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CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR 20'x5' R.O.W. BIOSWALE TYPE 1
- NO CONNECTION TO SEWERS

NOTES:
1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAT TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING BIOSWALE AT THE JOINT. REPLACING SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATIONS SHALL BE PAID SEPARATELY.
2. WHEN RESTORING A TYPICAL CURB, THE COST OF REMOVAL OF 2’ FOOT WIDTH OF THE WEARING COURSE AND ONE (1) FOOT WIDTH OF ROADWAY CONCRETE PAVEMENT BASE ALONG THE CURB LINE AND ADJACENT TO THE CONCRETE APRONS, MAY BE REQUIRED. THE RESTORATION OF ALL REMOVED PAVEMENT IN KIND AND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF THE STANDARD HIGHWAY SPECIFICATIONS SHALL BE DEEMED TO BE INCLUDED IN THE UNIT PRICE OF THE BIOSWALE.
3. THE CONTRACTOR SHALL OBTAIN THE NECESSARY TREE PLANTING PERMIT FROM THE NYC DEPARTMENT OF PARKS AND RECREATION (DPR) PRIOR TO THE START OF WORK. ALL NECESSARY TREE PLANTING SHALL BE SUPERVISED BY CERTIFIED ARBORISTS.
4. NO TREE SHALL BE REMOVED BY THE CONTRACTOR UNTIL SPECIFICALLY ORDERED IN WRITING TO DO SO BY THE ENGINEER AND WITH APPROVAL FROM DPR.
5. TREES SHALL BE STAKED AS PER DOT STANDARD DETAIL H-1948. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.
6. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE AUXILIARY EQUIPMENT WHICH GENERATES EXHAUST OR OTHER HEAT UPWARD (E.G., GENERATORS AND COMPRESSORS) UNDER THE BRANCHES OF TREES WHERE THE BRANCHES ARE LESS THAN 2’ ABOVE THE GROUND, UNLESS APPROVED BY THE ENGINEER IN CONSULTATION WITH THE CERTIFIED ARBORIST.
7. THE CONTRACTOR SHALL NOT BE PERMITTED TO STORE, STOCKPILE, OR LAY DOWN, ANY CONSTRUCTION MATERIAL INCLUDING, BUT NOT LIMITED TO, LUMBER, FUEL, AND OIL CONTAINERS, PIPES, AND/OR PIPE FITTINGS, BARRICADES, HAND TOOLS, HOSES, RECEPTECLES, AND ASPHALT WITHIN ANY EXISTING TREE PIT OR R.O.W. BIOSWALE.
8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.

7/25/2012
DATE

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1A - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

STONE COLUMNS SHALL HAVE THE SAME TOP ELEVATION, 2" ABOVE LOW POINT OF BIOSWALE

STONE COLUMNS MIDDLE COLUMN ONLY IN PLANTING BED WITH NO TREE

STONE COLUMNS SHALL HAVE THE SAME TOP ELEVATION, 2" ABOVE LOW POINT OF BIOSWALE

STEEL TREE PIT GUARDS (3 SIDES TYP) SEE DRAWINGS GI-20A, B, C & D FOR TYPICAL PLANTING PLANS

OPEN-GRADED STONE BASE WRAPPED WITH GEOTEXTILE (ALL SIDES)

LAYER OF MULCH

GRADE TO ALLOW FOR 3" DEEP DEPRESSION, SEE DRAWING GI-4

PERFORATED PIPE FILLED WITH OPEN-GRADED STONE PVC COUPLING 18"x46"x8" PRE-CAST OR PERMEABLE SOIL POURED REINFORCED CONCRETE APRON

UNDISTURBED SOIL

HOPE BARRIER WITH 3" TOE STONE FILLED PERFORATED 10" DIAMETER HOPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC ATTACHED VIA COLLAR TO SOLID PIPE ABOVE

12" DIAMETER CASING TO MINIMUM 9" ADDED INTO PERMEABLE LAYER

UNDISTURBED LOAM TO BE DETERMINED BY ENGINEER

OPEN-GRATED STONE

PERMEABLE SOIL

LENGTH OF PIPE P.A.D. BY ENGINEER

SECTION A-A AT BIOSWALE VERTICAL DRAIN

PERFORATED CAP ATOP 10" DIAMETER HDPE 1" BELOW OUTLET ELEVATION

TYPICAL EXPANSION JOINT [NO SEPERATE PAYMENT]

SIDEBROW

FLOW

CURB TO MATCH EXISTING DROP CURB [INLET]

10% PITCH

EXISTING CONCRETE SIDEWALK

8"x12" STONE STRIP BED

9" OR AS SHOWN

STEEL TREE PIT GUARDS (3 SIDES TYP) SEE DRAWINGS GI-20A, B, C & D

L-SHAPED EDGING WITH MINIMUM 9" STAKES SEE DRAWING GI-21

STEEL TREE PIT GUARDS (3 SIDES TYP) SEE DRAWINGS GI-20A, B, C & D

FOR TYPICAL PLANTING PLANS

PROPERTY LINE

CURB LINE

R.O.W. BIOSWALE TYPE 1A WITH STONE COLUMNS VARIES. SEE PLAN

LOCATION OF BIOSWALE VARIES. SEE PLAN

8"x12" STONE STRIP BED

SECTION A-A

SECTION B-B

ENGINEER (P.E.)

8/03/2012

DATE

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1A - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

LENGTH OF BIOSWALE, 20' 6"

EXISTING SIDEWALK

EXISTING CURB TO REMAIN

EXISTING ASPHALT PAVEMENT

FLOW

H-1046

SECTION D-D

NOTES:
1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAT TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF BARRETTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY.

