP INLET COLLAR

**Notes:**
1. All reinforcing steel shall conform to ASTM A615, grade 60.
2. The 1/2" diameter bar shall lap 6" +/- and shall be centered in the concrete.

### INFORMATIONAL QUANTITIES

<table>
<thead>
<tr>
<th>Frame and Grate Type</th>
<th>L Feet - Inches</th>
<th>W Feet - Inches</th>
<th>T Inches</th>
<th>Class M6 Concrete CY</th>
<th>Reinforcing Steel Lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type B</td>
<td>4' - 0&quot;</td>
<td>3' - 0&quot;</td>
<td>6&quot;</td>
<td>0.11</td>
<td>9</td>
</tr>
<tr>
<td>Type C</td>
<td>5' - 0&quot;</td>
<td>4' - 0&quot;</td>
<td>6&quot;</td>
<td>0.15</td>
<td>11</td>
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<tr>
<td>Type D</td>
<td>4' - 0&quot;</td>
<td>2' - 6&quot;</td>
<td>6&quot;</td>
<td>0.10</td>
<td>8</td>
</tr>
</tbody>
</table>

**PRECAST DROP INLET COLLAR**

**N.T.S.**