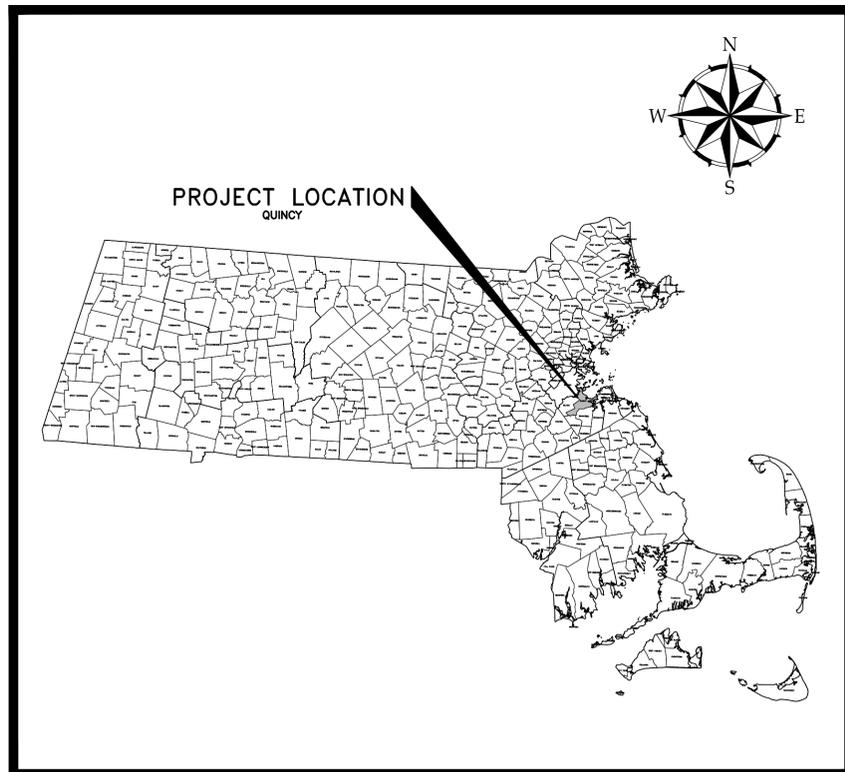


# CITY OF QUINCY, MASSACHUSETTS

## DEPARTMENT OF PUBLIC WORKS

### REPAIRS TO THE BROAD STREET TIDE GATE & STORMWATER TRIBUTARY SYSTEM

CAPITAL IMPROVEMENT PLAN NUMBERS 1138 & 1139



**PROJECT LOCATION MAP**

50 0 50 100  
scale mile

Mayor: Thomas P. Koch  
 Commissioner of Public Works: Daniel G. Raymond  
 Purchasing Agent: Kathryn R. Hobin



**APRIL 20, 2012**

BID SET NO. \_\_\_\_\_



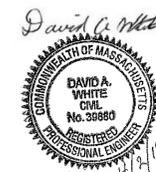
980 WASHINGTON STREET, SUITE 325  
 DEDHAM, MASSACHUSETTS 02026  
 781-251-0200 | www.woodardcurran.com  
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**SITE LOCATION MAP**

SOURCE: USGS TOPOGRAPHIC MAP

NOT TO SCALE

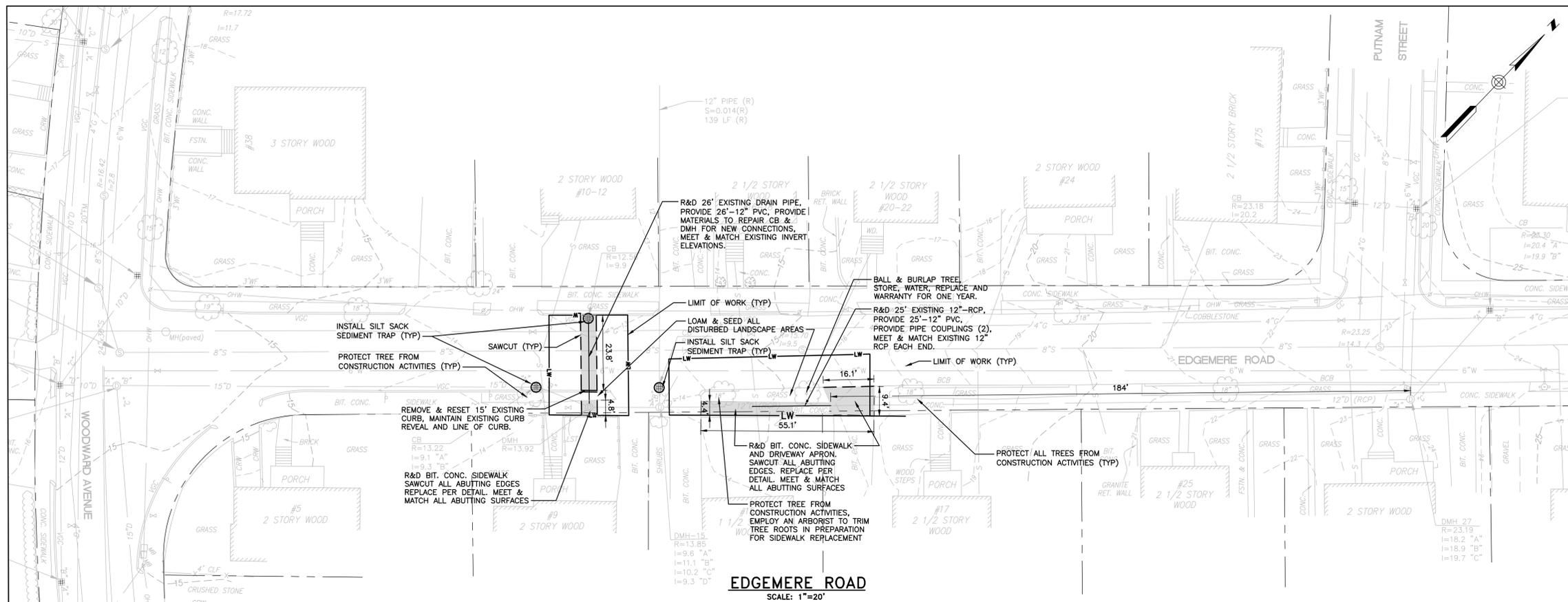


CONSTRUCTION DOCUMENTS

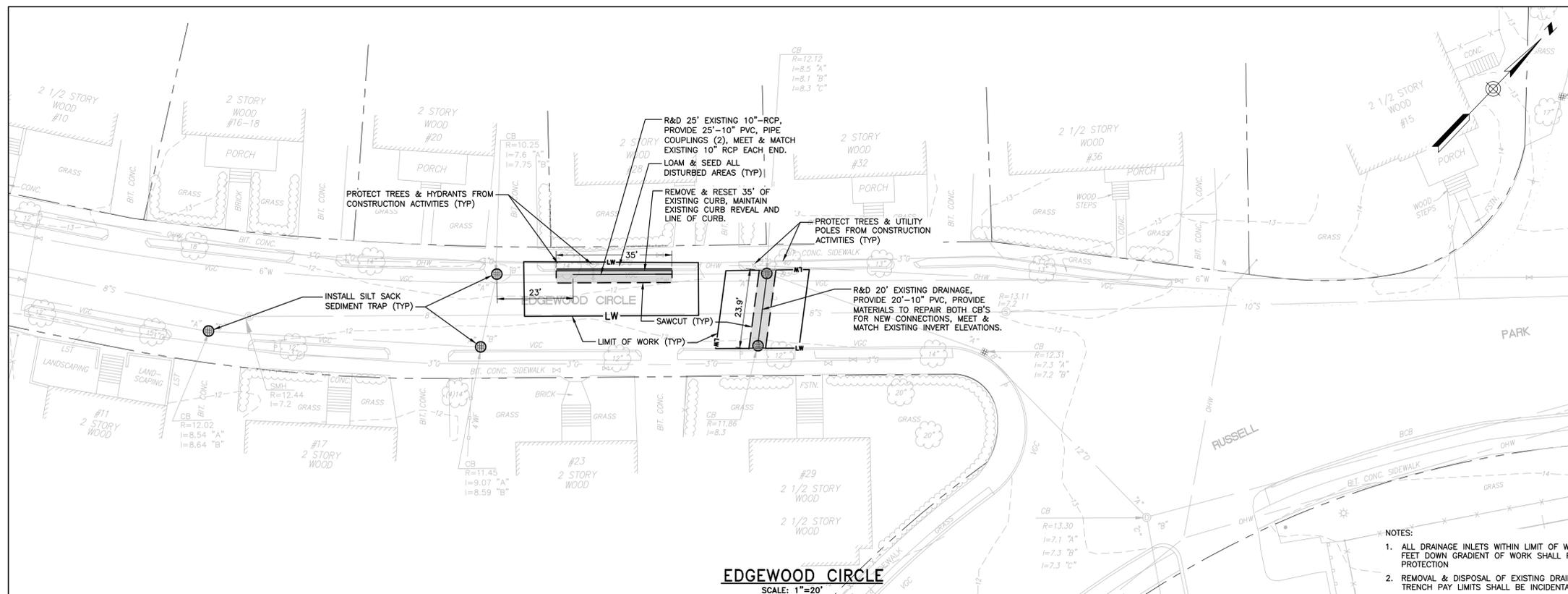
W&C PROJECT NO. 224627.01 & 224627.02





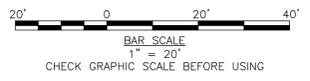


**EDGEMERE ROAD**  
SCALE: 1"=20'



**EDGEWOOD CIRCLE**  
SCALE: 1"=20'

- NOTES:**
1. ALL DRAINAGE INLETS WITHIN LIMIT OF WORK AND WITHIN 250 FEET DOWN GRADIENT OF WORK SHALL RECEIVE SILT SACK INLET PROTECTION
  2. REMOVAL & DISPOSAL OF EXISTING DRAINAGE OUTSIDE THE TRENCH PAY LIMITS SHALL BE INCIDENTAL TO THE CONTRACT.
  3. ALL DRAINAGE FACILITIES ABANDONED IN PLACE SHALL BE FILLED WITH CEMENT CONCRETE BASE FLOWABLE FILL.



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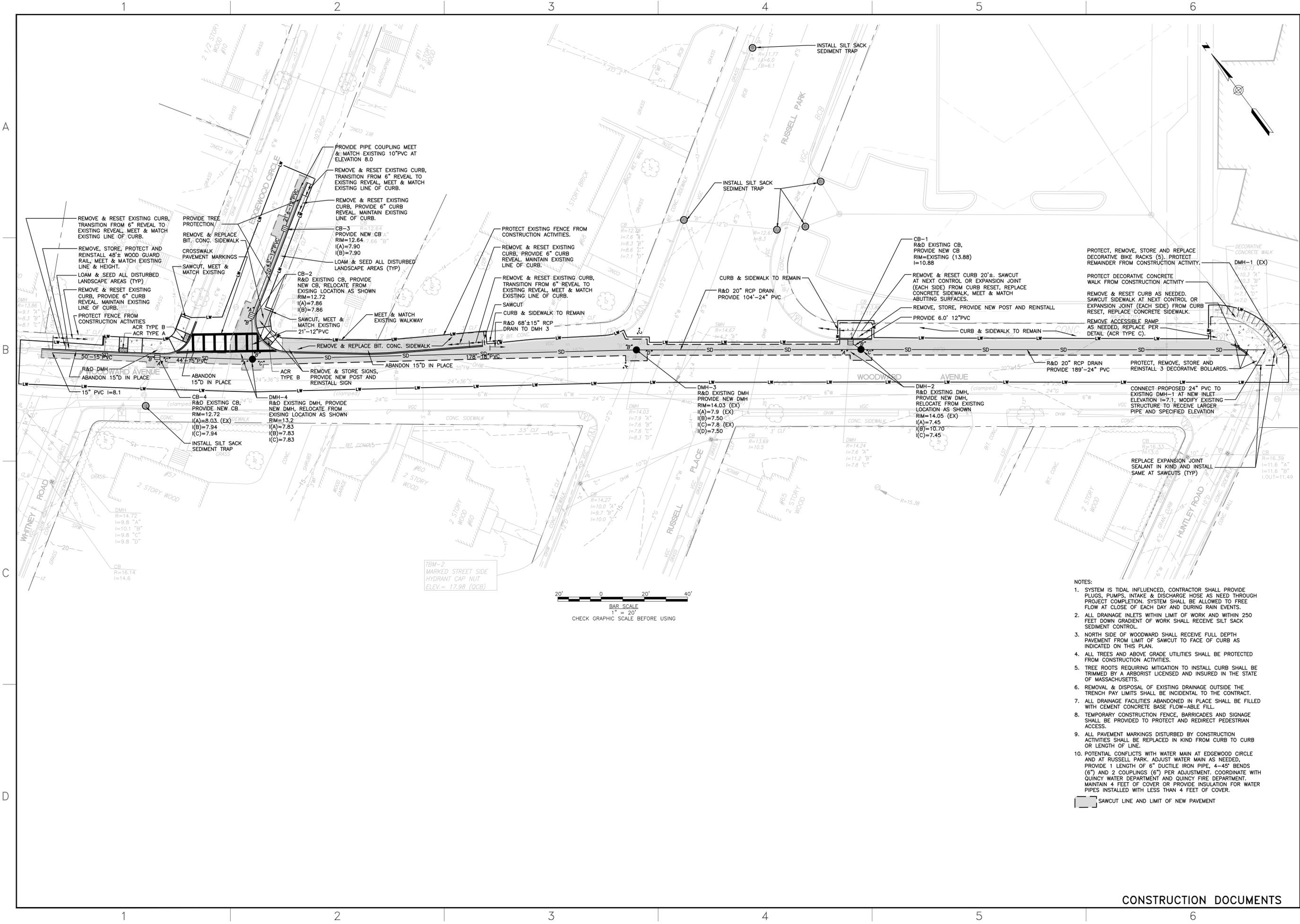
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DESIGNED BY: 2/24/2011  
DRAWN BY: 2/24/2011

