STORMWATER GENERAL NOTES

1. BEDDING FOR ALL STORM DRAIN SHALL BE PER THE STANDARD STORM DRAIN BEDDING DETAILS - DETAILS 6-6 AND 6-7 FOR REINFORCED CONCRETE PIPE AND POLYWRAPPED DUCTILE IRON PIPE.

2. ALL STORM DRAINAGE CONSTRUCTION SHALL CONFORM TO THE CITY OF GREELEY'S MOST RECENT STORM DRAINAGE SPECIFICATIONS. A COPY OF THE SPECIFICATIONS MAY BE OBTAINED FROM THE CITY OR FOUND ON THE CITY'S WEB PAGE - GREELEYGOV.COM.

3. RCP SHALL HAVE FLEXIBLE GASKET MATERIAL (WATER TIGHT RUBBER GASKETS) MEETING ASTM C443 AND TYPE 4-G BELL AND SPIGOT JOINTS. DUCTILE IRON PIPE SHALL BE POLYWRAPPED IN ACCORDANCE WITH AWWA STANDARD C-105.

4. BACKFILL MATERIAL MAY BE LOCAL SITE MATERIAL THAT IS WELL-GRADED, NON-COHESIVE GRANULAR MATERIAL FREE OF ROCKS, FROZEN LUMPS, FOREIGN MATERIAL OR STONES GREATER THAN 3" IN ANY DIMENSION, AGGREGATE BASE COURSE, OR FLOWFILL. REMOVE ALL DEBRIS INCLUDING SODA CANS, RAGS, PIPE BANDING MATERIAL, ETC. FROM THE PIPE TRENCH BEFORE BACKFILLING.

5. ALL AREAS IMPACTED BY THE CONSTRUCTION SHALL BE CLEARED OF PROJECT GENERATED DEBRIS BY THE CONTRACTOR AT THE EARLIEST OPPORTUNITY, BUT IN NO CASE SHALL ANY ROADS OR WALKWAYS BE LEFT UNEARED AFTER THE COMPLETION OF THE DAY'S WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE NECESSARY EQUIPMENT AND MATERIAL TO SATISFACTORILY CLEAN THE ROADWAYS.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

DATE: MARCH 2007
SCALE: N.T.S.
REDACTED SECTION—THIS SECTION PREVIOUSLY HAD BEDDING DETAILS FOR CORREGATED METAL PIPE (CMP). AS OF AUGUST, 2019, CMP IS NO LONGER AN AUTHORIZED MATERIAL.

MINIMUM COVER OVER PIPE
2'-0" OR 1 PIPE DIAMETER
WHICHERVER IS LESS
MEASURED FROM BOTTOM OF
ASPHALT OR TOP OF
CONCRETE PAVEMENT

BEDDING SHALL BE CDOT CLASS
NO. 67 AGGREGATE (THAT
PORTION GREATER THAN 3/8"
SHALL BE ANGULAR ON 3 OR
MORE FACES,) CONSOLIDATE
UNDER THE LOWER HAUNCH WITH
SHOVEL SLICING AND TAMING.

FILTER FABRIC AND ROCK
ARE REQUIRED IF GROUND
WATER IS ENCOUNTERED
OR IF A FOUNDATION IS
REQUIRED.

MINIMUM TRENCH WIDTH
W = Bc + 36"

BACKFILL TO BE
COMPACTED AS PER
STREET CONSTRUCTION
MANUAL S-30.

MINIMUM 1'-0" OF
BEDDING OVER PIPE

COMPACTION EQUIPMENT
SHOULD NOT BE USED
UNTIL SELECT BEDDING
IS 12" OVER THE TOP
OF THE PIPE.

