CROSS SECTION

INSTALL MASONARY PLUG

EXISTING SANITARY SEWER

REMOVE EXISTING PLATE AND REBUILD SANITARY SEWER CHANNEL INCLUDING SHELF

SECTION A-A

EXISTING STORM DRAIN

REMOVE EXISTING PLATE AND REBUILD SANITARY SEWER CHANNEL INCLUDING SHELF

INSTALL MASONARY PLUG

EXISTING SANITARY SEWER

COMMON MANHOLE SEPARATION - TYPE 5
COMMON MANHOLE CONVERTED TO SEWER MANHOLE DETAIL

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S.  DATE OF ISSUE: 02/05  SPEC. SECTION REF#: 02252  2252.13

99% DETAILS
NOT FOR CONSTRUCTION
END OF LINE COMMON MANHOLE TO BE CONVERTED TO DMH DETAIL

NOTES:
1. UNLESS OTHERWISE NOTED, PROPOSED PIPE TO MATCH INSIDE DIAMETER OF EXISTING PIPE
2. UNLESS OTHERWISE NOTED, PROPOSED SEWER SHALL BE PVC AND PROPOSED DRAIN SHALL BE RCP

END OF LINE COMMON MANHOLE TO BE CONVERTED TO SMH DETAIL

NOTES:
1. LOCATE ALL EXISTING STORM DRAIN CONNECTIONS WITHIN THE PORTION OF EXISTING STORM DRAIN THAT IS TO BE ABANDONED, AND RECONNECT THOSE CONNECTIONS TO THE STORM DRAIN.
2. ANY PORTION OF THE EXISTING STORM DRAIN THAT IS TO BE ABANDONED IN PLACE SHALL BE FILLED WITH FLOWABLE CONCRETE FILL AND PLUGGED.
3. VERIFY ALL DRAIN CONNECTIONS TO THE PROPOSED ABANDONED SECTION OF DRAIN. IF ANY LIVE CONNECTIONS EXIST, COORDINATE WITH THE ENGINEER TO PROVIDE RECONNECTION. IF SERVICE IS NOT LIVE, THE CONNECTION AT THE STORM DRAIN SHALL BE PLUGGED.
NOTES:
1. LOCATE ALL EXISTING SEWER CONNECTIONS WITHIN THE PORTION OF EXISTING SEWER THAT IS TO BE ABANDONED AND RECONNECT THOSE CONNECTIONS TO THE SEWER.
2. ANY PORTION OF THE EXISTING SEWER THAT IS TO BE ABANDONED IN PLACE SHALL BE FILLED WITH FLOWABLE CONCRETE FILL AND PLUGGED.
3. VERIFY ALL SEWER CONNECTIONS TO THE PROPOSED ABANDONED SECTION OF SEWER, IF ANY LIVE CONNECTIONS EXIST, COORDINATE WITH THE ENGINEER TO PROVIDE RECONNECTION. IF SERVICE IS NOT LIVE, THE CONNECTION AT THE SEWER SHALL BE PLUGGED.
4. SEE THE APPROPRIATE SPECIFICATION OR STANDARD FOR THE PROPOSED SEWER MATERIAL FOR PIPE TO PIPE CONNECTION REQUIREMENTS.
CONSTRUCT SMOOTH TRANSITION AROUND EXIST. MANHOLE - ALL JOINTS TO BE WATERTIGHT.

NEW STORM DRAIN TO EXISTING STORM DRAIN CONNECTION (TYP.) (SEE NOTE 4)

EXISTING SEWER

NEW STORM DRAIN

EXISTING SEWER (BELLOW)

FLOW

EXISTING COMMON MANHOLE TO BE CONVERTED TO SMH PER COMMON MANHOLE CONVERSION TO SMH DETAIL

NEW STORM DRAIN MANHOLE (EXACT LOCATION TO BE DETERMINED INFIELD PER Precast Concrete Manhole Detail)

PLUG DRAIN LINES (TYP.)

35° ±

COMMON MANHOLE

35° ±

STORM DRAIN BYPASS

TRANSITION

FLOW

NOTES:

1. LOCATE ALL EXISTING STORM DRAIN CONNECTIONS WITHIN THE PORTION OF EXISTING STORM DRAIN THAT IS TO BE ABANDONED AND RECONNECT THOSE CONNECTIONS TO THE STORM DRAIN.

2. ANY PORTION OF THE EXISTING STORM DRAIN THAT IS TO BE ABANDONED IN PLACE SHALL BE FILLED WITH FLOWABLE CONCRETE FILL AND PLUGGED.

3. VERIFY ALL DRAIN CONNECTIONS TO THE PROPOSED ABANDONED SECTION OF DRAIN. IF ANY LIVE CONNECTIONS EXIST, COORDINATE WITH THE ENGINEER TO PROVIDE RECONNECTION. IF SERVICE IS NOT LIVE, THE CONNECTION AT THE STORM DRAIN SHALL BE PLUGGED.

4. SEE THE APPROPRIATE SPECIFICATION OR STANDARD FOR THE PROPOSED STORM DRAIN MATERIAL FOR PIPE TO PIPE CONNECTION REQUIREMENTS.
### EPOXY DOWELL DETAIL

**TYPICAL EPOXY DOWELLING DETAIL & SCHEDULE**

**NOTES:**

1. **DRILL HOLES, CLEAN OUT AND INSTALL EPOXY AND BOLT OR REBAR IN STRICT CONFORMANCE WITH EPOXY MANUFACTURER’S WRITTEN RECOMMENDATIONS. REFER TO CAST IN PLACE CONCRETE FOR EPOXY REQUIREMENTS.**

2. **UNLESS OTHERWISE INDICATED ON DRAWINGS, PROVIDE THE EMBEDMENT LENGTH AND HOLE DIAMETER INDICATED IN THE SCHEDULE ABOVE, FOR THE BOLT OR REBAR SIZE REQUIRED.**

3. **REQUIRED EPOXY BOND STRENGTHS ARE BASED ON A SAFETY FACTOR (S.F.) OF 4.0.**

4. **PROVIDE STAINLESS STEEL SCREEN RODS IN HOLES IN HOLLOW BASE MATERIALS (MASONRY CAVITY WALLS).**

5. **UNLESS OTHERWISE INDICATED ALL ANCHOR BOLTS SHALL BE OF GALVANIZED A36 THREADED ROD STOCK. WHERE STAINLESS STEEL ANCHORS ARE REQUIRED THEY SHALL BE AISI TYPE 316 (ASTM A193).**

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**EPOXY DOWELL DETAIL**

**CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS**

**SCALE:** N.T.S.  **DATE OF ISSUE:** 02/05  **SPEC. SECTION REF#:** 03300  **3300.2**
1" TYP. W.W.F. D (FILL)

NOTE:
1. PROVIDE W.W.F. IN CONCRETE FILL SIZE AS TABULATED, UNLESS OTHERWISE NOTED.