**EDGEMERE ROAD & EDGEWOOD CIRCLE  
IMPROVEMENT PLAN**

CITY OF QUINCY, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
55 SEA STREET, QUINCY, MA

REPAIRS TO THE BROAD STREET  
TIDE GATE & STORMWATER  
TRIBUTARY SYSTEM

JOB NO.: 224627.01  
DATE: APRIL 20, 2012  
SCALE: 1"=20'  
SHEET: 4 OF 14



- NOTES:
1. SYSTEM IS TIDAL INFLUENCED, CONTRACTOR SHALL PROVIDE PLUGS, PUMPS, INTAKE & DISCHARGE HOSE AS NEED THROUGH PROJECT COMPLETION. SYSTEM SHALL BE ALLOWED TO FREE FLOW AT CLOSE OF EACH DAY AND DURING RAIN EVENTS.
  2. ALL DRAINAGE INLETS WITHIN LIMIT OF WORK AND WITHIN 250 FEET DOWN GRADIENT OF WORK SHALL RECEIVE SILT SACK SEDIMENT CONTROL.
  3. NORTH SIDE OF WOODWARD SHALL RECEIVE FULL DEPTH PAVEMENT FROM LIMIT OF SAWCUT TO FACE OF CURB AS INDICATED ON THIS PLAN.
  4. ALL TREES AND ABOVE GRADE UTILITIES SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES.
  5. TREE ROOTS REQUIRING MITIGATION TO INSTALL CURB SHALL BE TRIMMED BY A ARBORIST LICENSED AND INSURED IN THE STATE OF MASSACHUSETTS.
  6. REMOVAL & DISPOSAL OF EXISTING DRAINAGE OUTSIDE THE TRENCH PAY LIMITS SHALL BE INCIDENTAL TO THE CONTRACT.
  7. ALL DRAINAGE FACILITIES ABANDONED IN PLACE SHALL BE FILLED WITH CEMENT CONCRETE BASE FLOW-ABLE FILL.
  8. TEMPORARY CONSTRUCTION FENCE, BARRICADES AND SIGNAGE SHALL BE PROVIDED TO PROTECT AND REDIRECT PEDESTRIAN ACCESS.
  9. ALL PAVEMENT MARKINGS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED IN KIND FROM CURB TO CURB OR LENGTH OF LINE.
  10. POTENTIAL CONFLICTS WITH WATER MAIN AT EDGEWOOD CIRCLE AND AT RUSSELL PARK. ADJUST WATER MAIN AS NEEDED, PROVIDE 1 LENGTH OF 6\"/>
- SAWCUT LINE AND LIMIT OF NEW PAVEMENT

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REV	DESCRIPTION	DATE

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 DRAWN BY: 224627.01 PROPRIETOR/ARCHITECT

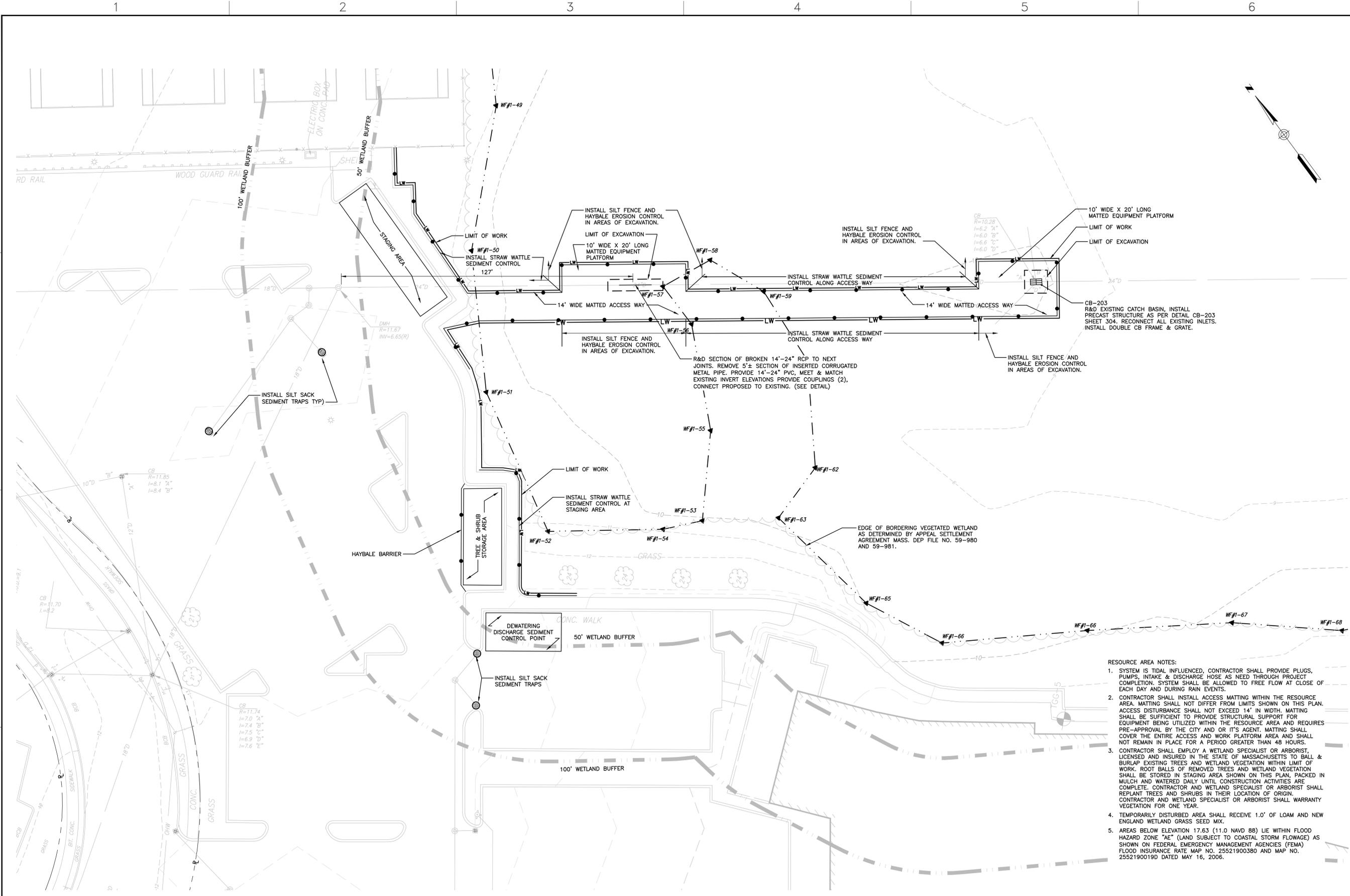
**WOODWARD AVENUE IMPROVEMENT PLAN**

CITY OF QUINCY, MASSACHUSETTS  
 DEPARTMENT OF PUBLIC WORKS  
 55 SEA STREET, QUINCY, MA

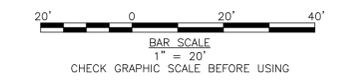
REPAIRS TO THE BROAD STREET TIDE GATE & STORMWATER TRIBUTARY SYSTEM

JOB NO.: 224627.01  
 DATE: APRIL 20, 2012  
 SCALE: 1"=20'  
 SHEET: 5 OF 14

**C-202**



- RESOURCE AREA NOTES:**
1. SYSTEM IS TIDAL INFLUENCED, CONTRACTOR SHALL PROVIDE PLUGS, PUMPS, INTAKE & DISCHARGE HOSE AS NEEDED THROUGH PROJECT COMPLETION. SYSTEM SHALL BE ALLOWED TO FREE FLOW AT CLOSE OF EACH DAY AND DURING RAIN EVENTS.
  2. CONTRACTOR SHALL INSTALL ACCESS MATTING WITHIN THE RESOURCE AREA. MATTING SHALL NOT DIFFER FROM LIMITS SHOWN ON THIS PLAN. ACCESS DISTURBANCE SHALL NOT EXCEED 14' IN WIDTH. MATTING SHALL BE SUFFICIENT TO PROVIDE STRUCTURAL SUPPORT FOR EQUIPMENT BEING UTILIZED WITHIN THE RESOURCE AREA AND REQUIRES PRE-APPROVAL BY THE CITY AND OR IT'S AGENT. MATTING SHALL COVER THE ENTIRE ACCESS AND WORK PLATFORM AREA AND SHALL NOT REMAIN IN PLACE FOR A PERIOD GREATER THAN 48 HOURS.
  3. CONTRACTOR SHALL EMPLOY A WETLAND SPECIALIST OR ARBORIST, LICENSED AND INSURED IN THE STATE OF MASSACHUSETTS TO BALL & BURLAP EXISTING TREES AND WETLAND VEGETATION WITHIN LIMIT OF WORK. ROOT BALLS OF REMOVED TREES AND WETLAND VEGETATION SHALL BE STORED IN STAGING AREA SHOWN ON THIS PLAN, PACKED IN MULCH AND WATERED DAILY UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETE. CONTRACTOR AND WETLAND SPECIALIST OR ARBORIST SHALL REPLANT TREES AND SHRUBS IN THEIR LOCATION OF ORIGIN. CONTRACTOR AND WETLAND SPECIALIST OR ARBORIST SHALL WARRANT VEGETATION FOR ONE YEAR.
  4. TEMPORARILY DISTURBED AREA SHALL RECEIVE 1.0' OF LOAM AND NEW ENGLAND WETLAND GRASS SEED MIX.
  5. AREAS BELOW ELEVATION 17.63 (11.0 NAVD 88) LIE WITHIN FLOOD HAZARD ZONE "4" (LAND SUBJECT TO COASTAL STORM FLOWAGE) AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCIES (FEMA) FLOOD INSURANCE RATE MAP NO. 25521900380 AND MAP NO. 2552190019D DATED MAY 16, 2006.



