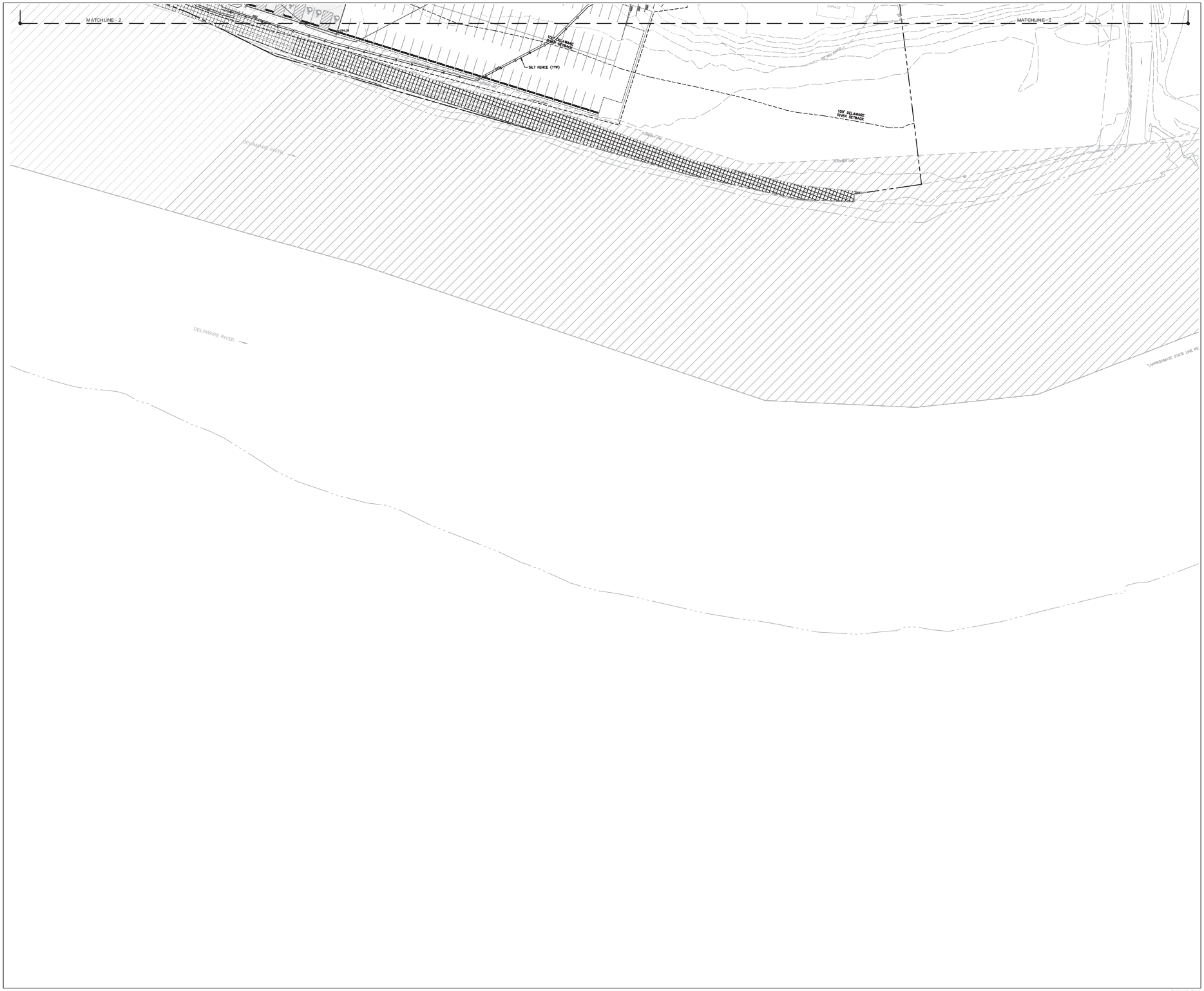

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(845) 454-3980

labellapc.com

NOT FOR CONSTRUCTION

It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered, the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

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NORTHGATE RESORTS
38 COMMERCE AVE. SW
SUITE 200
GRAND RAPIDS, MI 49503

SHEET INDEX

C000	C001	C002	C003	C004
C005	C006	C007	C008	C009
C010				

30' 0 30'
SCALE IN FEET
1"=30'

N

CAMP FIMFO CATSKILL
3841, 3843, 3846 & 3854 STATE ROUTE 97
BARRYVILLE, NY
TOWN OF HIGHLAND
SULLIVAN COUNTY

NO	DATE	DESCRIPTION
3	07/07/2022	PB RESUBMISSION
2	06/13/2022	PB RESUBMISSION
1	05/12/2022	BLD UPDATES, SAN OUTFALLS & WELL D #2