<table>
<thead>
<tr>
<th>D</th>
<th>W.W.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&quot; TO 4&quot;</td>
<td>6x6 - W 1.4 x W 1.4</td>
</tr>
<tr>
<td>5&quot; TO 8&quot;</td>
<td>6x6 - W 2.0 x W 2.0</td>
</tr>
<tr>
<td>9&quot; PLUS</td>
<td>6x6 - W 2.9 x W 2.9</td>
</tr>
</tbody>
</table>
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE ANTICIPATED AND OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDOING.

INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT.

MAINTENANCE SHALL OCCUR WHEN NECESSARY. FILTER FABRIC SHALL BE SWEPT CLEAN WHEN NEEDED AND GRAVEL SHALL BE REPLACED WHEN A NOTICEABLE AMOUNT OF FINES HAVE COLLECTED IN BETWEEN THE CRUSHED GRAVEL.

CATCH BASIN W/ BLOCK AND GRAVEL
INLET PROTECTION

INLET PROTECTION 1

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S.  DATE OF ISSUE: 07/09  SPEC. SECTION REF#: 
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS SHEET, OVERLAND AND CONCENTRATED FLOWS (NOT GREATER THAN 1 CFS). THE METHOD CAN DRAIN FLAT AREA TO STEEP SLOPES. INLET CAPACITY WILL DECREASE WITH THIS METHOD AND CONTRACTOR SHALL EXPECT FLOODING TO OCCUR DURING HIGH FLOW EVENTS.

INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT

MAINTENANCE SHALL OCCUR WHEN NECESSARY. SILT SACKS SHALL BE CLEANED ONCE THE BAG IS FILLED HALF WAY WITH DEBRIS. CONTRACTOR SHALL REMOVE SILT SACK AND PLACE NEW UNIT. DO NOT EMPTY SILT SACK CONTENTS INTO THE CATCHBASIN.

CATCH BASIN W/ SILT SACK
INLET PROTECTION
INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT.
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT 
AREA (SLOPE NO GREATER THAN 5%). WHERE THE INLET ACCEPTS SHEET OR OVERLAND FLOWS 
(NOT GREATER THAN 1 CFS). THIS METHOD SHOULD NOT APPLY TO AN INLET ACCEPTING 
CONCENTRATED FLOW.

HAYBALES SHOULD BE MADE FROM REGIONALLY FARmed HAY TO REDUCE THE POSSIBILITY OF 
INVASIVE SPECIES. WHEN POSSIBLE STRAW BALES SHOULD BE USED.

HAYBALES SHOULD ONLY BE USED WHEN APPROVED BY THE CITY OF CAMBRIDGE. HAYBALES ARE 
ALLOWS FOR PROJECTS THAT HAVE A DURATION OF LESS THAN THREE MONTHS.

MAINTENANCE SHALL OCCUR WHEN NECESSARY. HAYBALES ARE HIGHLY IMPERVIOUS AND THE 
CONTRACTOR SHOULD EXPECT PONDING IN THE AREA. HAYBALES SHOULD BE REPLACED EVERY 1 
TO 3 MONTHS DEPENDING ON CONDITIONS.

CATCH BASIN W/ HAYBALES
INLET PROTECTION
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%). WHERE THE INLET ACCEPTS SHEET OR OVERLAND FLOW (NOT GREATER THAN 1 CFS) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS.

INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT. MAINTENANCE SHALL OCCUR WHEN NECESSARY. SILT FENCE SHALL BE REPLACE EVERY 6 MONTHS AND STACKS SHALL BE INSPECTED TO ENSURE STRUCTURAL INTEGRITY.

CATCH BASIN W/ SILT FENCE
INLET PROTECTION
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE ANTICIPATED BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT.

MAINTENANCE SHALL OCCUR WHEN NECESSARY. GRAVEL SHALL BE REPLACED WHEN A NOTICEABLE AMOUNT OF FINES HAVE COLLECTED IN BETWEEN THE CRUSHED GRAVEL. FILTER FABRIC SHALL BE REPLACED EVERY 6 MONTHS.

CATCH BASIN W/ GRAVEL INLET PROTECTION
INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT

MAINTENANCE SHALL OCCUR WHEN NECESSARY. FIBER ROLLS SHALL BE REPLACE EVERY 6 MONTHS AND STACKS SHALL BE INSPECTED TO ENSURE STRUCTURAL INTEGRITY. FIBER ROLLS SHALL BE INSPECTED WEEKLY AND ALL MAINTENANCE ISSUES SHALL BE CORRECT AT THAT TIME.

TEMPORARY STOCKPILES ARE STOCKPILES THAT WILL BE USED WITHIN 14 DAYS FOR BEING PLACED. IF A STOCKPILE IS BEING LEFT UNDISTURBED FOR LONGER THAN 14 DAYS THEN PERMANENT STABILIZATION WILL BE REQUIRED
EROSION AND SEDIMENT CONTROL NOTES

1. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE DEVELOPER SHALL PHYSICALLY MARK LIMITS OF NO LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED. THE PHYSICAL MARKERS SHALL REMAIN IN PLACE UNTIL A CERTIFICATE OF COMPLETION HAS BEEN ISSUED.

2. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.

3. MINIMIZE TOTAL AREA OF DISTURBANCE AND PROTECT NATURAL FEATURES AND SOIL.

4. THE CONTRACTOR SHALL SEQUENCE ALL ACTIVITIES TO MINIMIZE SIMULTANEOUS AREAS OF DISTURBANCE. MASS CLEARINGS AND GRADING OF THE ENTIRE SITE SHALL BE AVOIDED.

5. MINIMIZE SOIL EROSION AND CONTROL SEDIMENTATION DURING CONSTRUCTION.

6. DIVERT UNCONTAMINATED WATER AROUND DISTURBED AREAS.

7. INSTALL AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES OR THE 2008 EPA'S CONSTRUCTION GENERAL PERMIT.

8. PROTECT AND MANAGE ON-An OFF-SITE MATERIAL STORAGE AREAS (OVERBURDEN AND STOCKPILES OF DIRT, BORROW AREAS, OR OTHER AREAS USED SOLELY BY THE PERMITTED PROJECT ARE CONSIDERED A PART OF THE PROJECT).

9. COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS INCLUDING WASTE DISPOSAL, SANITARY SEWER OR SEPTIC SYSTEM REGULATIONS, AND AIR QUALITY REQUIREMENTS, INCLUDING DUST CONTROL.

10. SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF THE EROSION CONTROL DEVICE. SEDIMENT SHALL BE REMOVED FROM SILT FENCE PRIOR TO REACHING THE LOAD-BEARING CAPACITY OF THE SILT FENCE WHICH MAY BE LOWER THAN 1/4 TO 1/2 THE HEIGHT.

11. SEDIMENT FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS SHALL BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT.

12. BMPs TO BE USED FOR INFILTRATION AFTER CONSTRUCTION SHALL NOT BE USED AS BMPs DURING CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE BOARD. MANY INFILTRATION TECHNOLOGIES ARE NOT DESIGNED TO HANDLE THE HIGH CONCENTRATIONS OF SEDIMENTS TYPICALLY FOUND IN CONSTRUCTION RUNOFF, AND MUST BE PROTECTED FROM CONSTRUCTION RELATED SEDIMENT LOADINGS.

13. SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 2:1. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROLS.

14. FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FEET OF A BUILDING UNDER CONSTRUCTION, A PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL.

15. A TRACKING PAD OR OTHER APPROVED STABILIZATION METHOD SHALL BE CONSTRUCTED AT ALL ENTRANCE/EXIT POINTS OF THE SITE TO REDUCE THE AMOUNT OF SOIL CARRIED ONTO ROADWAYS AND OFF THE SITE.

16. ON THE CUT SIDE OF ROADS, DITCHES SHALL BE STABILIZED IMMEDIATELY WITH ROCK RIP--RAP OR OTHER NON-ERODIBLE LINERS, OR WHERE APPROPRIATE, VEGETATIVE MEASURES SUCH AS HYDROSEEDING OR JUTE MATTING.

17. PERMANENT SEEDING SHALL BE UNDERTAKEN IN THE SPRING FROM MARCH THROUGH MAY, AND IN LATE SUMMER AND EARLY FALL FROM AUGUST TO OCTOBER 15. DURING THE PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15. WHEN SEEDING IS FOUND TO BE IMPractical, APPROPRIATE TEMPORARY STABILIZATION SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE MULCHING AND WATERING.

18. ALL SLOPES STEEPER THAN 3:1 (H:V, 33.3%) AS WELL AS PERIMETER Dikes, SEDIMENT BASINS OR TRAPS, AND EMBANKMENTS MUST, UPON COMPLETION, BE IMMEDIATELY STABILIZED WITH SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES. AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST NOT BE DISTURBED.

19. TEMPORARY SEDIMENT TRAPPING DEVICES MUST NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTRIBUTORY DRAINAGE AREAS.

20. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS OF REMOVAL.

21. PROPERLY MANAGE ON-SITE CONSTRUCTION AND WASTE MATERIALS.

22. PREVENT OFF-SITE VEHICLE TRACKING OF SEDIMENTS.

23. DUST SHALL BE CONTROLLED AT THE SITE.

24. ALL PREVIOUSLY DISTURBED LAND SHALL BE STABILIZED BY APPROVED METHODS AFTER 14 DAYS IF LEFT UNDISTURBED. THIS INCLUDES STOCKPILES, CONSTRUCTION ENTRANCES, GRADED AREAS AND OTHER CONSTRUCTION ACTIVITY RELATED CLEARING.

25. IF WORK IS HALTED OVER WINTER MONTHS THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZING THE AREA THROUGH GROUNDCOVER PRACTICES.
SILT FENCE

JOINT DETAIL

END JOINT DETAIL

INSTRUCTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT

MAINTENANCE SHALL OCCUR WHEN NECESSARY. SILT FENCE SHALL BE REPLACE EVERY 6 MONTHS AND STACKS SHALL BE INSPECTED TO ENSURE STRUCTURAL INTEGRITY. SILT FENCE SHALL BE INSPECTED WEEKLY AND ALL MAINTENANCE ISSUES SHALL BE CORRECT AT THAT TIME.
CONSTRUCTION FENCE

PROPOSED ASPHALT BERM OVER CURB (IF NECESSARY)

ROADWAY

CONTRACTOR TO PROVIDE A WATER SOURCE FOR A WASH STATION FOR ALL VEHICLES LEAVING THE SITE.

PLAN VIEW
NOT TO SCALE

PROVIDE DRAINAGE AWAY FROM STABILIZED CONSTRUCTION ENTRANCE TO ACCEPTABLE SEDIMENT TRAPPING DEVICE

OPTIONAL WASH RACK PRE-CAST CONCRETE OR CORRUGATED STEEL PLATES

NO PARKING WITHIN 10' OF ALL CONSTRUCTION ENTRANCES. CONTRACTOR TO POST SIGNS

SECTION A-A

FILTER FABRIC

STABILIZED CONSTRUCTION ENTRANCE

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S.  DATE OF ISSUE: 07/09  SPEC. SECTION REF #: 
CHAINLINK CONSTRUCTION FENCE

TOP RAIL

SILT FENCE OVERLAP FABRIC 6" AT ENDS

CONCRETE FOOTING

FASTENERS 6" BETWEEN (TYP)

SILT FENCE EXTENDED INTO TRENCH

OPTIONAL WIND FENCE

6"x8" TRENCH EXCAVATED UP SLOPE FROM POLES BACKFILL AND COMPACT

INSPECTION SCHEDULE SHALL COMPLY WITH THE 2008 EPA CONSTRUCTION GENERAL PERMIT

MAINTENANCE SHALL OCCUR WHEN NECESSARY. SILT FENCE SHALL BE REPLACE EVERY 6 MONTHS AND POST SHALL BE INSPECTED TO ENSURE STRUCTURAL INTEGRITY. SILT FENCE SHALL BE INSPECTED WEEKLY AND ALL MAINTENANCE ISSUES SHALL BE CORRECT AT THAT TIME.

SUPER SILT FENCE

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S. DATE OF ISSUE: 07/09 SPEC. SECTION REF#: THE WORKS
<table>
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<tr>
<th>TYPE OF POST</th>
<th>HOLE DIA. AT TOP</th>
<th>HOLE DEPTH</th>
<th>POST EMBEDMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINE</td>
<td>3&quot;</td>
<td>36&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>TERMINAL</td>
<td>12&quot;</td>
<td>38&quot;</td>
<td>36&quot;</td>
</tr>
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</table>

*MIN. HOLE DIAMETER IN SOFT OR LOOSE SOIL SHALL BE 18"*

NOTES:
1. POST SPACING: LINE POSTS SHALL BE EVENLY SPACED, CENTER TO CENTER.
2. BARBED WIRE ARM WHERE REQUIRED SHALL BE PER CHAIN LINK FENCES AND GATES, AND CHAIN LINK FENCE DETAIL 2.
3. POST FOOTING SHALL HAVE A 1" CROWN FINISH.
4. SEE CHAIN LINK FENCE DETAIL 2 FOR CHAIN LINK FENCE ASSEMBLY, ALTERNATE POSTS, AND FABRIC SELVAGE DETAILS.
CHAIN LINK FENCE ASSEMBLY
WITH ONE-PIECE BARBED WIRE ARM (3-WIRE)

BARBED WIRE ARM
1/4 x 3/4" TENSION BAR
CORNER ARM 3 WIRE—MALLEABLE OR CAP
STANDARD PIPE CORNER POST TENSION BAND
BRACE BAND
TOP BRACE RAIL
BOTTOM TENSION WIRE

SLEEVE
ONE-PIECE (6-WIRE)