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## RESOURCE AREA IMPROVEMENT PLAN

CITY OF QUINCY, MASSACHUSETTS  
 DEPARTMENT OF PUBLIC WORKS  
 55 SEA STREET, QUINCY, MA

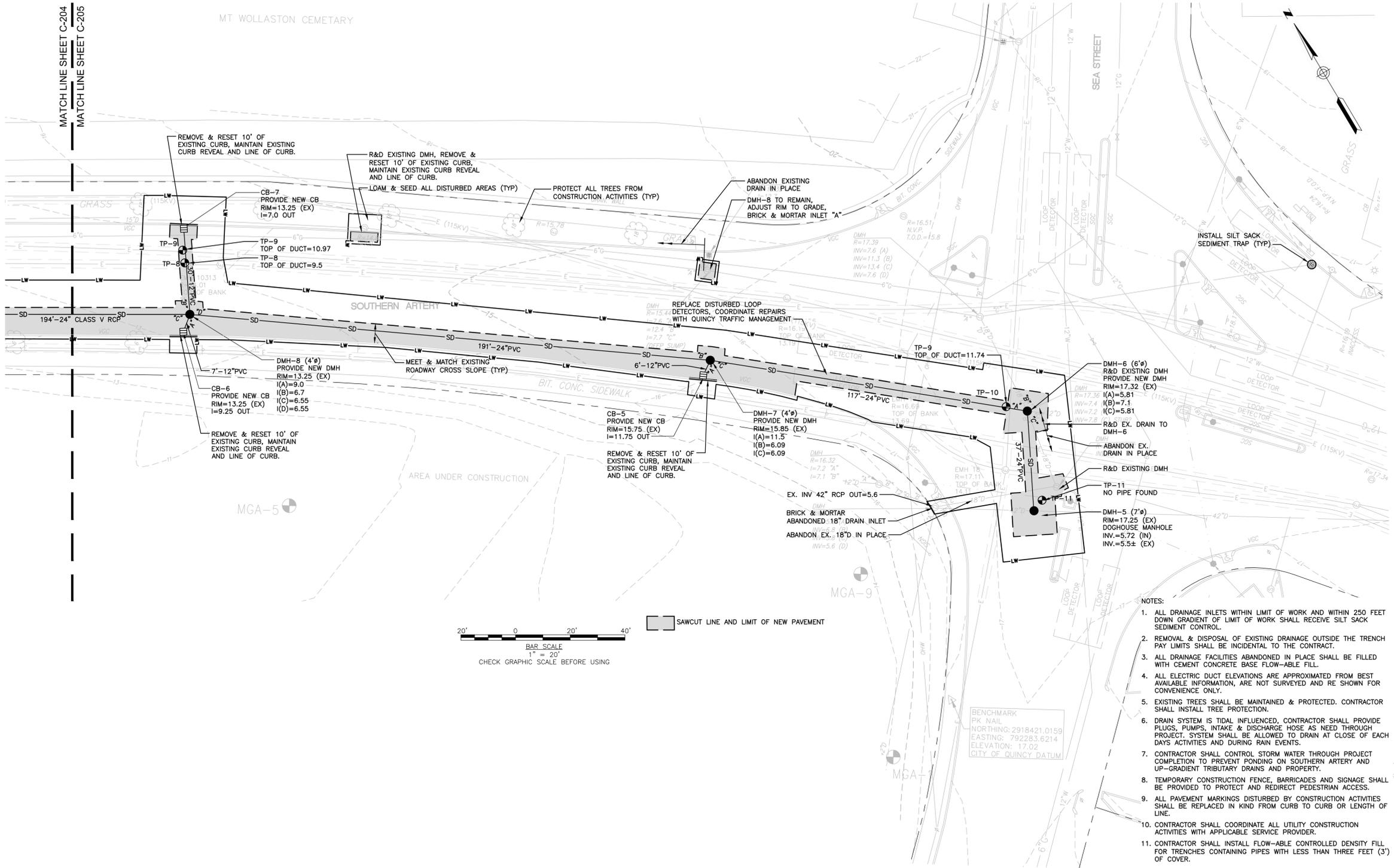
REPAIRS TO THE BROAD STREET  
 TIDE GATE & STORMWATER  
 TRIBUTARY SYSTEM

JOB NO.: 224627.01  
 DATE: APRIL 20, 2012  
 SCALE: 1"=20'  
 SHEET: 6 OF 14

**C-203**



MATCH LINE SHEET C-204  
MATCH LINE SHEET C-205



- NOTES:
1. ALL DRAINAGE INLETS WITHIN LIMIT OF WORK AND WITHIN 250 FEET DOWN GRADIENT OF LIMIT OF WORK SHALL RECEIVE SILT SACK SEDIMENT CONTROL.
  2. REMOVAL & DISPOSAL OF EXISTING DRAINAGE OUTSIDE THE TRENCH PAY LIMITS SHALL BE INCIDENTAL TO THE CONTRACT.
  3. ALL DRAINAGE FACILITIES ABANDONED IN PLACE SHALL BE FILLED WITH CEMENT CONCRETE BASE FLOW-ABLE FILL.
  4. ALL ELECTRIC DUCT ELEVATIONS ARE APPROXIMATED FROM BEST AVAILABLE INFORMATION, ARE NOT SURVEYED AND RE SHOWN FOR CONVENIENCE ONLY.
  5. EXISTING TREES SHALL BE MAINTAINED & PROTECTED. CONTRACTOR SHALL INSTALL TREE PROTECTION.
  6. DRAIN SYSTEM IS TIDAL INFLUENCED, CONTRACTOR SHALL PROVIDE PLUGS, PUMPS, INTAKE & DISCHARGE HOSE AS NEEDED THROUGH PROJECT. SYSTEM SHALL BE ALLOWED TO DRAIN AT CLOSE OF EACH DAYS ACTIVITIES AND DURING RAIN EVENTS.
  7. CONTRACTOR SHALL CONTROL STORM WATER THROUGH PROJECT COMPLETION TO PREVENT PONDING ON SOUTHERN ARTERY AND UP-GRADIENT TRIBUTARY DRAINS AND PROPERTY.
  8. TEMPORARY CONSTRUCTION FENCE, BARRICADES AND SIGNAGE SHALL BE PROVIDED TO PROTECT AND REDIRECT PEDESTRIAN ACCESS.
  9. ALL PAVEMENT MARKINGS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED IN KIND FROM CURB TO CURB OR LENGTH OF LINE.
  10. CONTRACTOR SHALL COORDINATE ALL UTILITY CONSTRUCTION ACTIVITIES WITH APPLICABLE SERVICE PROVIDER.
  11. CONTRACTOR SHALL INSTALL FLOW-ABLE CONTROLLED DENSITY FILL FOR TRENCHES CONTAINING PIPES WITH LESS THAN THREE FEET (3') OF COVER.

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**SOUTHERN ARTERY IMPROVEMENT  
PLAN 2**

CITY OF QUINCY, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
55 SEA STREET, QUINCY, MA

REPAIRS TO THE BROAD STREET  
TIDE GATE & STORMWATER  
TRIBUTARY SYSTEM

JOB NO.: 224627.01  
DATE: APRIL 20, 2012  
SCALE: 1"=20"  
SHEET: 8 OF 14

1

2

3

4

5

6

A

B

C

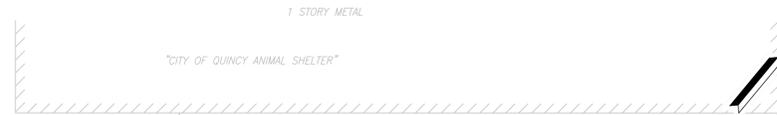
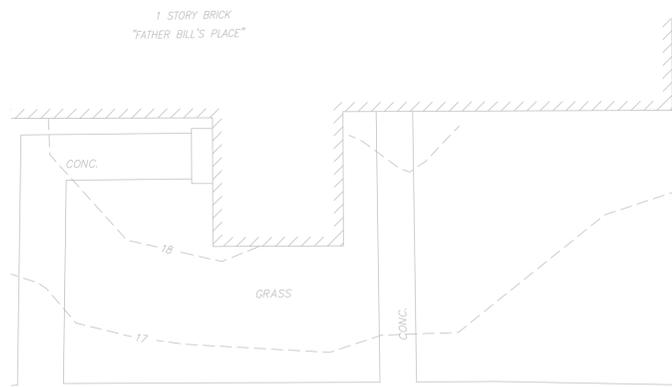
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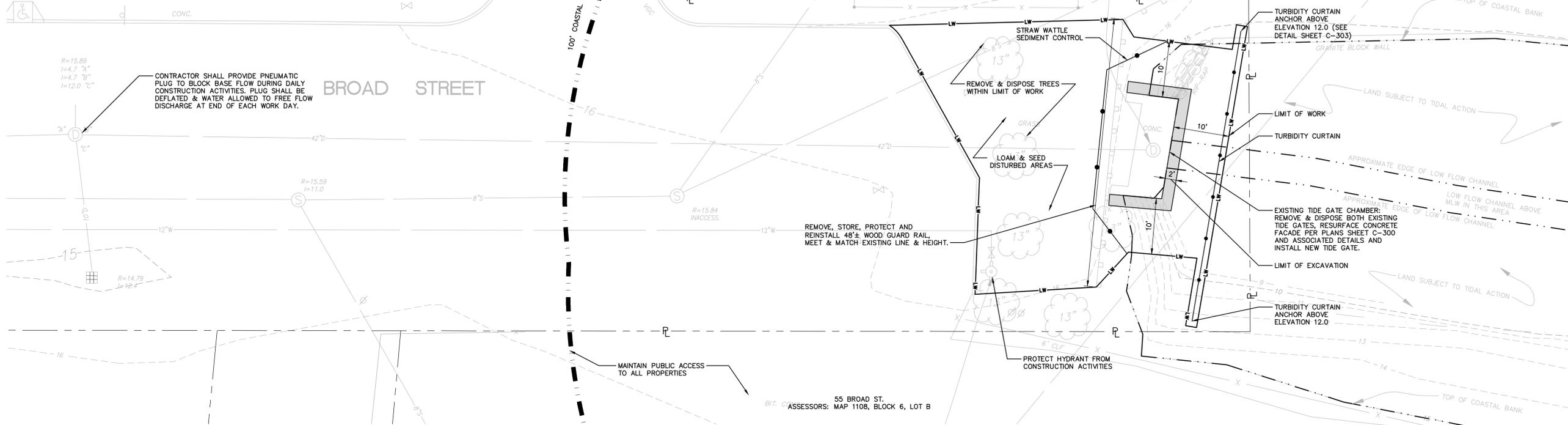
B

C

D



TOPOGRAPHY IS BASED ON CITY OF QUINCY DATUM  
 MEAN LIMIT OF WORK WATER = (+1.0 QUINCY)  
 (-4.84' NGVD 1929)  
 MEAN HIGH WATER = (10.4 QUINCY)  
 (4.58' NGVD 1929)  
 MEAN WATER = (5.12 QUINCY)  
 (0.00' NGVD 1929)



CONTRACTOR SHALL PROVIDE PNEUMATIC PLUG TO BLOCK BASE FLOW DURING DAILY CONSTRUCTION ACTIVITIES. PLUG SHALL BE DEFLATED & WATER ALLOWED TO FREE FLOW DISCHARGE AT END OF EACH WORK DAY.

REMOVE, STORE, PROTECT AND REINSTALL 48"± WOOD GUARD RAIL, MEET & MATCH EXISTING LINE & HEIGHT.

TURBIDITY CURTAIN ANCHOR ABOVE ELEVATION 12.0 (SEE DETAIL SHEET C-303)

TURBIDITY CURTAIN

EXISTING TIDE GATE CHAMBER: REMOVE & DISPOSE BOTH EXISTING TIDE GATES, RESURFACE CONCRETE FACADE PER PLANS SHEET C-300 AND ASSOCIATED DETAILS AND INSTALL NEW TIDE GATE.