Remarks

PROJECT NUMBER: 2220488

DRAWN BY: SD

REVIEWED BY: MM

ISSUED FOR: REVIEW

DATE: 07/07/2022

DRAWING NAME:

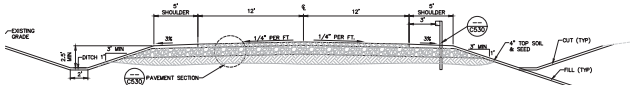
EROSION & SEDIMENT CONTROL PLAN

DRAWING NUMBER:

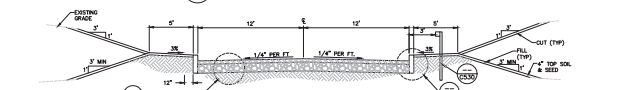
C511

SVY-MAP: 7116

S:\2220488\Drawings\220488 Northgate Resorts\CADD\Civil\Sheets\C511 Erosion Control Plan.dwg, 220488_2205.dwg
VERSION: 23.1
07/07/2022 9:36:39 AM



TYPICAL ROAD CROSS SECTION W/ SHOULDER
SCALE: NOT TO SCALE



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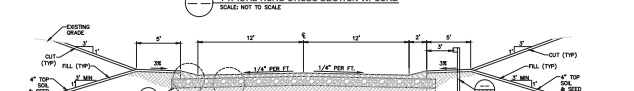

TYPICAL ROAD CROSS SECTION W/ WING CURB
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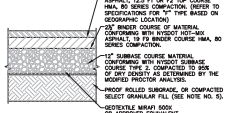

PAVEMENT SECTION DETAIL
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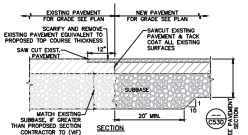

PAVEMENT TRANSITION DETAIL
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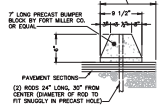

PRECAST CONCRETE WHEEL STOP
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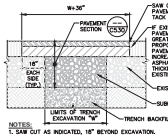

TRENCH SURFACE RESTORATION IN ASPHALT PAVEMENT
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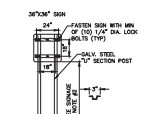

TWO POST SIGN MOUNTING DETAIL
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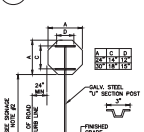

SINGLE POST STOP SIGN MOUNTING DETAIL
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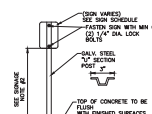
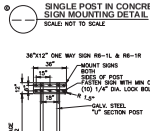
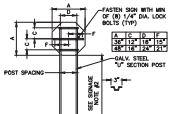


SINGLE POST IN CONCRETE SIGN MOUNTING DETAIL
SCALE: NOT TO SCALE



TWO POST ONE WAY SIGN MOUNTING DETAIL
SCALE: NOT TO SCALE



TWO POST STOP SIGN MOUNTING DETAIL
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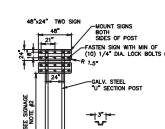


TWO POST TWO SIGN MOUNTING DETAIL
SCALE: NOT TO SCALE

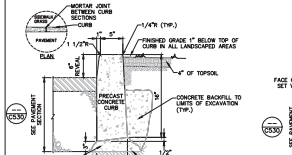
MUTCD SIGN SCHEDULE

SIGN NO.	SIGN	SIGN FACE	MUTCD NUMBER	MIN SIZE	COLORS BACK SIGN	COLORS LEGEND	MOUNTING
1	STOP		R1-1	30"x30"	RED	WHITE	(2S30)
2	ALL WAY		R1-4	18"x6"	RED	WHITE	(2S30)
3			R4-7a	18"x24"	WHITE	BLACK	(2S30)
4	Y		R6-1L	36"x12"	BLACK	WHITE	(2S30)
5	Y		R6-1R	36"x12"	BLACK	WHITE	(2S30)
6			W11-2	24"x24"	YELLOW/ FYG	BLACK	(2S30)
7			W16-7P	24"x12"	YELLOW/ FYG	BLACK	(2S30)
8	DOUBLE LANE 30		R2-1	18"x24"	WHITE	BLACK	(2S30)
9	BUS ONLY		R5-1	30"x30"	RED	WHITE	(2S30)
10		NY R7-8D	R7-8D	12"x18"	WHITE/ BLUE	GREEN/ WHITE	(2S30)
11	HANDICAPPED PARKING ONLY		R7-8P	12"x6"	WHITE	BLUE	(2S30)
12	YIELD		R1-2	30"	WHITE/RED	RED	(2S30)
13	DO NOT ENTER		R7-1	12"x18"	WHITE	RED	(2S30)
14			R3-2	30"x30"	WHITE	BLACK/ RED	(2S30)
15		AS SHOWN	12"x18"	WHITE	GREEN	(1A,1T, 2S30)