HAUNCHING
Bc/2

BEDDING D:
6" FOR 18"-60"
8" FOR > 60"

FOUNDATIONS
(IF REQUIRED 1-1/2" TO
3" CRUSHED ROCK)

NOTE: FOR TRENCH BACKFILL GUIDELINE
SPECIFICATIONS SEE DETAIL NO. S-30
IN THE CITY OF GREELEY DESIGN
CRITERIA CONSTRUCTION SPECIFICATIONS
MANUAL VOLUME 1 — STREETS

STANDARD STORM WATER
BEDDING DETAIL
DETAIL 6-7

EAST JORDAN
2408A COVER

(2) CLOSED
PICK HOLES

1 1/2"

(2) CARVED
FISH

3/4" SHARP FACE
GOTHIC

COVER FACE

3/4" SHARP FACE
GOTHIC

COVER BOTTOM

23 7/8" DIA

15/16"

1"

19 5/16" DIA

2"

18 3/16" DIA

SECTION

PRODUCT NUMBER
00240890

DESIGN FEATURES
- MATERIALS
GRAY IRON (CL35B)
- DESIGN LOAD
HEAVY DUTY
- OPEN AREA
N/A

- COATING
UN-DIPPED
- √ DESIGNATES
MACHINED SURFACE

CERTIFICATION
- ASTM A48
- COUNTRY OF ORIGIN:
USA

NOTES:
1. COVER SHALL BE NON-PERFORATED.
2. COVER SHALL BE BOLTED IF SPECIFIED BY THE
PUBLIC WORKS DEPARTMENT. BOLTS SHALL BE
BRASS.
3. RING AND COVER SHALL BE HEAVY DUTY AND
MEET CRITERIA OF AASHTO M306 FOR PROOF
LOADS.
4. THIS COVER SHALL BE USED FOR ALL
MANHOLES AND TYPE R INLETS.
5. SEE RING DETAIL FOR SPECIFICATIONS.

STD. STORMWATER MANHOLE COVER E.J. 2408A
ART COMMISSION DESIGN (2015)

DETAIL  6-8

DATE:  MAY 2016  Revised Aug 2019
SCALE: NTS

City of Greeley
Greeley, Colorado

5/23/16  NEW DETAIL

Revised Aug 2019

S:\PW\Stormwater\ACAD PROJECTS\INLET DETAILS REVISED FOR CLASS D 2016\NEW MANHOLE COVER 2016.dwg
EAST JORDAN
2425Z FRAME

TOP VIEW OF FRAME

BOTTOM VIEW OF FRAME

(1) 1" DIA HANDLING HOLE

30"
24 1/8"
22"
4"
24 1/8"
1"
1"

SECTION OF FRAME

FRAME IS REVERSIBLE.

PRODUCT NUMBER
00241611

DESIGN FEATURES
- MATERIALS
  GRAY IRON (CL35B)
- DESIGN LOAD
  HEAVY DUTY
- OPEN AREA
  N/A

- COATING
  UN-DIPPED
- DESIGNATES MACHINED SURFACE

CERTIFICATION
- ASTM A48
- COUNTRY OF ORIGIN: USA

NOTES
1. RING AND COVER SHALL BE HEAVY DUTY MEETING THE AASHTO M306 PROOF LOAD CRITERIA.
2. THIS RING AND COVER SHALL BE USED FOR CONE TOP MANHOLES.
3. SEE COVER DETAIL FOR COVER SPECIFICATIONS.

REVISIONS

5/23/16  NEW DETAIL

STD. MANHOLE RING E.J. 2416Z (CONE TOP)
ART COMMISSION DESIGN (2015)

DETAIL  6-8 A

DATE: MAY 2016  Revised Aug 2019

SCALE: NTS
EAST JORDAN
2416Z FRAME

BOTTOM VIEW OF FRAME

SECTION OF FRAME

29 1/4"
24 1/4"
4"
21 3/4"
22 1/2"
23 1/2"

PRODUCT NUMBER
00241611

DESIGN FEATURES
- MATERIALS
  GRAY IRON (CL35B)
- DESIGN LOAD
  HEAVY DUTY
- OPEN AREA
  N/A

- COATING
  UN-DIPPED
- DESIGNATES MACHINED
  SURFACE

CERTIFICATION
- ASTM A48
- COUNTRY OF ORIGIN:
  USA

NOTES
1. RING AND COVER SHALL BE HEAVY
   DUTY MEETING THE AASHTO M306
   PROOF LOAD CRITERIA.
2. THIS RING AND COVER SHALL BE
   USED FOR FLAT TOP MANHOLES
   AND ALL TYPE R INLETS.
3. SEE COVER DETAIL FOR COVER
   SPECIFICATIONS.