TURBIDITY CURTAIN ANCHOR ABOVE ELEVATION 12.0



- NOTES:
1. ALL WORK IS CONTAINED WITHIN THE CITY OF QUINCY'S BROAD STREET PUBLIC RIGHT OF WAY.
  2. REMOVE AND DISPOSE OF EXISTING TIDE GATES.
  3. NO HEAVY EQUIPMENT SHALL BE PERMITTED WITHIN THE AREA SUBJECT TO TIDAL INFLUENCE.
  4. NO HEAVY EQUIPMENT SHALL BE PERMITTED WITHIN THE AREA SUBJECT TO TIDAL INFLUENCE.
  5. MAXIMUM EXCAVATION AROUND STRUCTURE SHALL BE TWO FEET. EXCAVATION EQUIPMENT SHALL NOT BE ALLOWED WITHIN THE AREA OF LAND SUBJECT TO TIDAL ACTION NOR LIMIT OF WORK FLOW CHANNEL. MECHANICAL EXCAVATION MAY OCCUR WITHIN MAXIMUM EXCAVATION LIMIT FROM MACHINERY LOCATED ON THE HIGH (WESTERN) SIDE OF THE TIDEGATE STRUCTURE. OTHERWISE EXCAVATION SHALL BE PERFORMED BY HAND.
  6. REPAIR CONCRETE STRUCTURE PER PLAN C-300 AND DETAILS.
  7. MOUNT NEW TIDE GATE AS PER MANUFACTURES SPECIFICATIONS.
  8. RESTORE DISTURBANCES TO ORIGINAL CONDITIONS.
  9. AREAS BELOW ELEVATION 17.63 (11.0 NAVD 88) LIE WITHIN FLOOD HAZARD ZONE "AE" (LAND SUBJECT TO COASTAL STORM FLOWAGE) AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY'S (FEMA) FLOOD INSURANCE RATE MAP NO. 25521900380 AND MAP NO. 2552190019D DATED MAY 16, 2006.

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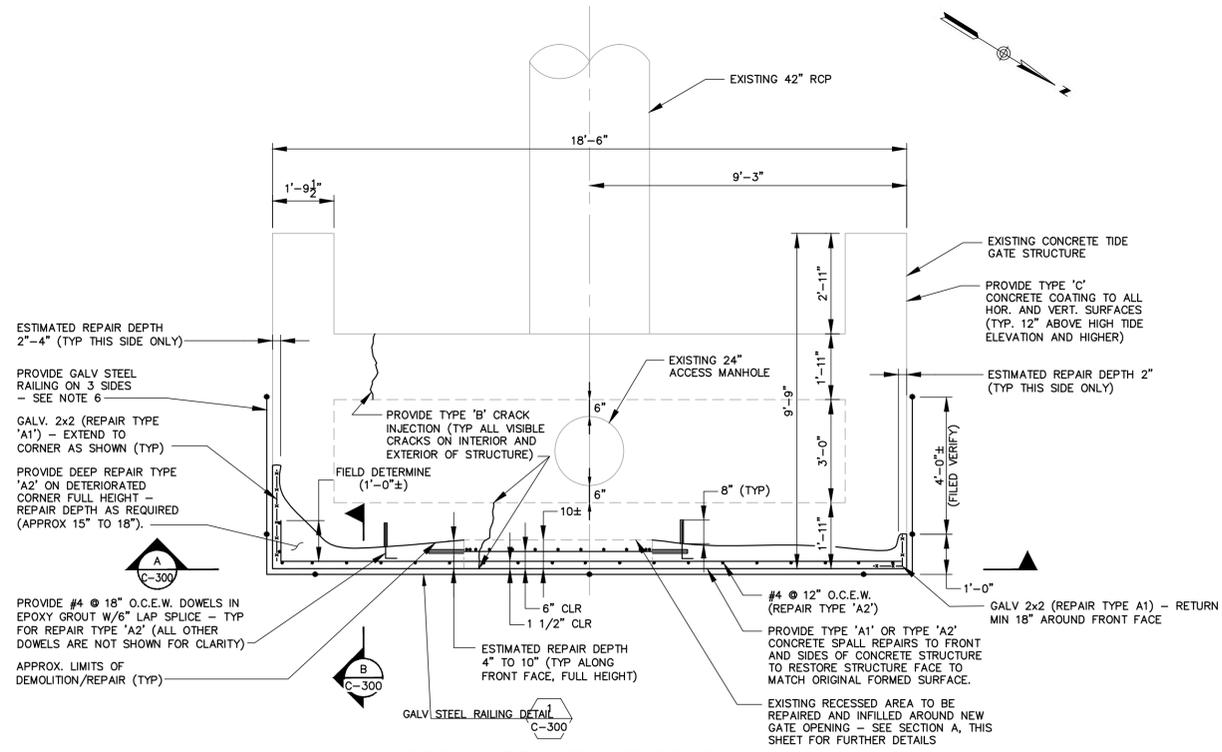
**BROAD STREET TIDE GATE IMPROVEMENT PLAN**

CITY OF QUINCY, MASSACHUSETTS  
 DEPARTMENT OF PUBLIC WORKS  
 55 SEA STREET, QUINCY, MA

REPAIRS TO THE BROAD STREET  
 TIDE GATE & STORMWATER  
 TRIBUTARY SYSTEM

JOB NO.: 224627.01  
 DATE: APRIL 20, 2012  
 SCALE: 1"=20'  
 SHEET: 9 OF 14

**C-206**

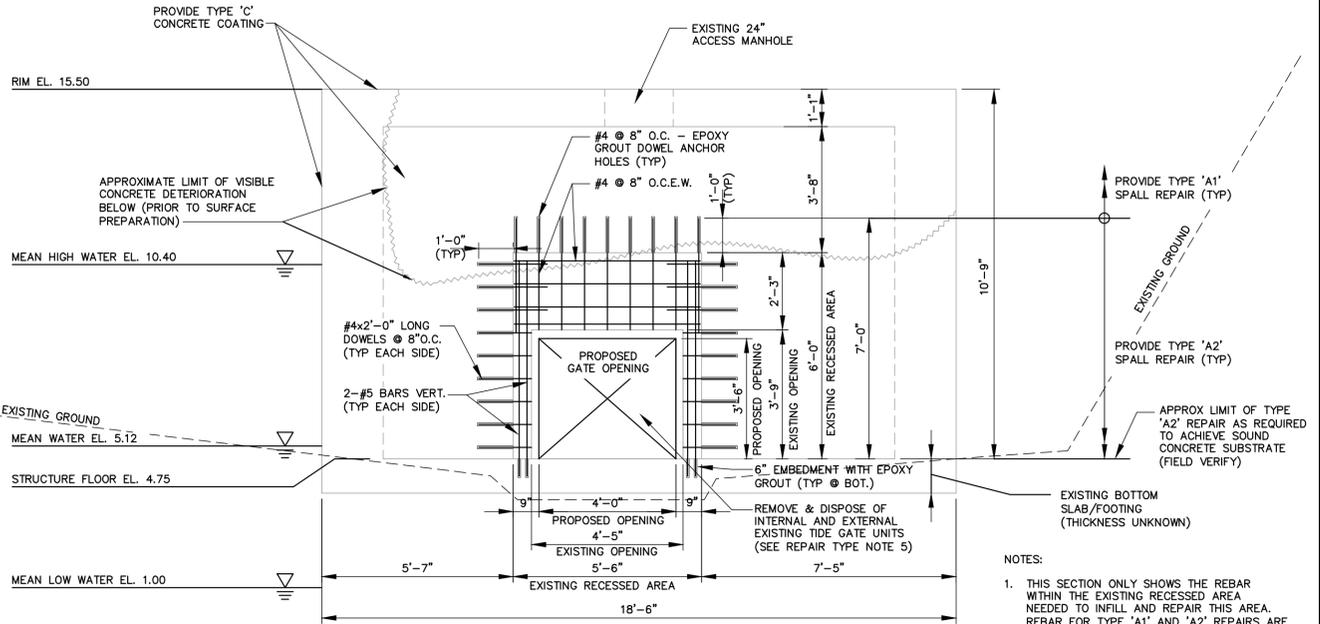


**TIDE GATE STRUCTURE PLAN**  
SCALE: 3/8"=1'-0"  
(NOTE: RECESSED GATE AREA IS SHOWN AT EL. 9.00±)

CONCRETE REPAIR SCHEDULE					
REPAIR TYPE	REPAIR DESCRIPTION	UNIT	QUANTITY	BID ITEM TYPE	REMARKS
A1	SHALLOW SPALL REPAIR (2" < DEPTH ≤ 4")	SF	150	UNIT PRICE	REPAIR AREAS ARE ABOVE HIGH TIDE ELEVATION
A2	DEEP SPALL REPAIR (4" < DEPTH ≤ 10")	SF	200	UNIT PRICE	PROVIDE ANTI-WASHOUT ADMIXTURE BELOW EL. 11.50.
B	POLYURETHANE INJECTION CRACK REPAIR	LF	75	UNIT PRICE	BOTH INSIDE AND OUTSIDE OF STRUCTURE
C	WATERPROOF CONCRETE COATING	SF	300	LUMP SUM	FOR ABOVE-WATER-LINE HORIZONTAL AND VERTICAL SURFACES ABOVE EL. 11.50