FABRIC SELVAGE
TYPE C TYPE C TOP & (CORNER) BRACE RAIL
TWIST TIE WIRE TIE WIRE KNUCKLED

ALTERNATE POSTS
SEE CHAIN LINK FENCES AND GATES

CHAIN LINK FENCE DETAIL 2
CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS
SCALE: N.T.S. DATE OF ISSUE: 02/05 SPEC. SECTION REF#: 02830 2830.2
36" high by 36" wide by 24" deep
Fabricated from 1/8" steel
Door on one side with heavy duty hinges
Locking device will be a deadbolt lock recessed into door
A shroud will cover the top of the lock
Box will be sanded and epoxy primed then painted with a urethane enamel top coat (black color)
Bottom of box will have a flange around the inside with a series of 1/2" holes to allow for mounting
NOTES:
1. CLEAN ALL COLD PLANED SURFACES BEFORE APPLYING JOINT ADHESIVE AND FINAL PAVEMENT
CAMBRIDGE STANDARD CROSSWALK
COLD PLANE EXISTING ROADWAY JOINT PRIOR TO TOP COURSE PAVEMENT OF NEW FULL DEPTH ROADWAY
SAWCUT EXISTING PAVEMENT AND APPLY LONGITUDINAL JOINT ADHESIVE

EXISTING PAVEMENT DEPTH AND SUBBASE

SAWCUT EXISTING PAVEMENT AND APPLY LONGITUDINAL JOINT ADHESIVE

TOP COURSE BINDER COURSE
GRAVEL SUBBASE OR BASE COURSE PAVEMENT

COMPACTED SUB-GRADE

EXISTING ROADWAY
NEW FULL DEPTH ROADWAY

8’ LIMIT OF COLD PLANE JOINT

NOTES:
1. CLEAN ALL COLD PLANE SURFACES BEFORE APPLYING JOINT ADHESIVE AND FINAL PAVEMENT
NOTES:
1. PERMANENT TRENCH PAVEMENT PAYMENT WIDTH SHALL BE THE TRENCH PAY LIMIT PLUS 2 FEET
2. REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.
3. SIDEWALKS SHALL MATCH WIDTH AND SLOPE OF EXISTING SIDEWALKS UNLESS OTHERWISE NOTED.
MINIMUM 2" OF CLASS 1 BITUMINOUS TOP COURSE
MINIMUM 4" OF BITUMINOUS CONCRETE BASE
UNDISTURBED EXISTING PAVEMENT
SAWCUT AND TACK COAT EDGES OF EXISTING PAVEMENT
12" GRAVEL SUBBASE
UNDISTURBED EARTH
1' TRENCH WIDTH (SEE TRENCH DETAILS)
1' PAVEMENT PAYMENT WIDTH (SEE NOTES)

NOTES:
1. PERMANENT TRENCH PAVEMENT PAYMENT WIDTH SHALL BE THE TRENCH PAY LIMIT PLUS 2 FEET
2. REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.
MINIMUM OF CLASS 1 6" BITUMINOUS BINDER COURSE

UNDISTURBED EXISTING PAVEMENT

SAWCUT AND TACK COAT EDGES OF EXISTING PAVEMENT

UNDISTURBED EARTH

12" GRAVEL SUBBASE IF REQUIRED

NOTES:
1. TEMPORARY TRENCH PAVEMENT PAYMENT WIDTH SHALL BE EQUAL TO THE TRENCH PAYMENT LIMIT
2. REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.
NOTES:
1. PERMANENT TRENCH PAVEMENT PAYMENT WIDTH SHALL BE THE TRENCH PAY LIMIT PLUS 2 FEET
2. TEMPORARY TRENCH PAVEMENT PAYMENT WIDTH SHALL BE EQUAL TO THE TRENCH PAYMENT LIMIT
3. REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.
BURIED WALL PIPE SLEEVE CLOSURE

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S.  DATE OF ISSUE: 02/05  SPEC. SECTION REF#: 03300  3300.4
NOTES:
1. SPACING BETWEEN PIPES (L) DEPENDS ON PIPE SIZES, FOR PIPES OF THE SAME SIZE USE 4".
   THE DISTANCE "L" EQUALS THE LARGE PIPE I.D. MINUS THE SMALL PIPE I.D. TIMES TWO [L=(P1−P2)+2]
   BUT NO LESS THAN 4".
2. PROPOSED PIPE INVERT SHALL MATCH EXISTING PIPE INVERT UNLESS OTHERWISE NOTED.
3. BRANDED EXISTING PIPE PERIMETER AND APPLY BONDING AGENT PRIOR TO CONCRETE ENGAGEMENT.
4. CONCRETE AND REBAR REQUIREMENTS SHALL CONFORM TO CAST-IN-PLACE CONCRETE.
5. LOCATION OF FIELD CLOSURE SHALL BE SUBMITTED TO THE ENGINEER FOR APPLIANCE.
6. FOR NON-PRESSURE PIPES OF DIFFERENT MATERIALS OR SIZES.
NOTES:
1. NOTCH TRENCH DAM A MINIMUM OF 2'-0" BEYOND UNDISTURBED MATERIAL ON SIDES AND BOTTOM OF TRENCH.

SEE TRENCH DETAIL FOR SEWER AND DRAIN PIPES AND FOR MATERIALS AND DEPTHS

SECTION A-A

NOTES:
1. THE TOP OF THE TRENCH DAM SHALL EXTEND A MINIMUM OF 5'-0"
   ABOVE THE GROUND WATER LEVEL, AS DETERMINED BY THE NEAREST
   BORING OR BY THE ENGINEER, BUT SHALL NOT EXCEED A DEPTH OF 1'-0"
   BELOW FINISHED GRADE.
2. TRENCH DAMS SHALL BE INSTALLED AS INDICATED ON THE CONTRACT
   DRAWINGS OR AS DIRECTED BY THE ENGINEER.
3. IF PIPE MATERIAL IS DUCTILE IRON USE A NON FLY ASH BASED
   CONTROL DENSITY FILL.
SECTION A-A

SANITARY SEWER OR STORM DRAIN

12" (MIN.) CONCRETE ENCASEMENT TYP. ALL AROUND

WATER LINE

SECTION B-B

SANITARY SEWER OR STORM DRAIN

PROTECT WATER MAIN WITH 30lb FELT ROOFING PAPER PRIOR TO PLACING CONCRETE

WATER LINE

10' MIN. (TYP.)

NOTE:
1. CONCRETE SHALL HAVE A MINIMUM 3,000 PSI STRENGTH

PLAN

10' MIN. (TYP.)