MANHOLE RING E.J. 2416Z
ART COMMISSION DESIGN (2015)
DETAIL 6-8 B

DATE: MAY 2016 Revised Aug 2019
SCALE: NTS
ECCENTRIC CONE TOP
FOR H > 8 FT

ECCENTRIC FLAT TOP
MAY BE USED ON SHALLOW MANHOLE

CONCRETE NOTE:
+ CONCRETE SHALL MEET OR EXCEED
METROPOLITAN GOVERNMENT
ENGINEERING COUNCIL (MEGPEC)
SPECIFICATIONS, ITEM 11, PORTLAND
CEMENT CONCRETE PAVEMENT;
SECTION 11.2, MATERIALS.

MANHOLE SIZES

<table>
<thead>
<tr>
<th>BOTTOM REINF.</th>
<th>PIPE DIA. (d)</th>
<th>MANHOLE DIAMETER</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4 @ 12</td>
<td>15&quot; TO 18&quot;</td>
<td>4 FT.</td>
</tr>
<tr>
<td>#4 @ 12</td>
<td>21&quot; TO 30&quot;</td>
<td>5 FT.</td>
</tr>
<tr>
<td>#4 @ 12</td>
<td>36&quot; TO 54&quot;</td>
<td>6 FT.</td>
</tr>
<tr>
<td>60&quot; &amp; Larger</td>
<td>CDOT Std. M-604-20</td>
<td></td>
</tr>
</tbody>
</table>

SECTION — BASE

INVERT TO BE FORMED OR SHAPED WITH TROWEL TO SUIT FIELD CONDITIONS

SHAPE CONCRETE FOR CHANNELIZATION

NOTE: SLOPE BENCHES AND BOTTOM 4:1

MANHOLE STEPS OVER BENCH
MANHOLE RISERS, CONES, REDUCERS, AND FLAT TOPS TO BE PRECAST REINFORCED CONCRETE. (REINFORCING NOT SHOWN.)

BASE MAY BE CAST SQUARE

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBERS UTILITIES.

DATE: MARCH 2007 SCALe: N.T.S.
TOE POCKET DETAILS
FOR HEIGHT OF BENCH GREATER THAN 30"

TYPICAL STEP PLACEMENT

SHAPE CONCRETE PER CHANNELIZATION (TYP.)

OPTIMAL CURVED DEFLECTOR RADIUS = d₁ MIN.

SHAPE CONCRETE PER CHANNELIZATION (TYP.)

NOTE:
+ CONCRETE SHALL MEET OR EXCEED METROPOLITAN GOVERNMENT ENGINEERING COUNCIL (MGCPC) SPECIFICATIONS, ITEM 11, PORTLAND CEMENT CONCRETE PAVEMENT; SECTION 11.2, MATERIALS.

STORM MANHOLE
TYPICAL BASE CHANNEL DETAILS
DETAIL 6-10

DATE: MARCH 2007
SCALE: N.T.S.
ATTACH EACH HINGE TO GRATING WITH (2) 3/8" DIA. STAINLESS STEEL BOLTS x 1" LONG W/ STAINLESS STEEL HEX NUTS. ATTACH HINGE TO PLATFORM WITH (3) 3/8" DIA. x 3" LONG RED HEAD ANCHORS OR EQUAL.

MANHOLE RISER

FIBERGLASS OR ALUMINUM GRATING 3/16" x 1 1/4" BEARING BARS. SERRATED GRATING OPTIONAL.

ALIGN STEPS ABOVE AND BELOW PLATFORM OPENING AS SHOWN.

WIRE MESH IN PLATFORM

SECTION

SET IN FULL BED OF SEALING COMPOUND ALL AROUND

DIRECTIONAL OPENING

STEPS

24" MIN

DIA. OPENING

18" MIN

STANDARD 8" THICK PRECAST FLAT TOP WITH 4x4-W4.0xW4.0 WIRE MESH TOP AND BOTTOM MINIMUM

ELEVATION

INTERMEDIATE PLATFORM FOR MANHOLES OVER 20' IN DEPTH

DETAIL 6-11

DATE: MARCH 2007

SCALE: N.T.S.