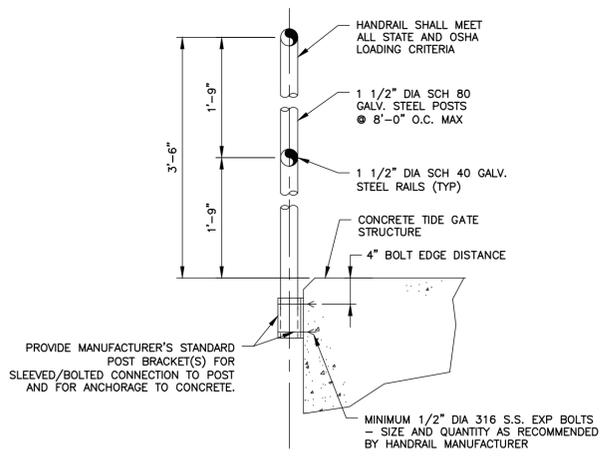
**REPAIR TYPE NOTES:**

- REPAIR TYPE A1 - SHALLOW SPALL REPAIR:** FOR ESTIMATED REPAIR DEPTHS FROM 2" UP TO 4".
  - AS SHOWN ON THE PLANS AND AS SCHEDULED, ALL HOLLOW, UNSOUND, DETERIORATED CONCRETE SURFACES SHALL BE REPAIRED AS FOLLOWS: SAW-CUTTING OF PERIMETER OF REPAIR TO A MINIMUM DEPTH OF 1.5"; CHIPPING OUT ALL UNSOUND CONCRETE TO A DEPTH APPROVED BY ENGINEER; INSTALLING 3/8" DIAMETER X 6" LONG GALVANIZED STEEL HOOK BOLTS @ 18" O.C. MAXIMUM EACH WAY TIED TO CONTINUOUS 2X2 GALVANIZED STEEL WELDED WIRE FABRIC WITH MINIMUM 1" CONCRETE COVER. HOOK BOLTS SHALL BE EQUAL TO J STYLE GALV. ANCHORS WITH PROOF TEST (PULLOUT) LOAD = 3000 LBS. AS MANUFACTURED BY AMERIBEST FASTENERS, LLC.
  - PROVIDE HIGH-PERFORMANCE REPAIR MORTAR EQUAL TO "SIKATOP 123 PLUS" BY SIKA CORPORATION TO RESTORE STRUCTURE TO ORIGINAL FORM DIMENSIONS FLUSH WITH ADJACENT FORMED SURFACES; STEEL TROWEL FINISH WITH NO TROWEL MARKS, INDENTATIONS, OR OTHER VISIBLE SURFACE DEFECTS. THE FINAL FINISH SHALL BE AS APPROVED BY THE ENGINEER.
  - REFER TO SPECIFICATION SECTION 03720 FOR FURTHER REQUIREMENTS.
- REPAIR TYPE A2 - DEEP SPALL REPAIR:** FOR ESTIMATED REPAIR DEPTHS LARGER THAN 4" UP TO 10" (FIELD VERIFY).
  - AS SHOWN ON THE PLANS AND AS SCHEDULED, ALL HOLLOW, UNSOUND, DETERIORATED CONCRETE SURFACES SHALL BE REPAIRED AS FOLLOWS: SAW-CUTTING OF PERIMETER OF REPAIR TO A MINIMUM DEPTH OF 1.5"; CHIPPING OUT ALL UNSOUND CONCRETE TO A DEPTH APPROVED BY ENGINEER; INSTALLING #4 REBAR DOWELS @ 18" O.C. EACH WAY DRILLED AND EMBEDDED A MINIMUM OF 8" INTO EXISTING SOUND CONCRETE (EXCEPT ALLOW FOR A MINIMUM 2" COVER TO OPPOSITE CONCRETE FACE ON BACK SIDE OF DOWELS) WITH EPOXY GROUT AND MINIMUM 1.5" CONCRETE COVER; INSTALL #4 @ 12" O.C. EACH WAY REBAR MAT TIED TO DOWELS OVER REPAIR AREA.
  - APPLY EPOXY BONDING COMPOUND EQUAL TO SIKA ARMATEC 110 EPO-CEM FOR ALL PREPARED SUBSTRATE PRIOR TO CONCRETE PLACEMENT.
  - PROVIDE CONVENTIONAL CAST-IN-PLACE 4500 PSI CONCRETE AS SPECIFIED USING A FORM AND POUR APPROACH. A SMOOTH FORM FINISH SHALL BE ACHIEVED WITH A FLUSH MATCH TO ADJACENT FORMED SURFACES AND GEOMETRY. AFTER FORM REMOVAL AND CONCRETE GRINDING, THERE SHALL BE NO VISIBLE FORM LINES, OUT-OF-PLANE AREAS, RECESSED AREAS, OR OTHER VISIBLE SURFACE DEFECTS. THE FINAL FINISH SHALL BE AS APPROVED BY THE ENGINEER.
  - FOR REPAIRS THAT ARE BELOW EL. 11.50, CONCRETE MIX SHALL CONTAIN A LIQUID ANTI-WASHOUT ADMIXTURE EQUAL TO "RHEOMAC UW450" BY BASF, TO PERMIT UNDERWATER APPLICATION OF CONCRETE WITHIN FORMWORK.
  - CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW A CONCRETE MIX DESIGN, REBAR SHOP DRAWINGS, AND A WRITTEN APPROACH ON HOW THIS REPAIR WORK WILL BE ACCOMPLISHED AND COORDINATED WITH THE TIDAL WATERS.
  - ALL REBAR SHALL BE EPOXY COATED AS PER ASTM A775.
  - REFER TO SPECIFICATION SECTIONS 03100, 03150, 03200, 03300, AND 03350 FOR FURTHER REQUIREMENTS.
- REPAIR TYPE B - POLYURETHANE INJECTION CRACK REPAIR:**
  - AS SHOWN ON THE PLANS AND AS SCHEDULED, ALL CRACKS SHALL BE CONTINUALLY INJECTED WITH "SIKAFIX HH LV" BY SIKA CORPORATION, OR APPROVED EQUAL.
  - PRODUCT SHALL BE HIGH-SOLIDS, HYDROPHOBIC, POLYURETHANE, LIQUID CHEMICAL GROUT. AFTER COMPLETION OF INJECTION AND CURE OF PRODUCT ALL INJECTION PORTS/PACKERS SHALL BE REMOVED FROM HOLES AND GROUTED FLUSH/SOLID WITH SIKATOP 122 PLUS BY SIKA CORPORATION, OR APPROVED EQUAL.
  - REFER TO SPECIFICATION SECTION 03742 FOR FURTHER REQUIREMENTS.
- REPAIR TYPE C - WATERPROOF CONCRETE COATING:**
  - AS SHOWN ON THE PLANS AND AS SCHEDULED, CLEAN AND PREPARE EXISTING HORIZONTAL AND VERTICAL CONCRETE SURFACES.
  - PROVIDE POLYURETHANE, WATERPROOF, SEAMLESS, TRAFFIC-BEARING MEMBRANE SYSTEM FOR EXISTING CONCRETE SLABS EQUAL TO "SONOSHIELD SONOGUARD" ROOF TOP SYSTEM (OCCUPIED SPACE UNDER) AS MANUFACTURED BY BASF. SYSTEM SHALL INCLUDE PRIMER, BASE COAT, TOP COAT AND AGGREGATE FINISH, EACH APPLIED AT THICKNESS RECOMMENDED BY MANUFACTURER. WATERPROOF COATING SHALL BE CONTINUOUS OVER ALL CONCRETE AND SEALANT SUBSTRATES. SURFACE PREPARATION SHALL INCLUDE: SHOTBLASTING TO REMOVE PREVIOUS COATINGS, LAITANCE, AND ALL MISCELLANEOUS SURFACE CONTAMINATION AND PROVIDE PROFILE FOR PROPER ADHESION (MINIMUM PROFILE SHALL BE ICR1 CSP-3). ACID ETCHING IS NOT PERMITTED. ALL VOIDS, DELAMINATED AREAS, JOINTS, CRACKS, AND OTHER SURFACE DEFECTS OR CONDITIONS SHALL BE PREPARED AND THE COATING SYSTEM APPLIED AS PER MANUFACTURER'S RECOMMENDATIONS.
  - REMOVE AND DISPOSE OF EXISTING TIDE GATE ASSEMBLY, FRAME, AND ALL ASSOCIATED APPURTENANCES IN ITS ENTIRETY. COST SHALL BE INCIDENTAL TO LUMP SUM BASE BID PRICE (TYP. OF 2 TIDE GATE ASSEMBLIES).
  - PROVIDE GALVANIZED STEEL RAILING ON THREE SIDES AS SHOWN. THE RETURN LENGTH AROUND EACH SIDE SHALL BE FIELD DETERMINED SUCH THAT THE POST BASE IS APPROXIMATELY 12" ABOVE EXISTING GRADE.

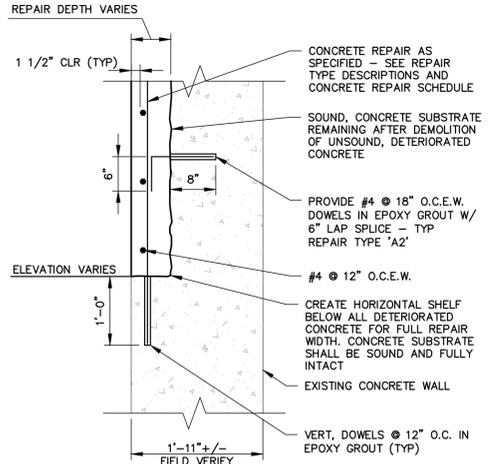


**SECTION A**  
SCALE: 3/8"=1'-0"

- NOTES:
- THIS SECTION ONLY SHOWS THE REBAR WITHIN THE EXISTING RECESSED AREA. REBAR FOR TYPE 'A1' AND 'A2' REPAIRS ARE NOT SHOWN FOR CLARITY. SEE PLAN AND SECTION B/C-300 FOR FURTHER DETAILS.
  - ALL REBAR SHOWN ON THIS SECTION SHALL BE SET BACK FROM THE OUTER WALL FACE WITH 6" OF CONCRETE COVER.
  - ALL REBAR SHALL BE EPOXY COATED.



**1 GALV. STEEL RAILING DETAIL**  
N.T.S.



**SECTION B**  
SCALE: 3/4"=1'-0"



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**WOODARD & CURRAN**

COMMITMENT & INTEGRITY DRIVE RESULTS

DAVID A. CURRAN  
REGISTERED PROFESSIONAL ENGINEER  
NO. 30380  
STATE OF MASSACHUSETTS

REV	DESCRIPTION	DATE

DESIGNED BY: JPS  
CHECKED BY: DAW  
DRAWN BY: RMW/DWB  
2/24/2011 10:46:48 AM

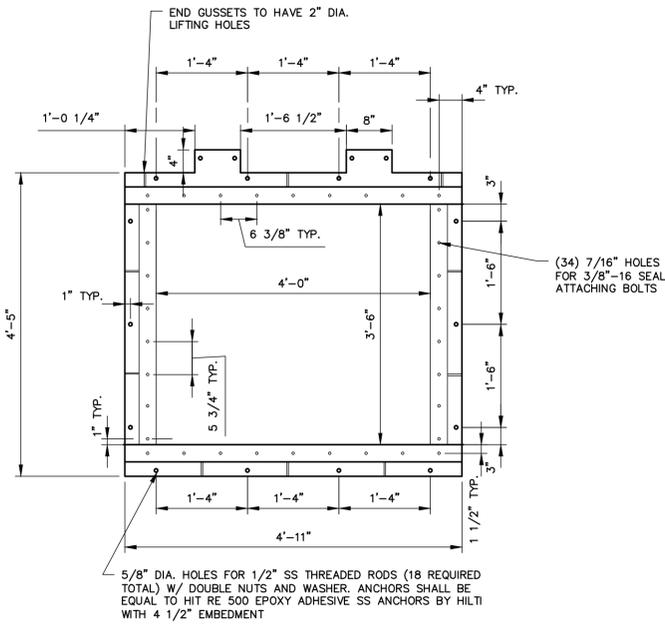
**BROAD STREET TIDAL GATE PLAN, SECTION, & NOTES**

CITY OF QUINCY, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
55 SEA STREET, QUINCY, MA

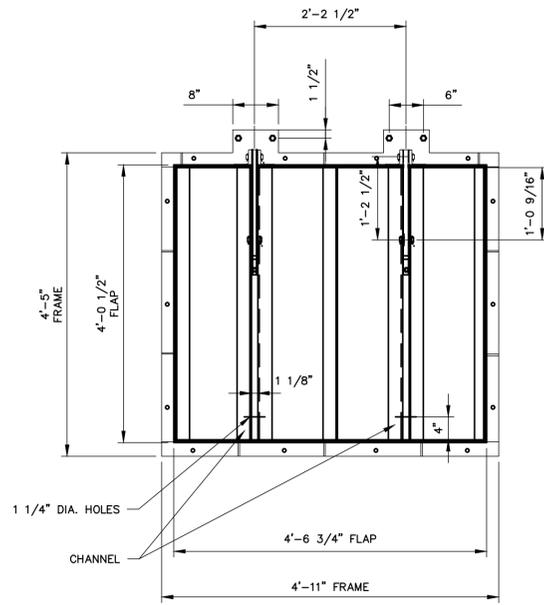
REPAIRS TO THE BROAD STREET TIDE GATE & STORMWATER TRIBUTARY SYSTEM

JOB NO.: 224627.01  
DATE: APRIL 20, 2012  
SCALE: AS NOTED  
SHEET: 10 OF 14

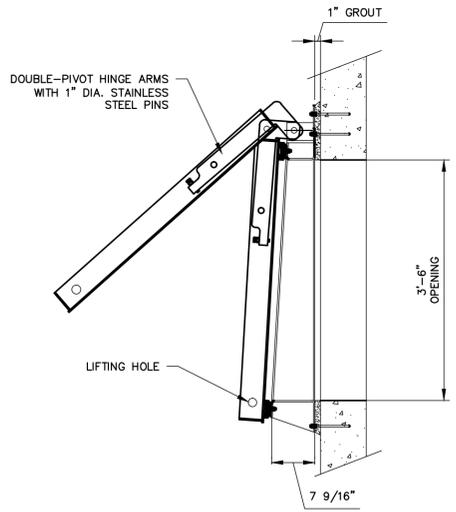
**C-300**



TIDE GATE ASSEMBLY FRAME ELEVATION



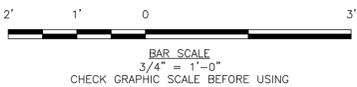
TIDE GATE ASSEMBLY ELEVATION



TIDE GATE ASSEMBLY SECTION

STAINLESS STEEL TIDE GATE ASSEMBLY DETAIL

SCALE: 3/4"=1'-0"



GENERAL REPAIR NOTES:

- A. GENERAL REQUIREMENTS:
- DESIGN IS IN ACCORDANCE WITH THE 2009 INTERNATIONAL BUILDING CODE.
  - THESE NOTES SHALL APPLY TO ALL WORK, EXCEPT AS NOTED OTHERWISE.
  - THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS, INCLUDING DIMENSIONS, AND SHALL NOTIFY THE ENGINEER OF ANY AND ALL DISCREPANCIES BEFORE PROCEEDING ON THE AFFECTED PORTION OF THE WORK.
  - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LAYOUT BEFORE BIDDING AND CONSTRUCTION. WHERE ELEVATIONS OF EXISTING STRUCTURES ARE GIVEN, CONTRACTOR SHALL FIELD VERIFY THOSE RECORD DRAWING ELEVATIONS BEFORE CONSTRUCTION. IF EXISTING CONDITIONS DIFFER FROM THAT SHOWN ON THE ATTACHED DRAWINGS, NOTIFY ENGINEER BEFORE PROCEEDING WITH THE WORK.
  - FIELD VERIFY LOCATION OF ALL UTILITIES. UTILITY RELOCATION AND/OR REROUTING MAY BE REQUIRED. LOCATIONS OF ALL UTILITIES ARE NOT SHOWN ON THE DRAWINGS.
  - CONTRACTOR SHALL COORDINATE ALL WORK WITH OWNER WITH RESPECT TO WORK HOURS, AVAILABLE WORK AREAS, DEMOLITION DISTURBANCE, ETC.
  - DURING DEMOLITION AND SURFACE PREPARATION, CONTRACTOR SHALL MINIMIZE DISTURBANCE TO OWNER'S DAILY OPERATIONS DUE TO DUST, DEBRIS, EXCESSIVE NOISE, ETC. PROVIDE TEMPORARY BARRICADES AND OTHER FORMS OF PROTECTION AS NECESSARY TO PROTECT THE OWNER'S PERSONNEL, PROPERTY, THE ENVIRONMENT, AND THE GENERAL PUBLIC FROM INJURY.
  - CONTRACTOR SHALL PUT IN PLACE THE NECESSARY MEASURES AND PROTECTION SYSTEMS AS REQUIRED TO PREVENT DEMOLITION AND CONSTRUCTION DEBRIS FROM ENTERING THE WATERWAY AND SURROUNDING SHORELINE, AS APPROVED BY THE ENGINEER.
  - ALL MATERIAL SHALL BE FURNISHED BY THE CONTRACTOR AND ALL DEMOLITION, SURFACE PREPARATION AND OTHER WASTE DEBRIS SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED FACILITY BY THE CONTRACTOR, UNLESS NOTED OTHERWISE. COSTS ASSOCIATED WITH TESTING AND/OR CHARACTERIZATION OF WASTE DEBRIS, AS MAY BE REQUIRED TO PERMIT DISPOSAL AT THE APPROPRIATE WASTE FACILITY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
  - CARE SHALL BE TAKEN WHEN WORKING WITH OR AROUND ALL EXISTING MATERIALS. DAMAGE TO EXISTING MATERIALS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. RESTORE ALL AREAS DISTURBED BY THE WORK TO MATCH EXISTING CONSTRUCTION/FINISH.
  - THE CONTRACTOR SHALL OBTAIN ALL STATE, LOCAL, UTILITY, ETC. PERMITS REQUIRED FOR COMPLETION OF WORK. ANY AND ALL FEES ASSOCIATED WITH THIS WORK ARE THE RESPONSIBILITY OF THE CONTRACTOR.
  - ANY WORK DETERMINED TO BE DEFECTIVE/INCOMPLETE BY THE ENGINEER SHALL BE REPAIRED, REWORKED AND/OR COMPLETED AS PER THE APPROVAL OF THE ENGINEER.
- B. REINFORCED CONCRETE:
- COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS - 4500 PSI, UNLESS NOTED OTHERWISE.
  - CONCRETE DESIGN IS PER ACI 318-05 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
  - REINFORCEMENT: ASTM A615 GRADE 60, EPOXY COATED AS PER ASTM A775.
  - REINFORCEMENT SHALL BE DETAILED, FABRICATED, AND PLACED AS PER ACI 315 DETAILING MANUAL.
  - PROVIDE 3/4" CHAMFER ON EXPOSED EDGES OF CONCRETE, U.N.O.
- C. PRODUCT INSTALLATION: ALL PRODUCTS SPECIFIED SHALL BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS, INCLUDING SURFACE PREPARATION, MATERIAL COMPATIBILITY, APPLICATION, AND CURING. SHOULD ANY FIELD CONDITIONS OR COMPATIBILITY ISSUES EXIST THAT MAY PREVENT INSTALLATION OF ANY ONE OF THESE ITEMS PER MANUFACTURER'S RECOMMENDATIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- D. CONFINED SPACE ENTRY: CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AS PART OF BASE BID ALL NECESSARY EQUIPMENT, MONITORING AND LABOR AS REQUIRED TO COMPLY WITH ALL RELEVANT O.S.H.A. AND OTHER REGULATIONS FOR CONFINED SPACE ENTRY. THIS APPLIES TO NOT ONLY CONTRACTOR PERSONNEL BUT ALSO ALL INSPECTION, OWNER, AND ENGINEERING PERSONNEL THAT REQUIRE OR REQUEST ENTRY INTO CONFINED SPACES.
- E. TEMPERATURE MAINTENANCE, HEATING AND WEATHER PROTECTION: CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AS PART OF BASE BID ALL LABOR, EQUIPMENT, AND TEMPORARY ENCLOSURES FOR WEATHER PROTECTION, HEATING AND TEMPERATURE MAINTENANCE DURING THE WORK, IN ACCORDANCE WITH ALL RELATED O.S.H.A. AND OTHER REGULATIONS FOR HEATING PROCEDURES. WEATHER PROTECTION AND TEMPERATURE CONTROL DURING SURFACE PREPARATION, INSTALLATION, AND CURING SHALL BE MAINTAINED WITHIN THE SPECIFIED TEMPERATURE RESTRICTIONS AS RECOMMENDED BY EACH PRODUCT MANUFACTURER.
- F. SURFACE CLEANING: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A DETAILED CLEANING AND SURFACE PREPARATION AS REQUIRED TO COMPLY WITH THE SPECIFIC MANUFACTURER'S RECOMMENDATIONS FOR PROPOSED REPAIR PRODUCTS.
- G. POTABLE WATER: POTABLE WATER SHALL BE USED FOR ALL TANK CLEANING. ON-SITE WATER SOURCE(S) SUCH AS HYDRANTS SHALL BE COORDINATED AND APPROVED BY THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXTENSION HOSE AND CONNECTION DEVICES NECESSARY TO CONNECT TO SITE WATER SOURCES. IF USE OF HYDRANTS IS NOT PRACTICAL, CONTRACTOR SHALL PROVIDE OTHER MEANS OF POTABLE WATER SUPPLY AS REQUIRED TO COMPLETE THE WORK.
- H. 5-YEAR WARRANTY FOR ALL REPAIR WORK IN CONTRACT: CONTRACTOR SHALL PROVIDE THE OWNER WITH A WRITTEN WARRANTY TO COVER FULL LABOR AND MATERIALS DURING THE WARRANTY PERIOD, AS REQUIRED TO REPAIR/REPLACE ANY DEFECTS OR FAILURES OBSERVED RELATIVE TO ALL SPECIFIED REPAIR ITEMS INCLUDED IN THIS SCOPE OF WORK. WARRANTY PERIOD SHALL BE FIVE (5) YEARS.
- I. PRE-CONSTRUCTION CONDITION SURVEY: PRIOR TO THE START OF THE WORK, THE REPAIR CONTRACTOR AND ENGINEER SHALL CONDUCT A WALK-THROUGH SURVEY OF ALL REPAIR AREAS. DURING THE SURVEY, ALL REPAIR AREAS SHALL BE IDENTIFIED AND DELINEATED FOR REPAIR TYPES 'A1', 'A2', 'B', AND 'C'.

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WOODARD & CURRAN  
COMMITMENT & INTEGRITY DRIVE RESULTS

DAVID A. WOODARD  
REGISTERED PROFESSIONAL ENGINEER  
LICENSE NO. 30880  
STATE OF MASSACHUSETTS

REV	DESCRIPTION	DATE

DESIGNED BY: JPS  
CHECKED BY: DAW  
DRAWN BY: RMW/DWB  
2/24/2011

BROAD STREET TIDAL GATE  
DETAILS & GENERAL NOTES

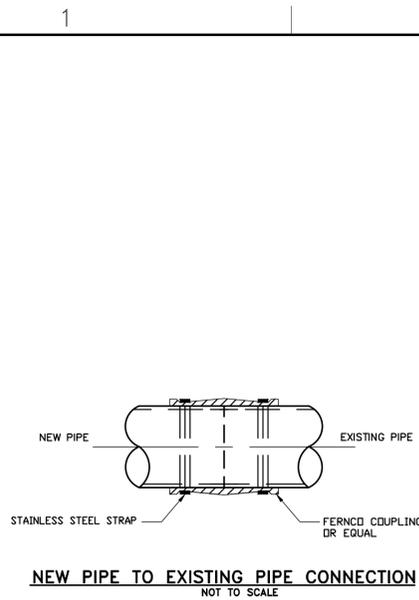
CITY OF QUINCY, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
55 SEA STREET, QUINCY, MA

REPAIRS TO THE BROAD STREET  
TIDE GATE & STORMWATER  
TRIBUTARY SYSTEM

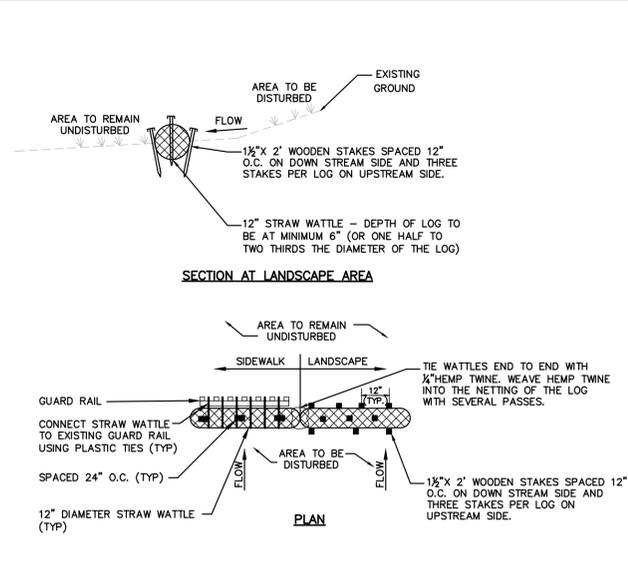
JOB NO.: 224627.01  
DATE: APRIL 20, 2012  
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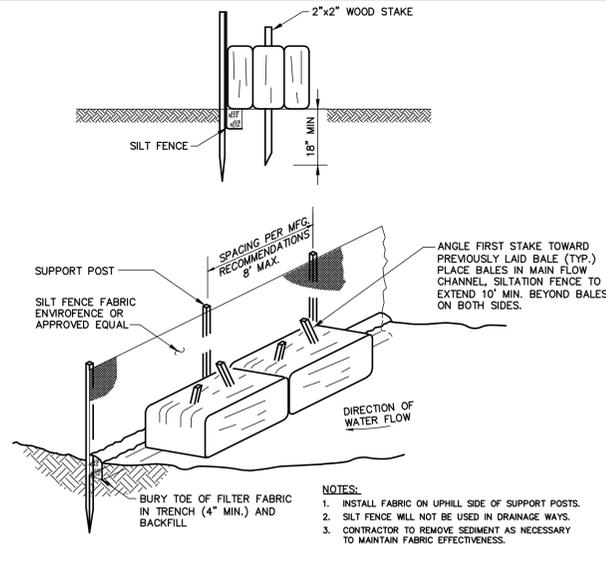