2. WHEN RESTORING A TYPICAL CURB, THE COST OF REMOVAL OF 12" FOOT WIDTH OF THE WEARING COURSE AND ONE (1) FOOT WIDTH OF ROADWAY CONCRETE PAVEMENT BASE ALONG THE CURB LINE AND ADJACENT TO THE CONCRETE APRONS MAY BE INCLUDED. THE RESTORATION OF ALL REMOVED PAVEMENT IN KIND AND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF THE STANDARD HIGHWAY SPECIFICATIONS SHALL BE DEEMED TO BE INCLUDED IN THE UNIT PRICE FOR THE BIOSWALE.

3. THE CONTRACTOR SHALL OBTAIN THE NEEDED TREE PLANTING PERMIT FROM THE NYC DEPARTMENT OF PARKS AND RECREATION (DPR) PRIOR TO THE START OF WORK. ALL NECESSARY TREE PLANTING SHALL BE SUPERVISED BY CERTIFIED ARBORISTS.

4. NO TREE SHALL BE REMOVED BY THE CONTRACTOR UNTIL IT IS SPECIFICALLY ORDERED IN WRITING TO DO SO BY THE ENGINEER AND WITH APPROVAL FROM DPR.

5. TREES SHALL BE STAKED AS PER STANDARD DETAIL H-1046. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.

6. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE AUXILIARY EQUIPMENT WHICH GENERATES EXHAUST OR OTHER HEAT UPWARD (E.G., GENERATORS AND COMPRESSORS). UNDER THE BRANCHES OF "T" TREES WHERE THE BRANCHES ARE LESS THAN 2' ABOVE THE GROUND, UNLESS APPROVED BY THE ENGINEER IN CONSULTATION WITH THE CERTIFIED ARBORIST.

7. THE CONTRACTOR SHALL NOT BE PERMITTED TO STORE, STOCKPILE, OR LAY DOWN, ANY CONSTRUCTION MATERIAL, INCLUDING, BUT NOT LIMITED TO, LUMBER, FUEL, AND OIL CONTAINERS, PIPE, ANGORA PIPE FITTINGS, BARRIERS, HAND TOOLS, HOSES, RECEPTACLES, AND ASPHALT WITHIN ANY EXISTING TREE PIT.

8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.

9. 12" DIAMETER CASING TO BE AUGERED TO DEPTH AS PER ENGINEER. 10" DIAMETER HOPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC INSERTED IN THE 12" CASING.
STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1B - WITH STORMWATER INLET

1. INCLUDED IN THE COST OF THE FURNISHING AND INSTALLING THE CONCRETE HEADER ADJACENT TO THE BIOSWALE. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAMCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY.


3. THE CONTRACTOR SHALL OBTAIN THE NECESSARY TREE PLANTING PERMIT FROM THE NYC DEPARTMENT OF PARKS AND RECREATION (DPR) PRIOR TO THE START OF WORK. ALL NECESSARY TREE PLANTING SHALL BE SUPERVISED BY CERTIFIED ARBORISTS.

4. NO EXISTING TREE SHALL BE REMOVED BY THE CONTRACTOR UNTIL IT IS SPECIFICALLY ORDERED IN WRITING TO DO SO BY THE ENGINEER AND WITH APPROVAL FROM DPR.

5. TREES SHALL BE STAKED AS PER STANDARD DETAIL H-104. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.

6. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE AUXILIARY EQUIPMENT WHICH GENERATED EXHAUST OR OTHER HEAT UPWARD (E.G., GENERATORS AND COMPRESSORS), UNDER THE BRANCHES OF TREES WHERE THE BRANCHES ARE LESS THAN 25' ABOVE THE GROUND, UNLESS APPROVED BY THE ENGINEER IN CONSULTATION WITH THE CERTIFIED ARBORIST.

7. IN WITNESS WHEREOF, THE CONTRACTOR SHALL NOT BE PERMITTED TO STORE, STOCKPILE, OR LAY DOWN, ANY CONSTRUCTION MATERIAL INCLUDING, BUT NOT LIMITED TO, LUMBER, FUEL, AND OIL CONTAINERS, PIPES, AND/OR PIPE FITTINGS, SCAFFOLDS, HARD TOOLS, HOSES, RECEPTACLES, AND ASPHALT WITHIN ANY EXISTING TREE PIT.

8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH SECTION 4.18 OF STANDARD HIGHWAY SPECIFICATIONS.

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

8/03/2012
DATE
STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1B - WITH STORMWATER INLET
- NO CONNECTION TO SEWERS

TYPICAL LENGTH OF BIOSWALE 20'-0"

INDEX:
L SHAPED EDGING WITH MINIMUM 9" STAKES
ENGINEERED SOIL
PLANTED AREA

SECTION B-B

18"x18"x18" PRE-CAST OR POURED CONCRETE APRON - 8" THICK
ENGINEERED SOIL

SECTION C-C

BOSSBAR DUAL WALL PIPE
L SHAPED EDGING WITH MINIMUM 9" STAKES
NOTE: NO STAKES SHALL BE DRIVEN INTO HOPE DUAL WALL PIPE

SECTION D-D

6" PERFORATED HOPE PIPE
WRAP WITH GEOTEXTILE
3" LAYER OF MULCH

ENGINEERED SOIL

FLOW

3" LAYER OF MULCH
PRE-CAST OR POURED CONCRETE APRON - 8" THICK
L SHAPED EDGING WITH MINIMUM 9" STAKES
NOTE: NO STAKES SHALL BE DRIVEN INTO HOPE DUAL WALL PIPE

HEIGHT OF ROADWAY SURFACE
18"x18"x18" PRE-CAST OR POURED REINFORCED CONCRETE APRON

FLOW
STANDARD PLANTING PLANS FOR 20'x5' R.O.W. BIOSWALES (TYPICAL)