MUTCD SIGN SCHEDULE
SCALE: NOT TO SCALE

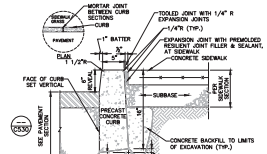
STRIPING NOTES:
1. ALL STRIPING SHALL CONFORM TO THE LATEST EDITION OF THE NYSDOT STANDARD SPECIFICATIONS, SECTION 646 AND THE "NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" – 2009 EDITION AND THE "NYS SUPPLEMENT".
2. STRIPE PAVEMENT AS INDICATED ON THE PLANS AND/OR IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
3. STRIPING WORK WILL BE REVIEWED AND ACCEPTED BY THE AUTHORITY HAVING JURISDICTION.
4. COLOR: NO PARKING ZONE – WHITE ON ACME
   NO PARKING ZONE MARKINGS – WHITE ON ACME
   PARKING DIVIDERS – WHITE OR ACME
   WALKING LINES – WHITE OR ACME
   ACCESSIBLE PARKING LINES & SYMBOL – BLUE

SIGNAGE NOTES:
1. ALL SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE NYSDOT STANDARD SPECIFICATIONS, SECTION 646 AND THE "NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" – 2009 EDITION AND THE "NYS SUPPLEMENT."
2. SIGN MOUNTING HEIGHT SHALL BE A MINIMUM OF 7'. MINIMUM MOUNTING HEIGHT MAY BE ADJUSTED ONLY IN ACCORDANCE WITH PROVISIONS OUTLINED IN THE "NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" – 2009 EDITION AND THE "NYS SUPPLEMENT.
3. SIGN POST SHALL BE IN ACCORDANCE W/ NYSDOT STANDARD SPECS SECTION 730.



NOTES:
1. PRE-CAST CURB TO BE INSTALLED IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATION SECTION 609.
2. CAST IN PLACE CONCRETE CURB MAY BE SUBSTITUTED, WHEN ALTERNATE CONSTRUCTION DETAILS ARE SUBMITTED BY THE CONTRACTOR AND APPROVE BY THE ENGINEER. ALTERNATE CURB SHALL BE INSTALLED IN ACCORDANCE WITH NYSDOT SPEC SECTION 609.

PRECAST CONCRETE CURB
SCALE: NOT TO SCALE



NOTES:
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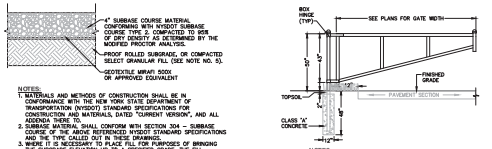
PRECAST CONCRETE CURB AT SIDEWALK
SCALE: NOT TO SCALE

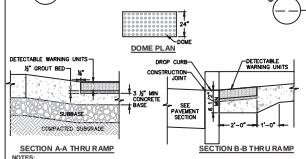


NOTES:
1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED "CURRENT VERSION", AND ALL ADDENDA THERE TO.
2. SUBBASE MATERIAL SHALL CONFORM WITH SECTION 304 – SUBBASE COURSE, AND ABOVE REFERENCED STANDARD SPECIFICATIONS AND THE TYPE CALLED OUT IN THESE DRAWINGS.
3. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSES OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMANCE WITH SECTION 203-EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.

GRAVEL DRIVE SECTION DETAIL
SCALE: NOT TO SCALE

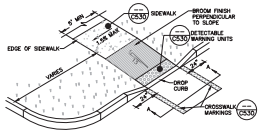
NOTES
1. PROVIDE TUBULAR BARRIER GATE, MANUFACTURED BY HOOVER FENCE CO., OR APPROVED EQUAL. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE LATCH POSTS (ONE FOR EACH GATE) FOR THE OPEN POSITION.

BARRIER GATE DETAIL
SCALE: NTS



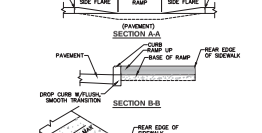
NOTES:
1. COORDINATE W/ OWNER FOR COLOR.
2. DETECTABLE WARNING UNIT SHALL BE ADA COMPLIANT, AND SHALL CONTRAST VISUALLY WITH ADJACENT SURFACES.
3. MATERIALS: UNIT SHALL BE 24-INCH DETECTABLE WARNING ADA PAVERS, DOME STRAIGHT ROW SPACING PATTERN ADA-2 OR ADA-3, ADA COMPLIANT WARNING PAVER AS MANUFACTURED BY WAUSAU TILE OR CAST IRON, CAST IN PLACE ADA COMPLIANT WARNING PLATE A MANUFACTURED BY TUFTILE OR EQUAL.