12" (MIN.) CONCRETE ENCASEMENT TYP. ALL AROUND

PLAN

WATER LINE

STORM DRAIN AND SANITARY SEWER CROSSING ABOVE WATER MAIN

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S.  DATE OF ISSUE: 02/05  SPEC. SECTION REF#: 02630  2630.1
NOTE:
AROUND HYDRANTS, UTILITY POLES, SIGN POSTS ETC., SEE EXPANSION JOINT DETAIL

PLAN

VERTICAL GRANITE CURB (SEE VERTICAL GRANITE CURB DETAIL)

STRINGER COURSE

BRICK (2 1/2"

6"

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S. DATE OF ISSUE: 02/05 SPEC. SECTION REF#: 02524 2524.8
NOTES:
1. SIDEWALKS SHALL MATCH WIDTH AND SLOPE OF EXISTING SIDEWALKS UNLESS OTHERWISE NOTED.
2. BITUMINOUS CONCRETE BINDER COURSE SHALL BE 6” DEPTH (IN TWO 3” COURSES) AT DRIVeways. REFER TO PROJECT DRAWINGS OR ENGINEER’S INSTRUCTIONS FOR LOCATIONS
3. FOR BRICK LAYOUT PATTERN SEE PLAN VIEW DETAIL 2524.8
NOTES:
1. SIDEWALKS SHALL MATCH WIDTH AND SLOPE OF EXISTING SIDEWALKS UNLESS OTHERWISE NOTED.
2. FOR BRICK LAYOUT PATTERN SEE PLAN VIEW DETAIL 2524.8
CURB DETAIL
CURB IS TYPE-2 PER MHD CONSTRUCTION STANDARDS

VERTICAL BACK OPTIONAL AND AS APPROVED

PAVEMENT PER PAVING AND SURFACING

12" COMPACTED GRAVEL SUBBASE

COMPACTED SUB-GRADE

1"

TYPE - 2 CURB (SEE CURB DETAIL THIS SHEET)

SIDEWALK (SEE SIDEWALK DETAILS)

95% DETAILS NOT FOR CONSTRUCTION

BITUMINOUS CONCRETE CURB DETAIL
CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS
SCALE: N.T.S.  DATE OF ISSUE: 02/05  SPEC. SECTION REF#: 02524  2524.9
NOTES:

1. PLACE AND COMPACT GRAVEL PRIOR TO SETTING SLOPED GRANITE CURB
4000 PSI POLYPROPYLENE MICROFIBER REINFORCED CEMENT CONCRETE

6" (TYP.)

SECTION A-A

VARIES

4' MIN.

MAINTAIN 1" LIP

ROADWAY SURFACE

6" COMPACTED GRAVEL SUBBASE

S = 1.6% MAX

S = 2% TO 15%

FLOAT SMOOTH

COMPACTED SUBGRADE

VERTICAL GRANITE CURB

TRANSITION CURB TO MATCH EXISTING OR GRADES INDICATED ON CONTRACT DRAWINGS

SIDEWALK (SEE SIDEWALK DETAILS)

PLAN

VERTICAL GRANITE CURB

VARIES

1'-0" MIN TO 3'-0" MAX

CEMENT CONCRETE DRIVEWAY APRON DETAIL

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S. DATE OF ISSUE: 01 / 19 SPEC. SECTION REF#: 02524 2524.5
1/4" EXPANSION JOINT PER ASTM D-1751

VERTICAL GRANITE CURB

EXPANSION JOINT JOINT PER ASTM D-1751

PROVIDE 3/8" EXPANSION JOINTS AROUND HYDRANTS, UTILITY POLES, SIGN POSTS ETC. AS SHOWN

5' (TYP.)

SIDEWALK EXPANSION JOINT DETAIL

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S. DATE OF ISSUE: 02/05 SPEC. SECTION REF#: 02524

2524.4
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<th>GUTTER SLOPE</th>
<th>TRANSITION LENGTH (F')</th>
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<td>8.50'</td>
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NOT TO SCALE
NOTES:

1. FOR RAISED CROSSWALK/INTERSECTION APPROACH RAMPS WITH A STOP CONTROL THE
SLOPE OF THE RAMP SHALL BE A 3% CHANGE FROM THE APPROACHING ROADWAY
PROFILE.

2. FOR RAISED CROSSWALK/INTERSECTION APPROACH RAMPS WITHOUT A STOP CONTROL
THE SLOPE OF THE RAMP SHALL BE A 5% CHANGE FROM THE APPROACHING ROADWAY
PROFILE.
VERTICAL GRANITE CURB
(SEE VERTICAL GRANITE CURB DETAIL)

MINIMUM OF 2” BITUMINOUS
TOP COURSE

S = 1.5% MAX

PAVEMENT PER
PAVING AND
SURFACING

COMPACTED
SUB-GRADE

CLASS A CONCRETE
(SEE VERTICAL GRANITE CURB DETAIL)

VARIES

NOTES:
1. SIDEWALKS SHALL MATCH WIDTH AND SLOPE OF EXISTING SIDEWALKS UNLESS OTHERWISE NOTED.
NOTES:
1. PRECAST REINFORCED CONCRETE BOX SECTIONS MANUFACTURED IN ACCORDANCE WITH PRECAST REINFORCED CONCRETE BOX CULVERT. WATER-TIGHT GASKET JOINTS TO BE PROVIDED AS SPECIFIED.
2. TRENCH PAY LIMIT FOR BOX CULVERT IS OUTSIDE DIMENSION (WIDTH) PLUS 3' FOR TEMPORARY SUPPORT OF EXCAVATION PLUS SPACE BETWEEN CULVERT AND TEMPORARY SUPPORT OF EXCAVATION TO A MAXIMUM OF 6' TOTAL.
30" STANDARD MANHOLE FRAME & COVER (UNLESS OTHERWISE NOTED) TO BE MARKED "DRAIN".

SET CASTING IN GROUT AND GROUT ALL AROUND TO 4" ABOVE THE FLANGE (UNLESS OTHERWISE NOTED)

SET RIM AT FINISHED GRADE

USE BRICK COURSES AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (MAX 3 COURSES OF BRICK) SEAL INSIDE AND OUTSIDE OF BRICK WITH HYDRAULIC PLASTER FINISH GRADE

STANDARD PRECAST ECCENTRIC OR CONCENTRIC CONE SECTION, OR FLAT TOP (AS REQUIRED)

BOX CULVERT SHALL BE MANUFACTURED WITH TONGUE AND GROOVE CONNECTION TO JOIN WITH PRECAST MANHOLE BARREL SECTION

SLOPE VARIES

LONGITUDINAL SECTION
CASCAD GRATE

GRANITE CURB SHALL BE CUT AS REQUIRED TO SET CATCH BASIN

CLASS A CONCRETE (REFER TO GRANITE CURB DETAIL)

TOP OF CURB

8" MINIMUM THICKNESS (H2O LOADING)

HOOD OR INSERT AS REQUIRED

STANDARD PRECAST BARREL SECTION COMBINATIONS OF 1', 2', 3' OR 4' LENGTHS AS NEEDED TO BRING CATCH BASSIN RIM TO REQUIRED ELEVATION

BUTYL RUBBER JOINT (TYP.)