RESIDENTIAL SCHEME 1 - SITES IN RESIDENTIAL NEIGHBORHOODS AND LOW VOLUME CIRCULATION AREAS

- CAREX PENNIVANICA - PENNSYLVANIA SEDGE
- ANOMA MELANOCARPUS - BLACK CHERRYBERRY
- NEPITIA FASSIENSI - BLUE WONDER CATMINT
- RUSCICKA FULGIDA - SOLOSTURM BLACK EYED SUSAN
- EUPATORIUM CONEFLOWERS - JOE PYE WEEED
- FOUNTAIN GRASS - SEQUOIA Pritchard"

APPLICATIONS:
- ADDITIONAL BULB PLANTINGS
- 20'x5' ROW BIOSWALE WILL INCLUDE THESE ADDITIONAL BULB PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 5-15, SPACED 5'-APART AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (G) MACHOCA, (D) COROCA, (A) TULIP SPY AND (S) Allium

NOTES:
1. EACH 20'x5' ROW BIOSWALE WILL INCLUDE THESE ADDITIONAL BULB PLANTING AND THEY SHALL BE LOCATED IN GROUPS OF 5-15, SPACED 5'-APART AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (G) MACHOCA, (D) COROCA, (A) TULIP SPY, AND (S) Allium
2. TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF CPR

7/25/2012
NOTES:

1. EACH 20\'x5\' BIOSWALE WILL INCLUDE THESE ADDITIONAL SHRUB PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 8-10, SPACED 5\' APART, AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (6) MARGERITE, (6) CROCUS, (6) TULIP BPS, AND (6) ALOE.

2. TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPM.

3. BIOSWALE PLANTING WILL INCLUDE THESE ADDITIONAL SHRUB PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 8-10, SPACED 6\' APART, AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (5) ALOE, (5) CROCUS, (5) TULIP BPS, AND (5) ALOE.

4. BIOSWALE PLANTING WILL INCLUDE THESE ADDITIONAL SHRUB PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 8-10, SPACED 6\' APART, AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (5) ALOE, (5) CROCUS, (5) TULIP BPS, AND (5) ALOE.

5. BIOSWALE PLANTING WILL INCLUDE THESE ADDITIONAL SHRUB PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 8-10, SPACED 6\' APART, AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (5) ALOE, (5) CROCUS, (5) TULIP BPS, AND (5) ALOE.
STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2
- NO CONNECTION TO SEWERS

R.O.W. BIOSWALE TYPE 2

LOCATION OF BIOSWALE

EXISTING CATCH BASIN

PROPERTY LINE

CURB LINE

PLANTED AREA

BIOSWALE OUTLET

BIOSWALE INLET

3" LAYER OF MULCH

TYPICAL EXPANSION JOINT [NO SEPARATE PAYMENT]

SIDEWALK

TYPICAL PLANTING PLANS

SEE DRAWINGS GS-14A & GS-14B

STANDARD FOR 15'X5' R.O.W. BIOSWALE

ENGINEERED SOIL

6"x12" CONCRETE HEADER (3 SIDES)

UNDISTURBED SOIL

OPEN GRADED STONE BASE

UNDISTURBED SOIL

ENGINEERED SOIL

WRAP STONE IN GEOTEXTILE (ALL SIDES)

L- SHAPE EDGING WITH MINIMUM 9" STAKES

SEE DRAWING GI-21

HOPE BARRIER

HAS A 3" TOE

SECTION A-A

AT BIOswALE INLET

SECTION B-B

AT MIDSECTION [LOWEST POINT]

SECTION C-C

AT BIOswALE OUTLET

HDPE BARRIER

HAS A 3" TOE

GABION BLOWN BELOW STONE STRIP

SEE DRAWING GI-21

5'-0" OR AS SHOWN

6"x12" STONE STRIP BED

SIDEWALK

ROADWAY

10% PITCH

DROP CURB

15'-0"

5'-0" OR AS SHOWN

10"x24" PRE-CAST OR POURED REINFORCED CONCRETE APRON

GABION

SEE DRAWING GI-21

GEOTEXTILE ON INNER EDGE OF GABION

UNITED STATES OF AMERICA

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE

DEPARTMENT OF ENVIRONMENTAL PROTECTION

8/03/2012

DATE
NO CONNECTION TO SEWERS

GI-9 CITY OF

EXTENT OF
CONDITION
HEIGHT OF
FLUSH WITH CONCRETE APRON

EXISTING CURB TO REMAIN

OFF-SET CURB INLET/OUTLET 12" FROM EDGE OF BIOSWALE

EXISTING SIDEWALK

NEW CURB

PRE-CAST OR Poured CONCRETE APRON

EXPANSION JOINT

PLAN

[IN CONTEXT]

NOTES:
1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK Flag TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY.

2. WHEN RESTORING A TYPICAL CURB, THE COST OF REMOVAL OF (2) FOOT WIDTH OF THE WEARING COURSE AND ONE (1) FOOT WIDTH OF ROADWAY CONCRETE PAVEMENT BASE ALONG THE CURB LINE AND ADJACENT TO THE CONCRETE APRONS, MAY BE REQUIRED. THE RESTORATION OF ALL REMOVED PAVEMENT IN KIND AND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF THE STANDARD HIGHWAY SPECIFICATIONS SHALL BE DEEMED TO BE INCLUDED IN THE UNIT PRICE OF THE BIOSWALE.

3. THE CONTRACTOR SHALL OBTAIN THE NECESSARY TREE PLANTING PERMIT FROM THE NYC DEPARTMENT OF PARKS AND RECREATION (DPR) PRIOR TO THE START OF WORK. ALL NECESSARY TREE PLANTING SHALL BE SUPERVISED BY CERTIFIED ARBORISTS.