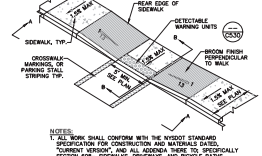
DETECTABLE WARNING UNITS FOR RAMPS
SCALE: NOT TO SCALE



NOTES:
1. ALL WORK SHALL CONFORM WITH THE NYSDOT STANDARD SPECIFICATION FOR CONSTRUCTION AND MATERIALS DATED, "CURRENT VERSION", AND ALL ADDENDA THERE TO; SPECIFICALLY SECTION 608- SIDEWALKS, DRIVEWAYS, AND BICYCLE PATHS.
2. SLOPE RAMP AND SIDE FLARES AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER.
3. DETECTABLE WARNING UNITS SHALL BE PROVIDED ON ALL RAMPS IN ACCORDANCE W/ ADA REQUIREMENTS.

PEDESTRIAN RAMP SECTION - DROP CURB
SCALE: NOT TO SCALE





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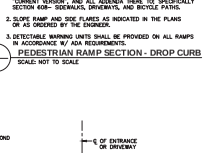
PEDESTRIAN RAMP SECTION - DROP CURB
SCALE: NOT TO SCALE



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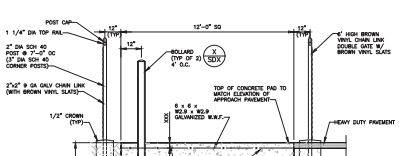
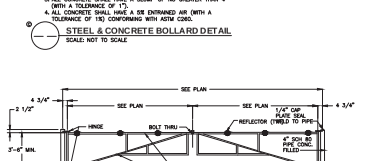
PEDESTRIAN RAMP SECTION - DROP CURB
SCALE: NOT TO SCALE



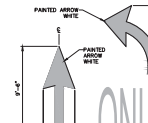
NOTE
1. ITEM NUMBERS, REFER TO NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
2. ALL CONCRETE FOR DUMPSTER PADS SHALL BE 4000 PSI @ 28 DAYS WITH BROOM FINISH

DUMPSTER PAD & ENCLOSURE DETAIL
SCALE: NOT TO SCALE

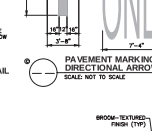


NOTES:
1. GALVANIZE ALL MATERIAL AFTER FABRICATION IN ACCORDANCE WITH ASTM-A53, ASTM-B633, ASTM A392.
2. GATES ARE TO SWING CLEAR, MAINTAINING 4" OF CLEARANCE FROM FINISHED GRADE.

LOCKABLE ACCESS GATE
SCALE: N.T.S
SOURCE:
CROSS REFERENCE: N/A
DATE: SEPTEMBER 2001

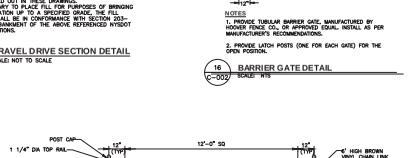


PAVEMENT MARKING DETAIL DIRECTIONAL ARROW
SCALE: NOT TO SCALE



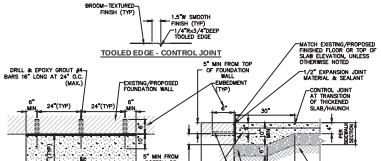
NOTES:
1. ALL CROSS WALK STRIPING SHALL BE WHITE
2. TYPE S CROSS WALK STRIPE SHALL BE USED IN LOW TRAFFIC VOLUME STREET CROSSINGS.

PAVEMENT MARKING DETAIL CROSS WALK STRIPING
SCALE: NOT TO SCALE



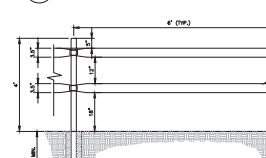
NOTES
1. BOLLARD FINISH:
   PRIMING GALVANIZED COATING TO RECEIVE PAINTED FINISH: APPLY (1) COAT OF RUST INHIBITOR PRIMER. APPLY (2) COATS OF GLOSS ENAMEL (COLOR TO BE SELECTED BY THE OWNER).
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI @ 28 DAYS.
3. ALL CONCRETE SHALL HAVE A SLUMP OF NO GREATER THAN 4" (WITH A TOLERANCE OF 1").
4. ALL CONCRETE SHALL HAVE A 5% ENTRAINED AIR (WITH A TOLERANCE OF 1%) CONFORMING WITH ASTM C260.

STEEL & CONCRETE BOLLARD DETAIL
SCALE: NOT TO SCALE

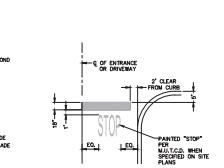


NOTE:
1. THICKENED (HAUNCH) & ADDITIONALLY REINFORCED CONCRETE SIDEWALK ENDS ARE REQUIRED AT ALL EXISTING/PROPOSED BUILDING ENTRANCES.
2. SEE CONCRETE SIDEWALK DETAIL FOR ADDITIONAL DETAILS & NOTES.