REVISIONS

03/31/07 + UPDATED DETAIL

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987

PUBLIC WORKS DEPARTMENT

CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND UTILITIES.
See detail 6-8, specifications for artistic design manhole cover.
NOTES:
1. PROVIDE AT LEAST A 3/16" THICK ORIFICE PLATE. ORIFICE PLATE SHALL BE HOT DIPPED GALVANIZED COATED.
2. ALL STEEL TRASH RACKS SHALL BE HOT DIPPED GALVANIZED COATED.
3. A TRASH RACK SHALL BE ABLE TO CARRY A MINIMUM LOAD (LIVE LOAD) EQUAL TO 250 LB/FT² OR TWICE THE HYDRAULIC LOADING PLACED ON THE TRASH RACK DURING A CLOGGED CONDITION AT THE 100-YR WATER SURFACE ELEVATION, WHICH EVER IS GREATER.

* HEADWATER FOR ALLOWABLE HISTORIC DISCHARGE

☐ WATER SURFACE ELEVATION WHEN WATER IS FLOWING OVER THE SPILLWAY DURING A 100-YEAR STORM EVENT DURING A PLUGGED ORIFICE CONDITION.
SECTION A - A
CONCRETE WEIR OVERFLOW STRUCTURE

CONCRETE WEIR STRUCTURE CENTERED IN BERM
CONCRETE CUTOFF COLLARS EMBED 24" MIN. INTO EXISTING EARTH BOTTOM AND SIDES OF TRENCH (TYP)
THE OUTLET PIPE IS TO BE BACKFILLED WITH NATIVE EARTH SOIL, NO BEDDING MATERIAL WOCV SURFACE

PROPOSED TOP OF BERM

EMERGENCY OVERFLOW WEIR

PLACE 6" OF TOPSOIL ON MINIMUM TYPE M RIPRAPH ON GEOTEXTILE FABRIC (MIRAFI FW 300 OR EQUAL) AS PER URBAN DRAINAGE DESIGN GUIDELINES EXTEND TO CONCRETE WEIR STRUCTURE

DETAIL A
OUTLET AND SPILLWAY DETAILS

REVISIONS
3/31/07  + UPDATE DETAIL

OUTLET AND SPILLWAY DETAILS
DETAIL 11-7

DATE: MARCH 2007 SCALE: N.T.S.

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987

CALL 8-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MAINTENANCE OF UNDERGROUND METER UTILITIES.
GENERAL EROSION CONTROL NOTES

CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROL DEVICES IN ACCORDANCE WITH THE URBAN DRAINAGE FLOOD CONTROL DISTRICT (UDFCD). VOLUME 3 CONSTRUCTION BEST MANAGEMENT PRACTICES. THESE BEST MANAGEMENT PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, SILT FENCE, INLET PROTECTION, VTC PAD, WHEEL WASHOUT, AND SEDIMENT BASINS. BEST MANAGEMENT PRACTICES SHALL BE INSTALLED BEFORE COMMENCING ANY LAND CLEARING OR GRADING ACTIVITIES. THE CONTRACTOR SHALL LIMIT TOPSOIL STRIPPING OPERATIONS TO WITHIN THE AREAS IN WHICH THEY WILL BE IMMEDIATELY WORKING. THE CONSTRUCTION OF UNDERGROUND UTILITIES SHALL BE INCLUDED AS A LAND DISTURBING ACTIVITY. ALL EXCAVATED MATERIAL SHALL BE PLACED WHERE SEDIMENT WILL ERODE BACK INTO THE TRENCH. ALL TRENCHES SHALL BE BACKFILLED BY THE END OF THE DAYS WORK; BACKFILL SHALL BE PERMANENTLY STABILIZED BEFORE CONSTRUCTION IS CONSIDERED COMPLETED.