4. NO TREE SHALL BE REMOVED BY THE CONTRACTOR UNTIL HE IS SPECIFICALLY ORDERED IN WRITING TO DO SO BY THE ENGINEER AND WITH APPROVED FROM DPR.

5. TREES SHALL BE STAKED AS PER STANDARD DETAIL H-148. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.

6. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE AUXILIARY EQUIPMENT WHICH GENERATES EXHAUST OR OTHER HEAT UPWARD (E.G., GENERATORS AND COMPRESSORS) UNDER THE BRANCHES OF TREES WHERE THE BRANCHES ARE LESS THAN 28' ABOVE THE GROUND, UNLESS APPROVED BY THE ENGINEER IN CONSULTATION WITH THE CERTIFIED ARBORIST.

7. THE CONTRACTOR SHALL NOT BE PERMITTED TO STORE, STOCKPILE, OR LAY DOWN, ANY CONSTRUCTION MATERIAL INCLUDING, BUT NOT LIMITED TO, LUMBER, FUEL, AND OIL CONTAINERS, PIPES, AND/OR PIPE FITTINGS, BARRICADES, HAND TOOLS, HOSES, RECEPTACLES, AND ASPHALT WITHIN ANY EXISTING TREE PIT OR R.O.W. BIOSWALE.

8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH SECTION 4.18 OF STANDARD HIGHWAY SPECIFICATIONS.

7/25/2012

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2A - WITH STONE COLUMNS

- NO CONNECTION TO SEWERS

STONE COLUMNS SHALL HAVE THE SAME TOP ELEVATION, 2' ABOVE LOW POINT OF BIOSWALE

3" LAYER OF MULCH

GRADE TO ALLOW FOR 3" DEEP DEPRESSION, SEE DRAWING GI-4

OPEN-GRADED STONE BASE WRAPPED WITH GEOTEXTILE (ALL SIDES)

PROPERTY LINE

LOCATION OF BIOSWALE VARIES, SEE PLAN

R.O.W. BIOSWALE TYPE 2A WITH STONE COLUMNS

L SHAPED EDGING WITH MINIMUM 9" STAKES SEE DRAWINGS GI-14A & GI-14B FOR TYPICAL PLANTING PLANS

SEE DRAWINGS GI-16A & GI-14B FOR TYPICAL PLANTING PLANS

STEEL TREE PIT GUARDS (3 SIDES) SEE DRAWING GI-20A, B, C & D

CURB TO MATCH EXISTING DROP CURB (INLET)

ROADWAY

10% PITCH

CURB LINE

EXISTING CATCH BASIN

EXISTING CATCH BASIN

BIOSWALE OUTLET

BIOSWALE OUTLET

CURB TO MATCH EXISTING DROP CURB (INLET)

PERFORATED CAP AT TOP 10" DIAMETER HDPE 1' BELOW OUTLET ELEVATION

TYPICAL EXPANSION JOINT (NO SEPARATE PAYMENT)

SIDEWALK

CONCRETE SIDEWALK

DROP CURB

PERFORATED CAP AT TOP 10" DIAMETER HDPE 1' BELOW OUTLET ELEVATION

TYPICAL EXPANSION JOINT (NO SEPARATE PAYMENT)

SIDEWALK

15" CONCRETE HEADER (3 SIDES)

ENGINEERED SOIL

10" DIAMETER SOLID HDPE PIPE FILLED WITH OPEN-GRADED STONE

PVC COUPLING

18"x4x5" PRE-CAST OR POURED REINFORCED CONCRETE APRON

UNDISTURBED SOIL

HDPE BARRIER WITH 3" TOE

STONE FILLED PERFORATED 10" DIAMETER HDPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC ATTACHED VIA COLLAR TO SOLID PIPE ABOVE

MIN. 5'-0" AUGERED INTO PERMEABLE LAYER

12" DIAMETER CASEING TO MINIMUM 8'-0" AUGERED INTO PERMEABLE LAYER

FINAL DEPTH OF HDPE PIPE TO BE DETERMINED BY ENGINEER

OPEN-GRADED STONE

UNDISTURBED SOIL

STONE COLUMNS SHALL HAVE THE SAME TOP ELEVATION, 2" ABOVE LOW POINT OF BIOSWALE

3" LAYER OF MULCH

GRADE TO ALLOW FOR 3" DEEP DEPRESSION, SEE DRAWING GI-4

OPEN-GRADED STONE BASE WRAPPED WITH GEOTEXTILE (ALL SIDES)

PROPERTY LINE

LOCATION OF BIOSWALE VARIES, SEE PLAN

R.O.W. BIOSWALE TYPE 2A WITH STONE COLUMNS

L SHAPED EDGING WITH MINIMUM 9" STAKES SEE DRAWINGS GI-14A & GI-14B FOR TYPICAL PLANTING PLANS

SEE DRAWINGS GI-16A & GI-14B FOR TYPICAL PLANTING PLANS

STEEL TREE PIT GUARDS (3 SIDES) SEE DRAWING GI-20A, B, C & D

CURB TO MATCH EXISTING DROP CURB (INLET)

ROADWAY

10% PITCH

CURB LINE

EXISTING CATCH BASIN

EXISTING CATCH BASIN

BIOSWALE OUTLET

BIOSWALE OUTLET

CURB TO MATCH EXISTING DROP CURB (INLET)

PERFORATED CAP AT TOP 10" DIAMETER HDPE 1' BELOW OUTLET ELEVATION

TYPICAL EXPANSION JOINT (NO SEPARATE PAYMENT)

SIDEWALK

CONCRETE SIDEWALK

DROP CURB

PERFORATED CAP AT TOP 10" DIAMETER HDPE 1' BELOW OUTLET ELEVATION

TYPICAL EXPANSION JOINT (NO SEPARATE PAYMENT)