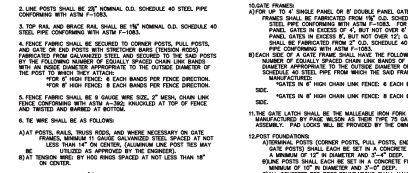
DUMPSTER PAD & ENCLOSURE DETAIL
SCALE: NOT TO SCALE



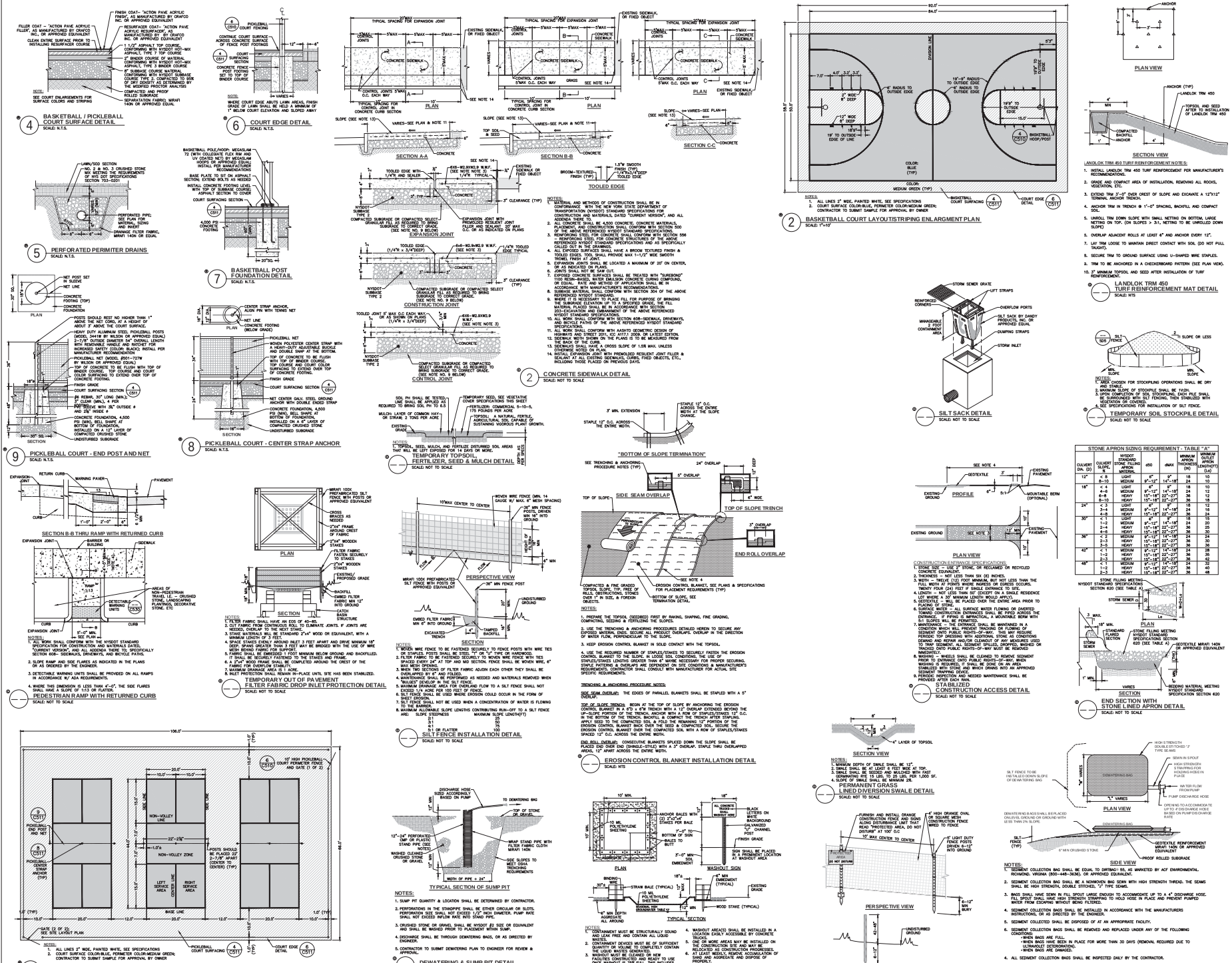
SPLIT RAIL FENCE - 2 RAIL
SCALE: NOT TO SCALE