ALL DISTURBED AREAS AND SOIL STOCKPILES SHALL BE ADEQUATELY STABILIZED AS DEFINED IN UDFCD, VOLUME 3, CONSTRUCTION BEST MANAGEMENT PRACTICES. ALL DISTURBED SOILS AND SOIL STOCKPILES SHALL BE WATERED AND MAINTAINED IN A ROUGHENED CONDITION AT ALL TIMES DURING CONSTRUCTION ACTIVITIES TO PREVENT WIND-CAUSED EROSION. ALL LAND DISTURBING ACTIVITIES WILL BE IMMEDIATELY DISCONTINUED WHEN FUGITIVE DUST IMPACTS ADJACENT PROPERTIES, AS DETERMINED BY CITY INSPECTOR. PERMANENT OR TEMPORARY NATIVE SEED (SEE EROSION CONTROL STRUCTURES - DETAIL 12-2 FOR SEEDING SPECIFICATIONS) SOIL STABILIZATION SHALL BE REQUIRED WITHIN 14 DAYS AFTER FINAL GRADE IS REACHED. IF DISTURBED AREAS OR STOCKPILES ARE NOT BROUGHT TO FINAL GRADE WITHIN 30 DAYS FOLLOWING THE INITIAL DISTURBANCE, OR RE-DISTURBANCE, TEMPORARY STABILIZATION MEASURES SHALL BE REQUIRED. NO SOIL STOCKPILE SHALL EXCEED TEN (10) FEET IN HEIGHT. ALL SOIL STOCKPILE SIDE SLOPES SHALL NOT EXCEED A SLOPE OF 4V:1H.

ALL STORM SEWER INLETS SHALL BE PROTECTED FROM THE ENTRY OF SEDIMENT-Laden WATER. HAY BALES ARE NOT RECOGNIZED BY THE CITY OF GREELEY AS AN ACCEPTABLE FORM OF EROSION CONTROL.

INSPECTION OF ALL EROSION AND SEDIMENT CONTROL BMP'S SHALL BE REQUIRED AT THE END OF EACH DAY'S WORK. WITH NECESSARY MAINTENANCE AND REPAIRS PROVIDED IMMEDIATELY. THE CITY OF GREELEY INSPECTOR SHALL, AT THEIR DISCRETION, REQUIRE ANY EROSION CONTROL DEVICES BE REPAIRED, REPLACED, RELOCATED, MODIFIED, OR REMOVED. SUCH REQUESTS SHALL BE COMPLETED WITHIN 5 WORKING DAYS FOLLOWING RECEIPT OF THE WRITTEN REQUEST FROM THE INSPECTOR. ALL PUBLIC RIGHT OF WAY POLISHED WITH DIRT, MUD, OR DEBRIS SHALL BE SWEEP CLEAN AT THE END OF EACH DAY'S WORK OR AFTER STORM EVENTS, AS NECESSARY. ALL TEMPORARY AND PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AS SOON AS THEIR FUNCTION HAS BEEN FULFIlLED. SEDIMENT TRAPS AND SUMPs SHALL BE CLEANED AND REMOVED, OR STABILIZED, WHEN ALL UPSTREAM AREAS ARE PERMANENTLY STABILIZED. THE SITE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL Silt FROM THE SITE, IF IT IS NOT REUSABLE ON SITE.

THE LANDOWNER SHALL BE HELD RESPONSIBLE FOR THE LONG-TERM STABILITY OF CUT AND FILL SLOPES AND THE SUCCESSFUL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER ON EXPOSED SOIL AS DEFINED IN UDFCD, VOLUME 3, CONSTRUCTION BEST MANAGEMENT PRACTICES

ALL CONSTRUCTION SUPPLIES OR MATERIALS USED OR STORED ON SITE MUST BE DISPOSED OF PROPERLY AND MUST MEET ALL APPlicable MATERIAL SAFETY DATA SHEET CRITERIA.

THE STATE STORMWATER DISCHARGE PERMIT HOLDER MAY BE LIABLE FOR ANY VIOLATIONS RESULTING FROM THE ACTIONS TAKEN BY SITE CONTRACTORS, SUBCONTRACTORS, MAINTENANCE CREWS, ETC.

Previous City of Greeley standard details for Erosion Control Structures have been redacted as of July 2019. The City of Greeley has fully adopted standard details established by UDFCD, Volume 3 – Construction BMPs.