SIDEWALK

15" CONCRETE HEADER (3 SIDES)

ENGINEERED SOIL

10" DIAMETER SOLID HDPE PIPE FILLED WITH OPEN-GRADED STONE

PVC COUPLING

18"x4x5" PRE-CAST OR POURED REINFORCED CONCRETE APRON

UNDISTURBED SOIL

HDPE BARRIER WITH 3" TOE

STONE FILLED PERFORATED 10" DIAMETER HDPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC ATTACHED VIA COLLAR TO SOLID PIPE ABOVE

MIN. 5'-0" AUGERED INTO PERMEABLE LAYER

12" DIAMETER CASENG TO MINIMUM 8'-0" AUGERED INTO PERMEABLE LAYER

FINAL DEPTH OF HDPE PIPE TO BE DETERMINED BY ENGINEER

OPEN-GRADED STONE

UNDISTURBED SOIL

STONE COLUMNS SHALL HAVE THE SAME TOP ELEVATION, 2" ABOVE LOW POINT OF BIOSWALE

3" LAYER OF MULCH

GRADE TO ALLOW FOR 3" DEEP DEPRESSION, SEE DRAWING GI-4

OPEN-GRADED STONE BASE WRAPPED WITH GEOTEXTILE (ALL SIDES)

PROPERTY LINE

LOCATION OF BIOSWALE VARIES, SEE PLAN

R.O.W. BIOSWALE TYPE 2A WITH STONE COLUMNS

L SHAPED EDGING WITH MINIMUM 9" STAKES SEE DRAWINGS GI-14A & GI-14B FOR TYPICAL PLANTING PLANS

SEE DRAWINGS GI-16A & GI-14B FOR TYPICAL PLANTING PLANS

STEEL TREE PIT GUARDS (3 SIDES) SEE DRAWING GI-20A, B, C & D

CURB TO MATCH EXISTING DROP CURB (INLET)

ROADWAY

10% PITCH

CURB LINE

EXISTING CATCH BASIN

EXISTING CATCH BASIN

BIOSWALE OUTLET

BIOSWALE OUTLET

CURB TO MATCH EXISTING DROP CURB (INLET)

PERFORATED CAP AT TOP 10" DIAMETER HDPE 1' BELOW OUTLET ELEVATION

TYPICAL EXPANSION JOINT (NO SEPARATE PAYMENT)

SIDEWALK

CONCRETE SIDEWALK

DROP CURB

PERFORATED CAP AT TOP 10" DIAMETER HDPE 1' BELOW OUTLET ELEVATION

TYPICAL EXPANSION JOINT (NO SEPARATE PAYMENT)

SIDEWALK

15" CONCRETE HEADER (3 SIDES)

ENGINEERED SOIL

10" DIAMETER SOLID HDPE PIPE FILLED WITH OPEN-GRADED STONE

PVC COUPLING

18"x4x5" PRE-CAST OR POURED REINFORCED CONCRETE APRON

UNDISTURBED SOIL

HDPE BARRIER WITH 3" TOE

STONE FILLED PERFORATED 10" DIAMETER HDPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC ATTACHED VIA COLLAR TO SOLID PIPE ABOVE

MIN. 5'-0" AUGERED INTO PERMEABLE LAYER

12" DIAMETER CASENG TO MINIMUM 8'-0" AUGERED INTO PERMEABLE LAYER

FINAL DEPTH OF HDPE PIPE TO BE DETERMINED BY ENGINEER

OPEN-GRADED STONE

UNDISTURBED SOIL

STONE COLUMNS SHALL HAVE THE SAME TOP ELEVATION, 2" ABOVE LOW POINT OF BIOSWALE

3" LAYER OF MULCH

GRADE TO ALLOW FOR 3" DEEP DEPRESSION, SEE DRAWING GI-4

OPEN-GRADED STONE BASE WRAPPED WITH GEOTEXTILE (ALL SIDES)
NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SOURCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY.

2. WHEN RESTORING A TYPICAL CURB, THE COST OF REMOVAL OF 2' FOOT WIDTH OF THE WEARING COURSE AND ONE 1' FOOT WIDTH OF ROADWAY CONCRETE PAVEMENT BASE ALONG THE CURB LINE AND ADJACENT TO THE CURB AProns, MAY BE REQUIRED. THE RESTORATION OF ALL REMOVED PAVEMENT IN KIND AND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF THE STANDARD HIGHWAY SPECIFICATIONS SHALL BE DEEMED TO BE INCLUDED IN THE UNIT PRICE OF THE BIOSWALE.

3. THE CONTRACTOR SHALL OBTAIN THE NECESSARY TREE PLANTING PERMIT FROM THE NYC DEPARTMENT OF PARKS AND RECREATION (DPR) PRIOR TO THE START OF WORK. ALL NECESSARY TREE PLANTED SHALL BE SUPERVISED BY CERTIFIED ARBORISTS.

4. NO TREE SHALL BE REMOVED BY THE CONTRACTOR UNTIL HE IS SPECIFICALLY ORDERED IN WRITING TO DO SO BY THE ENGINEER AND WITH APPROVAL, FROM DPR.

5. TREE STAKES SHALL BE STAKED AS PER STANDARD DETAIL H-1046. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.

6. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE AUXILIARY EQUIPMENT WHICH GENERATES EXHAUST OR OTHER HEAT UPWARD (E.G., GENERATORS AND COMPRESSORS) UNDER THE BRANCHES OF TREES WHERE THE BRANCHES ARE LESS THAN 20' ABOVE THE GROUND, UNLESS APPROVED BY THE ENGINEER IN CONSULTATION WITH THE CERTIFIED ARBORIST.