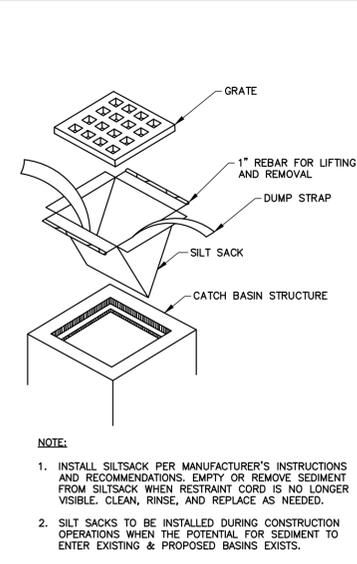
**NEW PIPE TO EXISTING PIPE CONNECTION**  
NOT TO SCALE



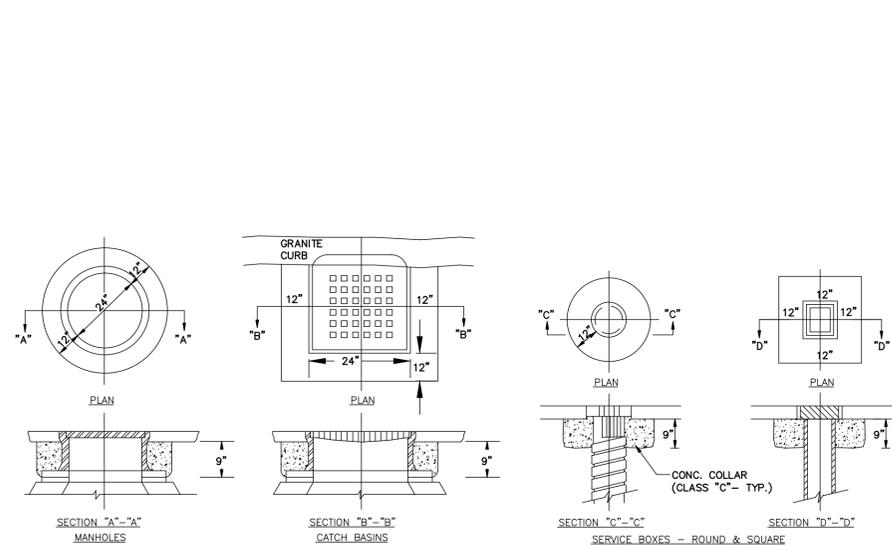
**STRAW WATTLES EROSION CONTROL**  
NOT TO SCALE



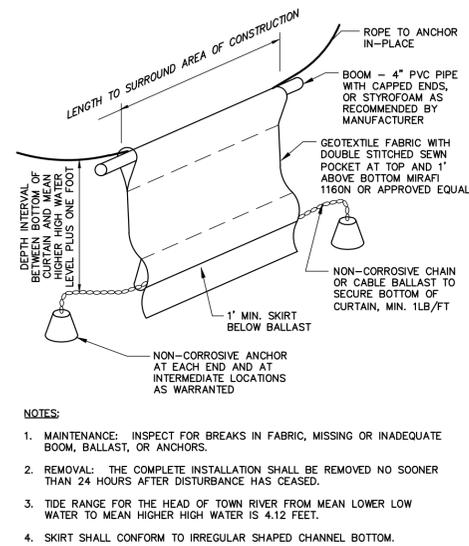
**TYPICAL SILTATION FENCE/HAYBALE BARRIER**  
DETAIL  
NOT TO SCALE



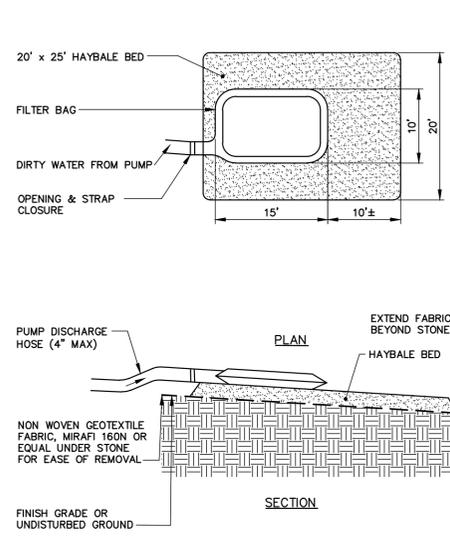
**SILT SACK INLET PROTECTION DETAIL**  
NOT TO SCALE



**CONCRETE COLLARS**  
NOT TO SCALE  
SOURCE: CITY OF QUINCY

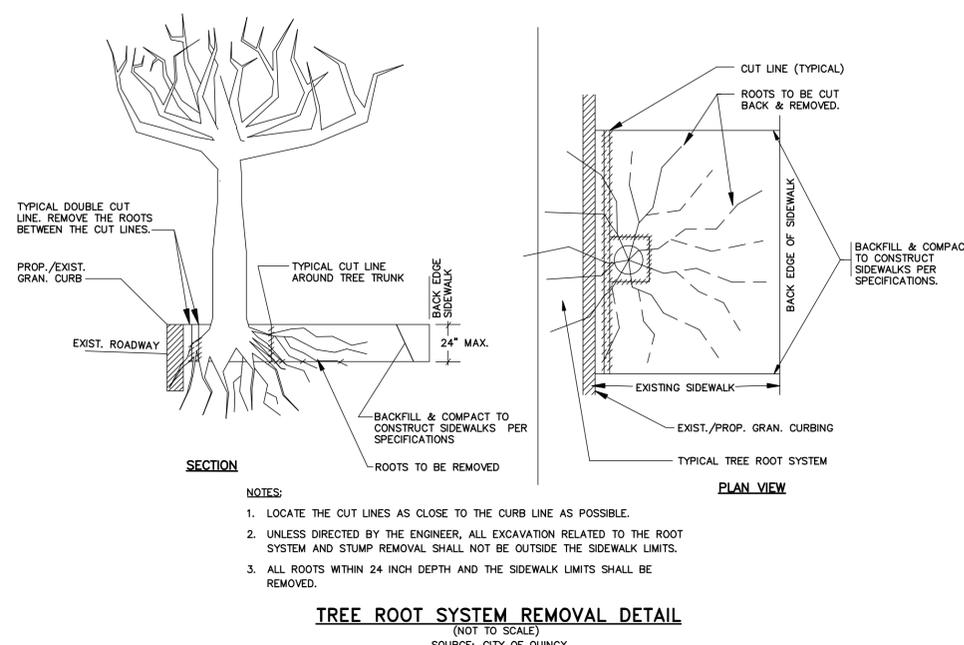


**TURBIDITY CURTAIN**  
NOT TO SCALE

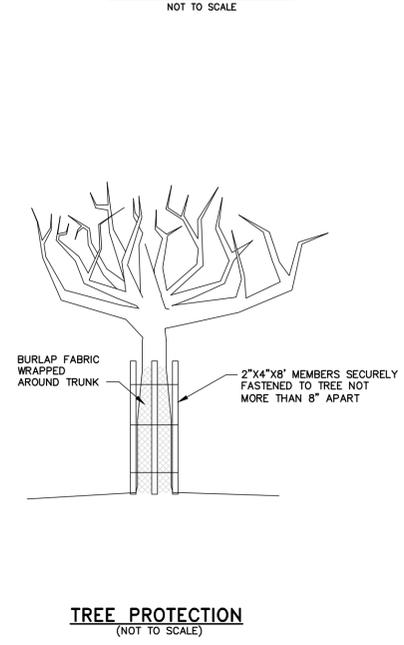


**DEWATERING DISCHARGE SEDIMENT CONTROL DEVICE**  
NOT TO SCALE

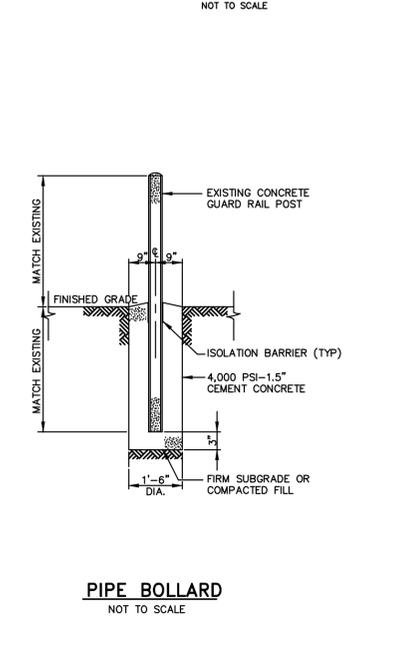
- DEWATERING NOTES**
1. LOCATE DISCHARGE SITE ON FLAT UPLAND AREAS AS FAR AWAY AS POSSIBLE FROM STREAMS, WETLANDS, OTHER RESOURCES AND POINTS OF CONCENTRATED FLOW.
  2. DOWNSTREAM RECEIVING AREA MUST BE WELL VEGETATED OR OTHERWISE STABLE FROM EROSION, I.E. FOREST FLOOR OR COARSE GRAVEL/STONE.
  3. NEVER DISCHARGE TO AREAS THAT ARE BARE OR NEWLY VEGETATED.
  4. DIRT BAG MATERIAL BASED ON PARTICLE SIZE IN DIRTY WATER, I.E., FOR COARSE PARTICLES A WOVEN MATERIAL; FOR SILTS/CLAYS A NON-WOVEN MATERIAL.
  5. DO NOT OVER PRESSURIZE DIRT BAG OR USE BEYOND CAPACITY.
  6. CHANNELS DUG FOR DISCHARGING WATER FROM THE EXCAVATED AREA NEED TO BE STABLE. IF FLOW VELOCITIES CAUSE EROSION WITHIN THE CHANNEL THEN A DITCH LINING SHOULD BE USED.
  7. BUCKETED WATER SHOULD BE DISCHARGED IN A STABLE MANNER TO THE SEDIMENT REMOVAL AREA. A SPLASH PAD OF RIPRAP UNDERLAIN WITH GEOTEXTILE MAY BE NECESSARY TO PREVENT SCOURING OF SOIL.
  8. DEWATERING IN PERIODS OF INTENSE, HEAVY RAIN, WHEN THE INFILTRATIVE CAPACITY OF THE SOIL IS EXCEEDED, SHOULD BE AVOIDED.
  9. INSTALL DIVERSION DITCHES OR BERMS TO MINIMIZE THE AMOUNT OF CLEAN STORMWATER RUNOFF ALLOWED INTO THE EXCAVATED AREA.
  10. DURING THE ACTIVE DEWATERING PROCESS, INSPECTION OF THE DEWATERING FACILITY SHOULD BE REVIEWED FREQUENTLY. SPECIAL ATTENTION SHOULD BE PAID TO THE BUFFER AREA FOR ANY SIGN OF EROSION AND CONCENTRATION OF FLOW THAT MAY COMPROMISE THE BUFFER AREA. OBSERVE WHERE POSSIBLE THE VISUAL QUALITY OF THE EFFLUENT AND DETERMINE IF ADDITIONAL TREATMENT CAN BE PROVIDED.
  11. EROSION CONTROL REQUIRED AROUND DEWATERING DISCHARGE SEDIMENT CONTROL DEVICE.



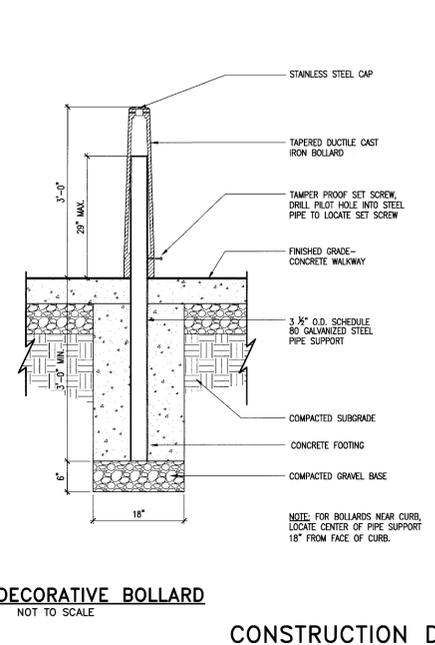
**TREE ROOT SYSTEM REMOVAL DETAIL**  
NOT TO SCALE  
SOURCE: CITY OF QUINCY



**TREE PROTECTION**  
NOT TO SCALE



**PIPE BOLLARD**  
NOT TO SCALE



**DECORATIVE BOLLARD**  
NOT TO SCALE

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REV	DESCRIPTION	DATE	CHECKED BY:	DRAWN BY:

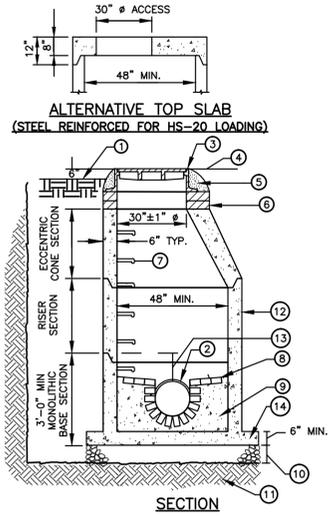
**PROJECT DETAILS 2**

CITY OF QUINCY, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
55 SEA STREET, QUINCY, MA