PAVEMENT MARKING DETAIL STOP BAR
SCALE: NOT TO SCALE



NOTES:
1. CORNER POSTS, PULL POSTS, AND END POSTS SHALL BE 3" NOMINAL O.D. SCHEDULE 40 STEEL PIPE CONFORMING WITH ASTM F-1083. GATE POSTS SHALL BE 4" NOMINAL O.D. SCHEDULE 40 STEEL PIPE CONFORMING WITH ASTM F-1083. SAID 4" NOMINAL O.D. GATE POSTS MAY BE UTILIZED FOR SINGLE GATE OPENING WIDTH OF 6' OR LESS AND FOR DOUBLE GATE OPENING WIDTHS OF 12' OR LESS.
2. LINE POSTS SHALL BE 2½" NOMINAL O.D. SCHEDULE 40 STEEL PIPE CONFORMING WITH ASTM F-1083.
3. TOP RAIL AND BRACE RAIL SHALL BE 1¾" NOMINAL O.D. SCHEDULE 40 STEEL PIPE CONFORMING WITH ASTM F-1083.
4. FENCE FABRIC SHALL BE SECURED TO CORNER POSTS, PULL POSTS, AND END POSTS WITH 3/8" DIAMETER TENSION BAND, FABRICATED FROM GALVANIZED STEEL AND SECURED TO THE SAID POSTS BY THE FOLLOWING NUMBER OF EQUALLY SPACED CHAIN LINK BANDS WITH AN INSIDE DIAMETER APPROPRIATE TO THE OUTSIDE DIAMETER OF THE POST TO WHICH THEY ATTACH:
   *FOR 6" HIGH FENCE: 6 EACH BANDS PER FENCE DIRECTION.
   *FOR 8" HIGH FENCE: 8 EACH BANDS PER FENCE DIRECTION.
5. FENCE FABRIC SHALL BE 6 GAUGE WIRE SIZE, 2" MESH, CHAIN LINK FENCE CONFORMING WITH ASTM A-392; KNUCKLED AT TOP OF FENCE AND TWISTED AND BARBED AT BOTTOM.
6. TIE WIRE SHALL BE AS FOLLOWS:
A) AT POSTS, RAILS, TRUSS RODS, AND WHERE NECESSARY ON GATE FRAMES, MINIMUM 11 GAUGE WIRE STEEL SPACED AT NOT LESS THAN 14" ON CENTER, (ALUMINUM LINE POST TIES MAY BE UTILIZED AS APPROVED BY THE ENGINEER).
B) AT TENSION WIRE: BY HOG RINGS SPACED AT NOT LESS THAN 18" ON CENTER.
7. TRUSS ROD SHALL BE 3/8" DIA. GALVANIZED STEEL ROD TIED TO FENCE FABRIC AS PROVIDED FOR IN 6. A) ABOVE. PROVIDE THREADS AS NECESSARY ON TRUSS ROD AND COMPATIBLE NUTS IN TURNBUCKLE TO FACILITATE TIGHTENING TO PUT TRUSS ROD IN TENSION.
8. TENSION WIRE SHALL BE 7 GAUGE GALVANIZED STEEL COILED SPRING WIRE. LOCATE TENSION WIRE 6" (NOMINALLY) FROM BOTTOM OF FENCE FABRIC.
9. FENCE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM F-567 AND GATES SHALL BE INSTALLED IN ACCORDANCE WITH ASTM F-900.
10. GATE FRAMES:
   A) FOR UP TO 4' SINGLE PANEL OR 8' DOUBLE PANEL GATES, GATE FRAMES SHALL BE FABRICATED FROM 1¾" O.D. SCHEDULE 40 STEEL PIPE CONFORMING WITH ASTM F-1083. FOR SINGLE PANEL GATES IN EXCESS OF 4', BUT NOT OVER 6' OR DOUBLE PANEL GATES IN EXCESS 8', BUT NOT OVER 12', GATE FRAMES SHALL BE FABRICATED FROM 2" O.D. SCHEDULE 40 STEEL PIPE CONFORMING WITH ASTM F-1083.
   B) EACH SIDE OF GATE FRAME SHALL HAVE THE FOLLOWING NUMBER OF EQUALLY SPACED CHAIN LINK BANDS OF AN INSIDE DIAMETER APPROPRIATE TO THE OUTSIDE DIAMETER OF THE SCHEDULE 40 STEEL PIPE FROM WHICH THE SAID FRAME IS MANUFACTURED:
      *GATES IN 6' HIGH CHAIN LINK FENCE: 6 EACH BANDS PER SIDE.
      *GATES IN 8' HIGH CHAIN LINK FENCE: 8 EACH BANDS PER SIDE.
11. THE GATE LATCH SHALL BE THE MALLEABLE IRON FORK TYPE AS MANUFACTURED BY THE CROE WILSON AS TH



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CAMP FIMFO CATSKILL
3841, 3843, 3846 & 3854 STATE ROUTE 97
BARRYVILLE, NY
TOWN OF HIGHLAND
SULLIVAN COUNTY