7. THE CONTRACTOR SHALL NOT BE PERMITTED TO STORE, STOCKPILE, OR LAY DOWN ANY CONSTRUCTION MATERIAL INCLUDING, BUT NOT LIMITED TO, LUMBER, FUEL, AND OIL CONTAINERS, PIPES, AND/OR PIPE FITTINGS, BARRICADES, HAND TOOLS, HOSES, RECEPTACLES, AND ASPHALT WITHIN ANY EXISTING TREE PIT.

8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.

9. 12" DIAMETER CASING TO BE AUGERED TO DEPTH AS PER ENGINEER. 10" DIAMETER HOPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC INSERTED IN THE 12" CASING.
STANDARD FOR 15’X5’ R.O.W. BIOSWALE TYPE 2B - WITH STORMWATER INLET

1. INCLUDED IN THE COST OF THE FURNISHING AND INSTALLING THE CONCRETE HEADER ADJACENT TO THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVAL AND REPLACE THE ADJACENT EXISTING SIDEWALK CLG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY.


3. THE CONTRACTOR SHALL OBTAIN THE NECESSARY TREE PLANTING PERMIT FROM THE NYC DEPARTMENT OF PARKS AND RECREATION (DPR) PRIOR TO THE START OF WORK. ALL NECESSARY TREE PLANTING SHALL BE SUPERVISED BY CERTIFIED ARBORISTS.

4. NO EXISTING TREE SHALL BE REMOVED BY THE CONTRACTOR UNTIL HE IS SPECIFICALLY ORDERED IN WRITING TO DO SO BY THE ENGINEER AND WITH APPROVAL FROM DPR.

5. TREES SHALL BE STAKED AS PER STANDARD DETAIL H-1046. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.

6. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE AUXILIARY EQUIPMENT WHICH GENERATES EXHAUST OR OTHER HEAT UPWARD (E.G., GENERATORS AND COMPRESSORS) UNDER THE BRANCHES OF TREES WHERE THE BRANCHES ARE LESS THAN 25' ABOVE THE GROUND, UNLESS APPROVED BY THE ENGINEER IN CONSULTATION WITH THE CERTIFIED ARBORIST.

7. THE CONTRACTOR SHALL NOT BE PERMITTED TO STORE, STOREHOUSE, OR LAY DOWN, ANY CONSTRUCTION MATERIAL INCLUDING, BUT NOT LIMITED TO, LUMBER, FUEL, AND OIL CONTAINERS, PIPES, AND/OR PIPE FITTINGS, BARRICADES, HARD TOOLS, HOSES, RECEPTACLES, AND ASPHALT WITHIN ANY EXISTING TREE PIT.

8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH SECTION 4.18 OF STANDARD HIGHWAY SPECIFICATIONS.

Assistant Commissioner, Office of Green Infrastructure
Department of Environmental Protection

P.E.

8/03/2012

Date

[Signature]
STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2B - WITH STORMWATER INLET

- NO CONNECTION TO SEWERS

EXPANSION JOINTS, TYP.
6"x15" CONCRETE HEADER

STEEL TREE PIT GUARDS
(3 SIDES - TYP) SEE DRAWINGS
GI-20A, B, C & D

22.5° BEND

SOLID PIPE TO STORMWATER INLET,
SEE PLANS AND DETAILS

LIMIT OF NEW CURB AS
DETERMINED BY FIELD
CONDITION AND SITE ENGINEER

LIMIT OF NEW CURB AS
DETERMINED BY FIELD
CONDITION AND SITE ENGINEER

EXISTING CURB TO REMAIN

ENGINEERED SOIL

L SHAPED EDGING WITH
MINIMUM 9" STAKES
SEE DRAWING GI-21

NOTE: NO STAKE SHALL
BE DRIVEN INTO HOPE DUAL WALL PIPE

SECTION D-D

SECTION C-C

AT BIOSWALE INLET

SECTION D-D

AT BIOSWALE OUTLET

7/25/2012

DATE

P.E.
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD PLANTING PLANS FOR 15'x5' R.O.W. BIOSWALES (TYPICAL)

RESIDENTIAL SCHEME 1 - SITES IN RESIDENTIAL NEIGHBORHOODS AND LOW VOLUME CIRCULATION AREAS

RESIDENTIAL SCHEME 2 - SITES IN RESIDENTIAL NEIGHBORHOODS AND LOW VOLUME CIRCULATION AREAS

URBAN SCHEME 1 - SITES IN COMMERCIAL, INDUSTRIAL, HIGH VOLUME CIRCULATION AREAS

NOTES:
1. EACH 15'x5' ROW BIOSWALE WILL INCLUDE THESE ADDITIONAL PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 8-10 (SPACED 8' APART) AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (4) NARCISSUS, (6) CROCUS, (5) TULIPA SPP., AND (4) ALLIUM
2. TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR

7/25/2012
STANDARD PLANTING PLANS FOR 15'x5' R.O.W. BIOSWALES (TYPICAL)

ESPECIALLY WET - SITES WITH GREATER THAN 20% IMPERVIOUS RUNOFF MANAGED

- Monarda 'Fireball' - Bee Balm
- Eupatorium 'Baby Joe' - Joe Pye Weed
- Iris versicolor - Northern Blue Flag
- Clethra alnifolia 'Hummingbird' - Summersweet
- Carex glauca - Blue Sedge

ESPECIALLY DRY - SITES WITH LESS THAN 15% IMPERVIOUS RUNOFF MANAGED

- Monarda 'Fireball' - Bee Balm
- Eupatorium 'Baby Joe' - Joe Pye Weed
- Iris versicolor - Northern Blue Flag
- Clethra alnifolia 'Hummingbird' - Summersweet
- Carex glauca - Blue Sedge