SEAL ALL INTERIOR AND EXTERIOR JOINTS WITH HYDRAULIC CEMENT

COAT WITH 2 COATS OF BITUMINOUS DAMPROOFING

6" MINIMUM THICKNESS

UNDISTURBED EARTH

SECTION A-A

FINISHED ROAD GRADE

SET CASTING IN GROUT AND GROUT ALL AROUND TO 4" ABOVE FLANGE (UNLESS OTHERWISE NOTED)

USE BRICK COURSES AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (MAX 3 COURSES OF BRICK)

SEAL INSIDE AND OUTSIDE 6" BRICK WITH HYDRAULIC CEMENT

OUTLET PIPE

GRANITE CURB SHALL BE CUT AS REQUIRED TO SET CATCH BASIN

24" SLAB OPENING WITH CASCAD GRATES (DOUBLE) PER SPECIFICATIONS, SEE CATCH BASIN NOTE 4

HOOD OR INSERT

FLOW

OUTLET PIPE

FLEXIBLE WATERTIGHT SLEEVE REQUIRED FOR PVC AND DL USE

NON SHRINK GROUT FOR RCP CONNECTIONS, CAST OPENING IN STRUCTURE (TYP)

STANDARD PRECAST BASE IN 3' LENGTHS (MIN)

5" MINIMUM WALL THICKNESS

SEAL ALL HOLES WITH HYDRAULIC CEMENT

12" (MIN) OF 3/4" CRUSHED STONE BEDDING UNLESS OTHERWISE NOTED

PLAN

TYPE 1 - SINGLE GRATE CATCH BASIN

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S.  DATE OF ISSUE: 02/05  SPEC. SECTION REF#: 02604  2604.2
TYPE 3-CATCH BASIN WITH (SINGLE) CASCADE GRADE AND
TYPE 4-CATCH BASIN WITH (DOUBLE) CASCADE GRADE

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S. DATE OF ISSUE: 02/05 SPEC. SECTION REF#: 02604 2604.4
SECTION A-A

NOTES:
1. REMOVE EXISTING BRICK PIPE TO SPRING LINE WITHIN THE INSIDE OF THE PRECAST MANHOLE BASE AND CONSTRUCT THE INVERT TO THE SPRING LINE AS SHOWN.

PRECAST BASE INSIDE DIMENSION TABLE

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<th>WIDTH (W)</th>
<th>I.D. (C)</th>
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<tr>
<td>8&quot; TO 24&quot;</td>
<td>4' φ</td>
</tr>
<tr>
<td>27&quot; TO 36&quot;</td>
<td>5' φ</td>
</tr>
<tr>
<td>48&quot; TO 66&quot;</td>
<td>6' φ</td>
</tr>
<tr>
<td>66&quot; TO 72&quot;</td>
<td>8' φ</td>
</tr>
<tr>
<td>&gt; 72&quot;</td>
<td>10' φ</td>
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</table>

I.D. = INSIDE DIMENSION

FLOW

PLAN

30" STANDARD MANHOLE FRAME & COVER (UNLESS NOTED OTHERWISE) TO BE MARKED "RAIN OR SEWER" AS APPLICABLE

COAT WITH (2) COATS OF BITUMINOUS DAMPROOFING

BUYTIL RUBBER JOINT (TYP.)

OPENINGS IN PRECAST BASE SHALL BE MANUFACTURED TO ACCOMODATE DIMENSIONS OF EXISTING PIPE. REFER TO PRECAST BASE INSIDE DIMENSION TABLE FOR WIDTH REQUIREMENTS.

12" (MIN.) OF 3/4" CRUSHED STONE UNLESS OTHERWISE INDICATED

SECTION A-A

TYPE 2 - PRECAST DROP OVER MANHOLE DETAIL

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S. DATE OF ISSUE: 02/05 SPEC. SECTION REF#: 02252 2252.3
30" STANDARD MANHOLE FRAME AND COVER (UNLESS NOTED OTHERWISE) TO BE MARKED "DRAIN"

SET CASTING IN GROUT AND GROUT ALL AROUND TO 4" ABOVE THE FLANGE (UNLESS NOTED OTHERWISE)

COAT WITH (2) COATS OF BITUMINOUS DAMPPROOFING

SET RIM AT FINISHED GRADE

USE BRICK COURSES AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (3 COURSES OF BRICK MAX.) SEAL INSIDE AND OUTSIDE WITH BRICK HYDRAULIC CEMENT

18" MAX

FINISHED GRADE

2'-6" x 8' OPENING MIN

STANDARD PRECAST CONE SECTION IN 2', 3' & 4' LENGTHS WITH FLAT, CONCENTRIC OR ECCENTRIC CONICAL TOP (AS REQUIRED)

SEAL ALL JOINTS WITH HYDRAULIC CEMENT

STANDARD PRECAST BARREL SECTION COMBINATIONS OF 1', 2', 3' OR 4' LENGTHS AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (SEE MANHOLE GENERAL NOTE 4)

PRECAST MANHOLE BARREL SECTION WITH CUTOUT TO FIT OVER EXIST. PIPE

DRAIN (SIZES VARY)

EXISTING SEWER (SIZES VARY)

EXISTING DRAIN (SIZES VARY)

FLEXIBLE WATERTIGHT SLEEVE REQUIRED FOR PVC AND DI.

BRICK TABLE (SEE CAST-IN-PLACE BASE CONCRETE)

CONCRETE FILL TO FORM TABLE

CAST-IN-PLACE CONCRETE BASE

UNDISTURBED MATERIAL

10" (MIN)

SCHEDULE 80 PVC PIPE (DIAMETER VARIES)

FILL OPENING WITH NON-SHRINK GROUT 2" (MIN.)

#8 REBAR @ 9" EACH WAY WITH MINIMUM 3" OF COVER EACH WAY

4" SAND BORROW LAYER

EXISTING SANITARY SEWER

SECTION A-A
NOTES:
1. SEWER OR DRAIN MANHOLE DIAMETER SHALL BE 4', 5', 6', OR 8' AS SHOWN ON PLAN VIEWS.
2. DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHTO H20 LOADING.

SECTION A-A

30" STANDARD MANHOLE FRAME AND COVER

SET RIM AT FINISHED GRADE
SET CASTING IN GROUT AND GROUT ALL AROUND
USE BRICK COURSES AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (MAX HEIGHT 10") SEAL INSIDE AND OUTSIDE WITH BRICK HYDRAULIC CEMENT

STANDARD PRECAST CONE SECTION IN 2', 3' & 4' LENGTHS WITH FLAT, CONCENTRIC OR ECCENTRIC CONICAL TOP (AS REQUIRED) SEAL ALL JOINTS WITH HYDRAULIC CEMENT

STANDARD PRECAST BARREL SECTION COMBINATIONS OF 1', 2', 3' OR 4' LENGTHS AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION MORTAR BED

RUBBER BOOT (TYP.)
FERNCO CONNECTION

HOLE CUT TO WIDTH OF SLEEVE
PRE-CAST CONCRETE BASE
12" CRUSHED STONE
UNDISTURBED MATERIAL

8" PVC PIPE INSTALLED INSIDE PVC SLEEVE, SECURED TO EXISTING SANITARY SEWER WITH DOUBLE FERNCO AND IMBEDDED IN SAND

FILL OPENING WITH NON-SHRINK GROUT (TYP.)