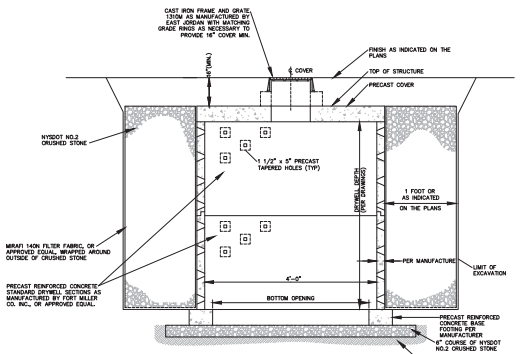
No.	DATE	DESCRIPTION
3	07/07/2022	PB RESUBMISSION
2	06/03/2022	PB RESUBMISSION
1	05/13/2022	PB UPDATES, SWA OUTFALL & WBL D-2

PROJECT NUMBER: 2220488
DRAWN BY:
REVIEWED BY:
ISSUED FOR: REVIEW
DATE: 07/07/2022
DRAWING NAME:

SITE DETAILS

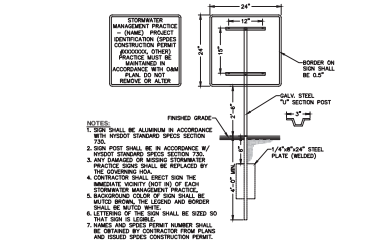
DRAWING NUMBER: **C602**

SVY-MAP: 7116



DRY WELL DETAIL
SCALE: NOT TO SCALE

PEA GRAVEL DIAPHRAGM
SCALE: NOT TO SCALE

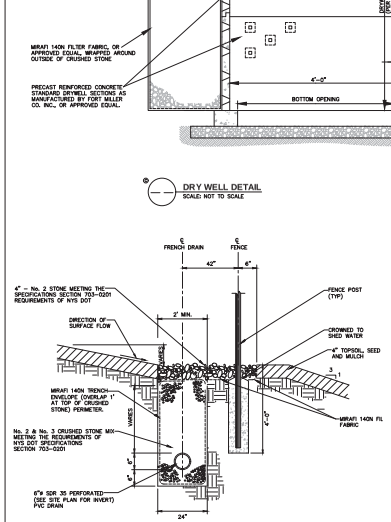


NOTES:
1. SIGN SHALL BE ALUMINUM IN ACCORDANCE WITH NYSDOT STANDARD SPECS SECTION 730.
2. SIGN POST SHALL BE IN ACCORDANCE W/ NYSDOT STANDARD SPECS SECTION 730.
3. ANY DAMAGED OR MISSING STORMWATER MANAGEMENT PRACTICE WILL BE REPLACED BY THE GOVERNING HOA.
4. CONTRACTOR SHALL ERECT SIGN THE IMMEDIATE VICINITY (NOT IN) OF EACH STORMWATER MANAGEMENT PRACTICE.
5. BACKGROUND COLOR OF SIGN SHALL BE MUTED BROWN. THE LEGEND AND BORDER SHALL BE MUTED GREEN.
6. LETTERING OF THE SIGN SHALL BE SIZED SO THAT SIGN IS LEGIBLE.
7. NAMES AND SPECIES PERMIT NUMBER SHALL BE OBTAINED BY CONTRACTOR FROM PLANS AND ISSUED SPDES CONSTRUCTION PERMIT.

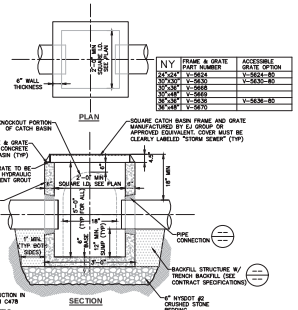
STORMWATER MANAGEMENT PRACTICE PERMANENT SIGN
SCALE: NOT TO SCALE

RAIN GARDEN PLANT LIST

ABI.W	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
E	X	EUPATORIUM FISTULOSUM	JOE PYE WEED	#1 CONT.	4'
G	X	GENTIANA CLAUSA	MEADOW BOTTLE GENTIAN	#1 CONT.	3'
H	X	HELIOPSIS HELIANTHOIDES	OX EYE SUNFLOWER	#1 CONT.	3'
P	X	PANICUM VIRGATUM	SWITCH GRASS	#1 CONT.	4'
V	X	VERNONIA GIGANTEA	IRONWEED	#1 CONT.	3'
VV	X	VERONICASTRUM VIRGINICUM	CULVER'S ROOT	#1 CONT.	3'