ESPECIALLY SHADY - SITES WITH LESS THAN 3 HOURS OF SUN PER DAY

- Monarda 'Fireball' - Bee Balm
- Eupatorium 'Baby Joe' - Joe Pye Weed
- Iris versicolor - Northern Blue Flag
- Clethra alnifolia 'Hummingbird' - Summersweet
- Carex glauca - Blue Sedge

NO GRASS SCHEME - SITES IN ANY BOROUGH

- Monarda 'Fireball' - Bee Balm
- Eupatorium 'Baby Joe' - Joe Pye Weed
- Iris versicolor - Northern Blue Flag
- Clethra alnifolia 'Hummingbird' - Summersweet
- Carex glauca - Blue Sedge

NOTES:
1. EACH 15'x5' ROW BIOSWALE WILL INCLUDE THESE ADDITIONAL BULB PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 6-10, SPACED 6" APART, AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE. (4) Narcissus, (4) Crocus, (4) Tulipa spp., and (4) Allium.
2. TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.

8/03/2012
STANDARD FOR 10'x5' R.O.W. BIOSWALE TYPE 3
- NO CONNECTION TO SEWERS

EXISTING
L SHAPED EDGING WITH MINIMUM 9" STAKES
SEE DRAWING GI-21
2'-3" x 1'-0" x 2'-3"
GABION
SEE DRAWING GI-21
BIOSWALE INLET

GEOGRAPHIC INFORMATION SYSTEMS ACT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
P.E.
8/03/2012
DATE
Standard for 10'x5' R.O.W. Bioswale Type 3
- No Connection to Sewers

Sections

Notes:
1. Included in the cost of the furnished and installing the concrete header adjacent to the bioswale. The contractor shall be required to remove and replace the adjacent existing sidewalk flag to nearest sidewalk joint beyond the limits of the bioswale. No additional payment will be made for the cost of sawcutting the existing sidewalk at the joint.

2. When restoring a typical curb, the cost of removal of 2' foot width of the wearing course and one (1') foot width of roadway concrete pavement base along the curb line and adjacent to the concrete aprons may be required. The restoration of all removed pavement in kind and in full compliance with the applicable sections of the standard highway specifications shall be deemed to be included in the unit price bid for the curb and concrete apron.

3. The contractor shall obtain the necessary tree planting permit from the NYC Department of Parks and Recreation (DPR) prior to the start of work. All necessary tree planting shall be supervised by certified arborist.

4. No tree shall be removed by the contractor until specifically ordered in writing to do so by the engineer and with approval from DPR.

5. Trees shall be staked as per standard detail H-1046. Tree stakes are to be removed by the contractor not less than one year after planting.

6. The contractor shall not be permitted to operate auxiliary equipment which generates exhaust or other heat upward (e.g., generators and compressors), under the branches of trees where the branches are less than 20' above the ground, unless approved by the engineer in consultation with certified arborist.

7. The contractor shall not be permitted to store, stockpile, or lay down, any construction material including but not limited to, lumber, fuel, and oil containers, pipes, and/or pipe fittings, barricades, hand tools, hoses, receptacles, and asphalt within any existing tree pit or R.O.W. bioswale.

8. Replacement trees shall be planted within the project as directed by the engineer in accordance with Section 4.15 of standard highway specifications.

Assistant Commissioner, Office of Green Infrastructure
Department of Environmental Protection
P.E. 7/25/2012 Date
STANDARD PLANTING PLANS FOR 10'x5' R.O.W. BIOSWALES (TYPICAL)

RESIDENTIAL SCHEME 1 - SITES IN RESIDENTIAL NEIGHBORHOODS AND LOW VOLUME CIRCULATION AREAS

1. ASTER NOVAE-ANGUAE  - NEW ENGLAND ASTER
2. PENNISETUM ALOPECUROIDES 'HAMELIA' - DWARF GRASS
3. HEMEROCALLIS 'RAINBOW MOLDIE' - SKYULY
4. MONARDA DELTICUS 'PETITE' - BEE BALM

INLET

RESIDENTIAL SCHEME 2 - SITES IN RESIDENTIAL NEIGHBORHOODS AND LOW VOLUME CIRCULATION AREAS

1. AGASTACHE BLUE CAESIUM - HUMMINGBIRD MINT
2. CHLORIS QUINQUETA - SOFT RUSH
3. BOLDOSGA RUDEA 'TREEMORW' - GOLDENROD

INLET

URBAN SCHEME 1 - SITES IN COMMERCIAL, INDUSTRIAL, HIGH VOLUME CIRCULATION AREAS

1. CAREX PENNSYLVANICA - PENNSYLVANIA SEDGE
2. NEPETA FAASSENII 'BLUE WONDER' - CATNINT
3. RUBUS IDAEUS 'HAPPY RETURNS' - DAYLILY

INLET

URBAN SCHEME 2 - SITES IN COMMERCIAL, INDUSTRIAL, HIGH VOLUME CIRCULATION AREAS

1. ASTER NOVAE-ANGUAE  - NEW ENGLAND ASTER
2. PENNISETUM ALOPECUROIDES 'HAMELIA' - DWARF GRASS
3. HEMEROCALLIS 'RAINBOW MOLDIE' - SKYULY

INLET

NOTES:
1. EACH ROW BIOSWALE WILL INCLUDE THESE ADDITIONAL BULB PLANTINGS AND THEY WILL BE LOCATED IN GROUPS OF 4-8, SPACED 6" APART AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE.
2. TREE TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPE

7/25/2012

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE DATE

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANDARD PLANTING PLANS FOR 10'x5' R.O.W. BIOSWALES (TYPICAL)