8" PVC

BRICK TABLE

PLAN

FLOW

FLOW

EXISTING SANITARY SEWER

型6 - 人井構造による既存のユーティリティ - 基本
30" STANDARD MANHOLE FRAME & COVER (UNLESS OTHERWISE NOTED) TO BE MARKED "DRAIN" OR "SEWER" AS APPLICABLE.

FINISHED GRADE 18" MAX.

SET CASTING IN GROUT AND GROUT ALL AROUND TO 4" ABOVE FLANGE (UNLESS NOTED OTHERWISE).

STANDARD PRECAST ECCENTRIC OR CONCENTRIC CONE SECTION OR FLAT TOP (AS REQUIRED).

BRICK COURSES SHALL BE USED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (MAX 3 COURSES OF BRICK) SEAL INSIDE AND OUTSIDE OF BRICK WITH HYDRAULIC CEMENT.

30" STANDARD MANHOLE FRAME & COVER (UNLESS NOTED OTHERWISE ON PLAN) TO BE MARKED "DRAIN" OR "SEWER" AS APPLICABLE.

COAT WITH (2) COATS OF BITUMINOUS DAMPPROOFING.

BUTYL RUBBER JOINT (TYP.).

SEAL ALL HOLES WITH HYDRAULIC CEMENT.

SEE TABLE 1.

BRICK TABLE (SEE MANHOLE GENERAL NOTE 1).

3000 PSI CONCRETE.

FOR BOTTOM SLAB THICKNESS SEE TABLE 1.

12" MIN. OF 3/4" CRUSHED STONE UNLESS OTHERWISE INDICATED ON PROFILE.

FLEXIBLE WATERPROOF SLEEVE REQUIRED FOR PVC AND DUCTAL IRON USE NON-SHRINK GROUT FOR RCP CONNECTIONS, CAST OPENING IN STRUCTURE (TYP.).
MANHOLE GENERAL NOTES:

1. HIGHEST POINT OF BRICK TABLE AT MANHOLE WALL, TO BE AT ELEV OF CROWN OF PIPE. TABLE TO SLOPE AT 0.3%.

2. SEWER OR DRAIN MANHOLE DIAMETER SHALL BE 4', 5', 6', 8' OR 10' AS SHOWN ON PLAN/PROFILE VIEWS.

3. DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHO H20 LOADINGS, UNLESS OTHERWISE NOTED.

4. MANHOLES LARGER THAN 4' IN DIAMETER AT THE BASE SHALL BE REDUCED IN DIAMETER TO 4' AT THE NEXT RISER SECTION UNLESS NOTED OTHERWISE ON PLANS.
30" STANDARD MANHOLE FRAME & COVER (UNLESS NOTED OTHERWISE) TO BE MARKED "DRAIN" OR "SEWER" AS APPLICABLE

SET RIM AT FINISHED GRADE

USE BRICK COURSES AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (MAX 3 COURSES OF BRICKS) SEAL INSIDE AND OUTSIDE OF BRICK WITH HYDRAULIC CEMENT

COAT WITH (2) COATS OF BITUMINOUS DAMPROOFING

SET CASTING IN GROUT AND GROUT ALL AROUND TO 4" ABOVE THE FLANGE (UNLESS NOTED OTHERWISE)

FINISH GRADE

STANDARD PRECAST ECCENTRIC OR CONCENTRIC CONE SECTION, OR FLAT TOP (AS REQUIRED)

SEAL ALL INTERIOR AND EXTERIOR JOINTS WITH HYDRAULIC CEMENT

STANDARD PRECAST BARREL SECTION COMBINATIONS OF 1', 2', 3' OR 4' LENGTHS AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (SEE MANHOLE GENERAL NOTE 4)

STANDARD PRECAST BASE IN 3' LENGTHS (MIN.)

3000 PSI CONCRETE

FLEXIBLE WATERTIGHT SLEEVE REQUIRED FOR PVC AND DI USE NON SHRINK GROUT FOR RCP CONNECTIONS CAST OPENING IN STRUCTURE (TYP.)

12" (MIN) OF 3/4" CRUSHED STONE UNLESS OTHERWISE INDICATED ON PROFILE

UNDISTURBED MATERIAL

SECTION A-A

30" STANDARD MANHOLE FRAME & COVER (UNLESS NOTED OTHERWISE)

GRAVITY SEWER OR GRAVITY DRAIN (SIZES VARY)

PLACE JOINT OR COUPLING WITHIN 3" OF WALL ON ALL PIPES

FLOW

SHAPE SMOOTH ROUNDED INVERT FOR ALL SIDE ENTRANCE PIPES BRICK TABLE

FLOW

PLAN

TYPE 1 - MANHOLE DETAIL

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S. DATE OF ISSUE: 02/05 SPEC. SECTION REF#: 02252 2252.2

99% DETAILS NOT FOR CONSTRUCTION
1. Precast reinforced concrete box sections manufactured in accordance with precast reinforced storage tank, watertight gasket joints to be provided as specified.

2. Trench pay limit for storage tank is outside dimension (width) plus 3' for temporary support of excavation plus space between culvert and temporary support of excavation to a maximum of 6' total.

3. Storage tank wall, roof and slab thickness to be designed by the manufacturer.

4. Floatation slabs to be designed and specified by the manufacturer.
30" VENTED MANHOLE FRAME & COVER (UNLESS OTHERWISE NOTED) TO BE MARKED "DRAIN"

SET CASTING IN GROUT AND GROUT ALL AROUND TO 4" ABOVE THE FLANGE (UNLESS OTHERWISE NOTED)

COAT WITH (2) COATS OF BITUMINOUS DAMPPROOFING

SEAL ALL HOLES WITH HYDRAULIC CEMENT

BUTYL RUBBER JOINT (TYP.)

INLET PIPE (INVERT ELEVATIONS VARY)

SET RIM AT FINISHED GRADE

USE BRICK COURSES AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (MAX 3 COURSES OF BRICKS) SEAL INSIDE AND OUTSIDE OF BRICK WITH HYDRAULIC CEMENT

STORAGE TANK SHALL BE MANUFACTURED WITH TONGUE AND GROOVE CONNECTION TO JOIN WITH PRECAST MANHOLE BARREL SECTION

STANDARD PRECAST ECCENTRIC OR CONCENTRIC CONE SECTION, OR FLAT TOP (AS REQUIRED)

SEAL ALL INTERIOR AND EXTERIOR JOINTS WITH HYDRAULIC CEMENT

STANDARD PRECAST BARREL SECTION COMBINATIONS OF 1", 2", 3" OR 4" LENGTHS AS NEEDED TO BRING MANHOLE RIM TO REQUIRED ELEVATION (SEE MANHOLE GENERAL NOTE 4)

OUTLET PIPE (INVERT ELEVATIONS VARY)

SLOPE 1%

VARIES

INV. EL. VARIES

VARIES

4' DIAMETER

18" MAX

FINISH GRADE

8" MIN

8'-6" OPENING

BURIED WALL PIPE SLEEVE CLOSURES WITH DOUBLE LINK SEALS (TYPICAL OF ALL PENETRATIONS) (SEE BURIED WALL SLEEVE DETAIL)
CITY OF CAMBRIDGE D.P.W.
ENGINEERING DEPARTMENT
SURVEY MONUMENT SPECIFICATION – 2008

PLAN VIEW

SET TOP OF MONUMENT
FLUSH WITH LEVEL OF
CONCRETE POUR

SIDE VIEW

LIFTING HOOK

NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS

E.F. SHEA, AMESBURY MA (978) 388-1509
E.F. SHEA, WILMINGTON MA (978) 658-2645
E.F. SHEA, NOTTINGHAM, NH (603) 942-5668
Traffic Management General Notes:

1. All traffic control devices shall conform with the latest edition of the Manual on Uniform Traffic Control Devices (M.U.T.C.D.)