REPAIRS TO THE BROAD STREET  
TIDE GATE & STORMWATER  
TRIBUTARY SYSTEM

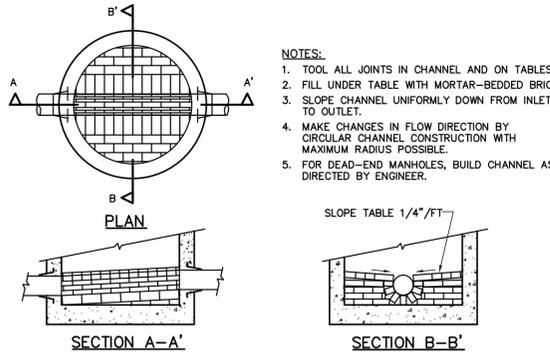
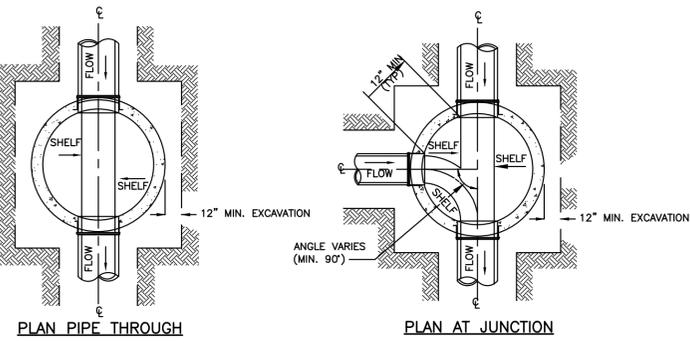
JOB NO.: 224627.01  
DATE: APRIL 20, 2012  
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SHEET: 13 OF 14

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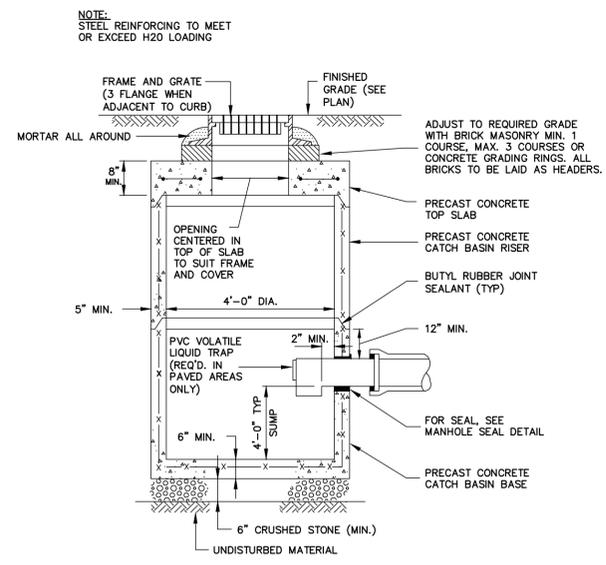
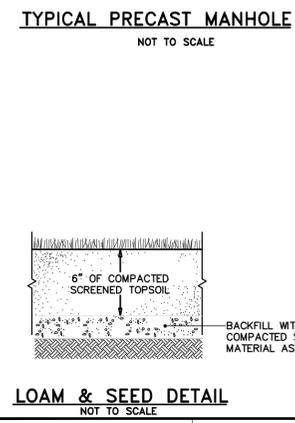


- UNPAVED SURFACE
- PIPE CONNECTION W/KOR-N-SEAL FLEXIBLE BOOT JOINT OR APPROVED EQUAL
- CAST IRON MANHOLE FRAME & COVER WITH 30" Ø CLEAR OPENING (SEE SPECIFICATION FOR TYPE)
- PAVED SURFACE
- FRAME TO BE SET IN FULL MORTAR BED
- ADJUST TO GRADE WITH BRICK OR PRECAST CONCRETE RINGS: MAX. 8" ADJUSTMENT
- STEEL REINFORCED POLYPROPYLENE MANHOLE STEP AT 12" O.C. (TYP) MINIMUM 5" STEP WIDTH FROM MANHOLE WALL
- BRICK SHELF ELEVATION SAME AS CROWN OF HIGHEST PIPE (SHELF SLOPE 1/4" / FT)
- INVERT FORMED FROM BRICK OR 4000 PSI CONCRETE
- 12" OF 3/4" CRUSHED STONE BEDDING
- COMPACTED SUBGRADE OR COMPACTED SUITABLE BACKFILL MATERIAL, AS NEEDED, IN ACCORDANCE WITH THE SPECIFICATIONS
- ALL EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER PROOFING MATERIAL
- 12" (MINIMUM) OF MONOLITHIC BASE ABOVE HIGHEST CROWN
- PROVIDE PRECAST ANTI-FLOATATION SLAB ON ALL MANHOLES TO BE REPLACED.

- NOTES:**
- PRECAST CONCRETE STRUCTURES AND CASTINGS SHALL BE SUITABLE FOR HS20 LOADINGS AND 4000 PSI CONCRETE.
  - PRECAST CONCRETE STRUCTURES SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM-C-478
  - ALL SECTION JOINTS SHALL RECEIVE BUTYL RUBBER JOINT SEALANT. TOP SLAB ON SHALLOW MH SHALL RECEIVE DOUBLE BUTYL RUBBER JOINT SEALANT.

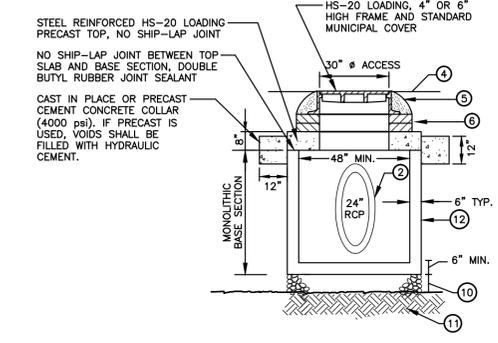


- NOTES:**
- TOOL ALL JOINTS IN CHANNEL AND ON TABLES.
  - FILL UNDER TABLE WITH MORTAR-BEDDED BRICK.
  - SLOPE CHANNEL UNIFORMLY DOWN FROM INLET TO OUTLET.
  - MAKE CHANGES IN FLOW DIRECTION BY CIRCULAR CHANNEL CONSTRUCTION WITH MAXIMUM RADIUS POSSIBLE.
  - FOR DEAD-END MANHOLES, BUILD CHANNEL AS DIRECTED BY ENGINEER.



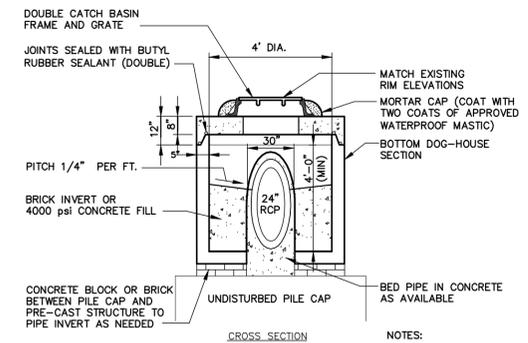
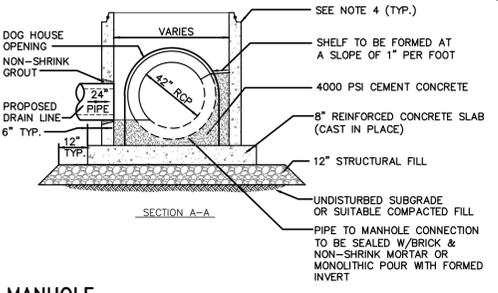
**NOTE:**  
STEEL REINFORING TO MEET OR EXCEED H20 LOADING

**PRECAST CATCH BASIN DETAIL**  
NOT TO SCALE



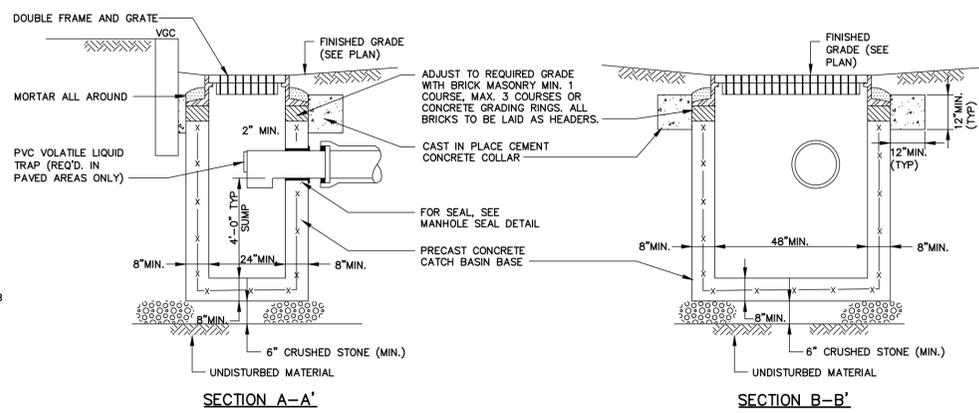
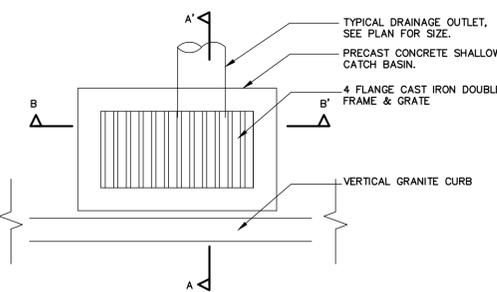
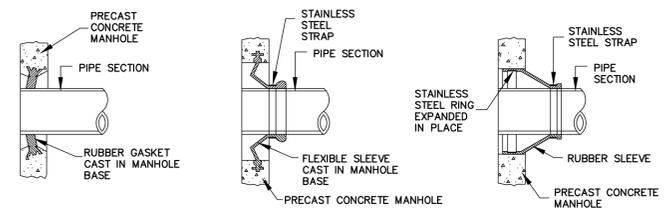
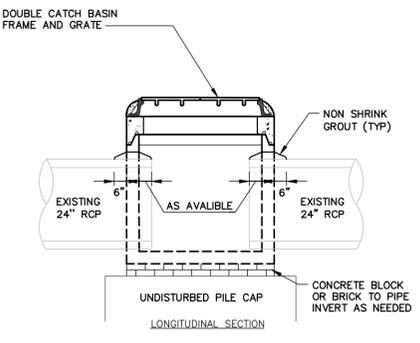
- NOTE:**
- SEE TYPICAL PRECAST MANHOLE DETAIL FOR NUMERICAL CALL OUT DEFINITIONS AND ADDITIONAL DETAIL.
  - SEE CONCRETE COLLARS DETAIL FOR ADDITIONAL CONCRETE COLLAR REQUIREMENTS.

- NOTES:**
- ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
  - COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
  - PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
  - JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
  - DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)
  - BASE SECTION SHALL HAVE AN INSIDE DIMENSION VERIFIED BY THE CONTRACTOR / MANUFACTURER TO BE CONSISTENT WITH THE GEOMETRICS AND SIZES.



- NOTES:**
- EXTERIOR SURFACES OF THE STRUCTURE SHALL HAVE TWO COATS OF AN APPROVED WATERPROOFING MASTIC.
  - PILE CAP SHALL BE CLEAN & DRY PRIOR TO PLACING STRUCTURE OR CONCRETE.

**CB 203**  
NOT TO SCALE



**NOTE:**  
STEEL REINFORING TO MEET OR EXCEED H20 LOADING

**SHALLOW INLET CATCH BASIN DETAIL**  
NOT TO SCALE

**CONSTRUCTION DOCUMENTS**

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**WOODARD & CURRAN**

COMMITMENT & INTEGRITY DRIVE RESULTS

Seal of the State of Massachusetts

DAVID A. WOODARD  
REGISTERED PROFESSIONAL ENGINEER  
No. 30880

REV	DESCRIPTION	DATE	CHECKED BY	DRAWN BY

**PROJECT DETAILS 3**

CITY OF QUINCY, MASSACHUSETTS  
DEPARTMENT OF PUBLIC WORKS  
55 SEA STREET, QUINCY, MA

REPAIRS TO THE BROAD STREET  
TIDE GATE & STORMWATER  
TRIBUTARY SYSTEM

JOB NO.: 224627.01  
DATE: APRIL 20, 2012  
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SHEET: 14 OF 14

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