ESPECIALLY WET - SITES WITH GREATER THAN 20% IMPERVIOUS RUNOFF MANAGED

ESPECIALLY DRY - SITES WITH LESS THAN 15% IMPERVIOUS RUNOFF MANAGED

ESPECIALLY SHADY - SITES WITH LESS THAN 3 HOURS OF SUN PER DAY

NO GRASS SCHEME - SITES IN ANY BOROUGH

NOTES:
1. EACH 10'x5' ROW BIOSWALE WILL INCLUDE THESE ADDITIONAL BULB PLANTINGS AND THEY SHALL BE LOCATED IN GROUPS OF 4-6, SPACED 6" APART AND THESE GROUPS SHALL BE RANDOMLY SPACED THROUGHOUT EACH BIOSWALE: (3) NARCISSEI, (3) CROCUS, (3) TULIPA SP., AND (2) ALLIUM
2. TREE TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF EPA

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

8/03/2012
STANDARD FOR STORMWATER INLET
FOR R.O.W. BIOSWALE TYPE 1B AND TYPE 2B - NO CONNECTION TO SEWERS

NOTES:
(1) LOCATION OF CURBS SHALL BE AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
(2) LOCATION AND ANGLE OF 6" PVC OUTLET PIPE MAY BE VARIED TO SUIT FIELD CONDITIONS.
(3) KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POOURS.
(4) CONCRETE IS TO BE CLASS 40, REBARS-GRADE 60.
STANDARD FOR PRECAST STORMWATER INLET
FOR R.O.W. BIOSWALE TYPE 1B AND 2B - NO CONNECTION TO SEWERS

NOTES:

1. LOCATION OF OPENING SHALL BE DETERMINED PRIOR TO THE MANUFACTURING OF BASIN BY FIELD MEASUREMENTS.
2. LOCATION OF CURB SHALL BE AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. LOCATION AND ANGLE OF 6" PVC OUTLET PIPE MAY BE VARIED TO SUIT FIELD CONDITIONS.
4. LIFTING HOOKS SHALL BE LOCATED IN THE SECTION AS PER MANUFACTURERS RECOMMENDATIONS AND GRADED PRIOR TO BACKFILLING. (FOUR) LIFTING HOOKS SHALL BE PROVIDED FOR EACH SECTION AND SHALL BE PLACED SYMMETRICALLY AND IN SUCH A MANNER AS TO PROVIDE FOR THE EVEN LIFTING OF THE SECTION.
5. LIFTING BAR TO BE CUT PLAIN TO SURFACE AFTER PLACEMENT OF PRECAST TYPE 2 SLAB.
6. CONCRETE IS TO BE CAST 40 AND 55 AIR ENTRAINED, REBAR/GRADE 60, WWM-F=40,000 PSI.
7. MODIFY STANDARD CAST IRON HOOD AND HOOPS (B.B.W.) AS PER DRAWING.

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
7/25/2012
DATE
STANDARD FOR R.O.W. BIOSWALE - TYPE 'A' STEEL GUARD

**NOTES:**

**Final Design of Guards to be selected by DPR/DOT upon review of Neighborhood's Context**

1. Field Measurements must be taken prior to fabrication.
2. All steel shall conform to Specification C1015 of the A.I.S.I.
3. All joints to be welded unless noted otherwise.
4. All steel to be painted with one (1) shop coat of primer and one (1) shop coat of intermediate and one (1) shop coat (or rolled field coat) of finish top coat in compliance with the requirements of Subsection 2.13.4 of the NYC DOT Standard Highway Specifications. The color of top coat shall be black.
5. Rails to follow line of grade.
6. All steel to be solid steel.

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7/25/2012
STANDARD FOR R.O.W. BIOSWALE - TYPE 'B' STEEL GUARD

**NOTES:**
- **Final Design of Guards to be selected by DPR/DOT upon review of Neighborhood's Context.**
- Field measurements must be taken prior to fabrication.
- All steel shall conform to specification C1015 of the A.I.S.I.
- All joints to be welded unless noted otherwise.
- All steel to be painted with one (1) shop coat of primer and one (1) shop coat of intermediate and one (1) shop coat (or rolled field coat) of finish top coat in compliance with the requirements of subsection 2.15.4 of the NYC DOT Standard Highway Specifications. The color of top coat shall be black.
- Rails to follow line of grade.
- All steel to be solid steel.

7/25/2012

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANDARD FOR R.O.W. BIOSWALE - TYPE 'C' STEEL GUARD

OUTLINE

1. Field Measurements must be taken prior to fabrication.
2. All steel shall conform to Specification C1015 of the A.S.I.
3. All joints to be welded unless noted otherwise.
4. All steel to be painted with one (1) shop coat of primer and one (1) shop coat of intermediate and one (1) shop coat (or rolled field coat) of finish top coat in compliance with the requirements of Subsection 2.13.4 of the NYC DOT Standard Highway Specifications. The color of top coat shall be black.
5. Rails to follow line of grade.
6. All steel to be solid steel.

NOTES

** Final design of guards to be selected by DPRD/OT upon review of neighborhood's context

DATE

7/25/2012
STANDARD FOR R.O.W. BIOSWALE - TYPE 'D' STEEL GUARD

NOTES:
1. Field measurements must be taken prior to fabrication.
2. All steel shall conform to Specification C1015 of the A.I.S.I.
3. All joints to be welded unless noted otherwise.
4. All steel to be painted with one (1) shop coat of primer and one (1) shop coat of intermediate and one (1) shop coat (or rolled field coat) of finish top coat in compliance with the requirements of Subsection 2.13.6 of the NYC DOT Standard Highway Specifications. The color of top coat shall be black.
5. Rails to follow line of grade.
6. All steel to be solid steel.

ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7/25/2012