2. All sign locations on details are shown schematically. Final locations shall be determined based on actual field conditions and city approval.

3. Additional traffic control devices shall be provided upon the city's request.

4. All temporary signage and traffic control devices shall be properly secured.

5. All drums not otherwise specified shall be equipped with type "C" -- Steady Burn Warning Lights.

6. Temporary traffic lanes within the work zone shall be a minimum of 11 feet.

7. Advisory speed limits shall be posted as directed by the city.

8. Flashing arrow boards shall be utilized for lane shifts where the existing speed limit is 35 M.P.H. or greater.

9. Non-essential traffic control devices shall be covered or removed during non-work hours.

10. All travel ways shall be protected from dust and construction debris at all times.

11. Traffic control includes necessary street sweeping and snow removal within the work zone.

12. Vehicular and pedestrian shall be allowed access to private property at all times during construction.

13. All traffic control devices shall be placed and moved as necessary to maintain adequate abutting access at all times. Work may require additional signage and other traffic control devices, grading and temporary pavement for passage of pedestrian, vehicular and emergency traffic through work areas both during and after work hours.

14. Each abutter shall be notified by the contractor at least 24 hours in advance of the start of any work that will require the temporary closure of access.

15. Construction work zone shall be staged as to allow for continuous access at drive entrances and to minimize detours to Cambridge roads.

16. Excavations shall be protected by steel plates or barricades during non-work hours.

17. Grade separations in excess of 2' during non-working hours will require delineation by drums.

18. Excavation edges in excess of 1' deep shall be protected during non-working hours by backfilling with a wedge of gravel compacted to a 4:1 slope.

19. Safe pedestrian walkways shall be provided and access to local businesses and residences. Public walkways shall remain open and accessible unless otherwise directed by the city.

20. All existing pedestrian crossings shall be maintained. Alternative crossing shall be provided when existing crossings are disrupted by construction activity. Temporary locations, safety signage and safety controls shall be approved by the city prior to implementation.

21. Pedestrian walkways shall be protected along work zone with concrete barriers and fencing.

22. Police details shall be scheduled and coordinated by the contractor to maintain the safety of pedestrian and vehicular traffic.

23. Detours to shall only be allowed as indicated or as approved by the City of Cambridge Traffic and Parking Department.

**Legend**

- Existing direction traffic flow arrow
- 28" (min) plastic drum (reflectorized) with flasher
- Traffic management sign during construction
- Work zone
NOTES:
1. ALL CONES AND DRUMS TO BE SPACED @ 20' O.C.
2. L = AREA OF 1/2 DAY OF WORK (PER MUTCD MANUAL)
3. SPECIAL LIGHTING UNITS (ARROW BOARDS) TO BE ADDED ON BOTH SIDES OF WORKZONE WHERE SPEED LIMIT MEETS OR EXCEEDS 35 M.P.H.
NOTES:
1. ADVANCE WARNING SIGNS PLACEMENT TO BE ADJUSTED AS NECESSARY AND APPROVED BY THE CITY.
2. ALL DRUMS AND CONES TO BE SPACED @ 20’ O.C.
Pedestrian Bypass Notes:

1. Additional advance warning may be required by the city.

2. Controls for pedestrian traffic only, are shown. Vehicular traffic shall be maintained as detailed elsewhere.

3. Street lighting shall be considered when locating control devices.

4. Existing wheelchair ramps shall be considered when locating temporary painted crosswalks.

5. Direction of pedestrian travel.

6. If the work zone does not permit pedestrians to travel adjacent to it as shown in pedestrian bypass Type I, temporary crosswalks with appropriate signs shall be installed to cross pedestrians to the opposite side of the street as shown in pedestrian bypass Type II, and as directed by the engineer.
<table>
<thead>
<tr>
<th>IDENTIFICATION NUMBER</th>
<th>SIZE OF SIGN</th>
<th>TEXT</th>
<th>TEXT DIMENSIONS</th>
<th>COLOR</th>
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<tbody>
<tr>
<td>020-2</td>
<td>36&quot; x 24&quot;</td>
<td>END</td>
<td>MUTED STANDARD DETAIL</td>
<td>MUTED STANDARD DETAIL</td>
</tr>
<tr>
<td>W1-1L</td>
<td>30&quot; x 30&quot;</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>W5-1</td>
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<tr>
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<td>W20-8</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. This detail shows a right lane closure detail. This detail shall also be used for left lane closures with the sign placement and type as appropriate.

<table>
<thead>
<tr>
<th>SPEED LIMIT (MPH)</th>
<th>SPACING FOR ADVANCE WARNING SIGNS (A1/A2/A3)</th>
<th>CHANNELING DEVICES</th>
<th>MIN. #</th>
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<tr>
<td>25-40</td>
<td>500/500/500</td>
<td>320</td>
<td>160</td>
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<tr>
<td>45-55</td>
<td>500/1000/1000</td>
<td>680</td>
<td>360</td>
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**TYPICAL ONE LANE CLOSURE**

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

| SCALE: N.T.S. | DATE OF ISSUE: 02/05 | SPEC. SECTION REF#: 01570 | 1570.3 |
TYPICAL TWO WAY ALTERNATING TRAFFIC

CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS

SCALE: N.T.S.  DATE OF ISSUE: 02/05  SPEC. SECTION REF#: 01570  1570.6
NOTES:
1. THIS DETAIL SHOWS A RIGHT LANE CLOSURE DETAIL. THIS DETAIL CAN ALSO BE USED FOR LEFT LANE CLOSURES, WITH SIGN PLACEMENT AND TYPE AS APPROPRIATE.

<table>
<thead>
<tr>
<th>SPEED LIMIT (MPH)</th>
<th>SPACING FOR ADVANCE WARNING SIGNS (A1/A2/A3)</th>
<th>CHANNELIZING DEVICES</th>
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<td></td>
<td>Buffer length (B) 160</td>
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<tr>
<td>45-55</td>
<td>500/1000/1000</td>
<td>Device spacing 20</td>
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<td>Min. # 90</td>
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TYPICAL TWO-WAY STREET LANE SHIFT
CITY OF CAMBRIDGE STANDARD SPECIFICATIONS AND DETAILS
SCALE: N.T.S. DATE OF ISSUE: 02/05 SPEC. SECTION REF#: 01570 1570.4