FRENCH DRAIN / FENCE POST SEPARATION DETAIL
SCALE: NOT TO SCALE

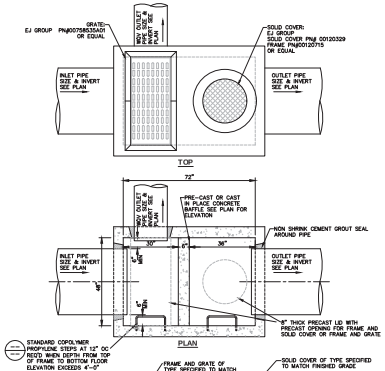


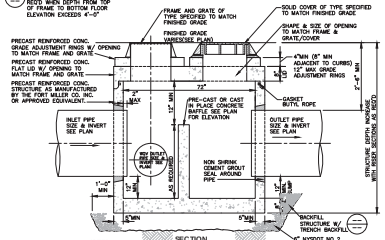
NY	FRAME & GRATE PART NUMBER	ACCESSIBLE GRATE OPTION
24"x24"	V-5434	
30"x30"	V-5439	
30"x36"	V-5449	
36"x36"	V-5636	V-5636-80
36"x48"	V-5670	

NOTE
ALL PRECAST CONSTRUCTION IN ACCORDANCE W/ ASTM C478

NOTES:
1. CATCH BASIN INLET BASINS SHALL BE PRECAST CONCRETE, DESIGNED FOR H320-44 VEHICULAR LOADING + 25% IMPACT AS MANUFACTURED BY FORT MILLER OR APPROVED EQUAL.
2. CATCH BASIN SHALL NOT HAVE A DEPTH GREATER THAN 40" FROM FINISHED SURFACE.
3. BACKFILL USING TRENCH BACKFILL COMPACTED IN 6" LIFTS.
4. MAX STORM SEWER PIPE FOR SHALLOW 2' CATCH BASIN IS 15".

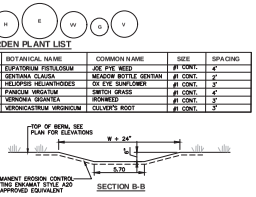
PRECAST CONCRETE SHALLOW CATCH BASIN DETAIL
SCALE: NOT TO SCALE

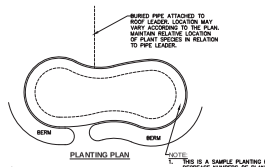




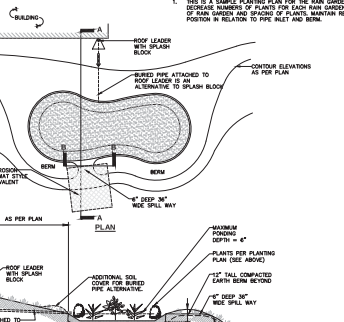
NOTES
1. ALL PRECAST CONSTRUCTION IN ACCORDANCE W/ ASTM C478.
2. STORM WATER DIVERSION STRUCTURE SHALL BE PRECAST CONCRETE, DESIGNED FOR H20-44 VEHICULAR LOADING AND 25% IMPACT.
3. FRAME AND COVER SHALL BE DESIGNED FOR H520-44 VEHICULAR LOADING & 25% IMPACT.
4. CONCRETE STORM WATER DIVERSION STRUCTURE CLEAR OPENING DIMENSION MUST MATCH FRAME AND GRATE CLEAR OPENING DIMENSION.
5. STORM WATER DIVERSION STRUCTURE SHALL NOT HAVE A DEPTH GREATER THAN 48" FROM FINISHED SURFACE TO THE FLOOR OF THE CONCRETE BASE SHALL BE PROVIDED WITH STEPS.
6. BACKFILL USING TRENCH BACKFILL COMPACTED IN 6" LIFTS.
7. SUMP FOR STORM WATER DIVERSION STRUCTURE SHALL BE 12".
8. ALTERNATE CONFIGURATION OF STORM WATER DIVERSION STRUCTURE UNIT MAY BE SUBMITTED BY CONTRACTOR WITH APPROVAL FROM PROJECT ENGINEER. CLEAR SPACE ABOVE BAFFLE SHALL BE 12"MIN TYPICAL.
9. PIPE PENETRATIONS SHALL BE AS SHOWN ON THE STORMWATER UTILITY PLAN.
10. FRAME AND GRATE STORM WATER DIVERSION STRUCTURE TRAP BY EJ GROUP OR APPROVED EQUAL TO BE INSTALLED AT WATER QUALITY DIVERSION PIPE OUTLET.

STORM WATER DIVERSION STRUCTURE
SCALE: NOT TO SCALE



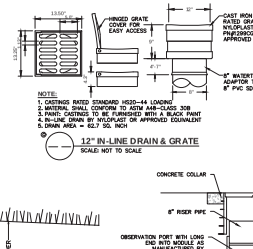


NOTE:
1. THIS IS A SAMPLE PLANTING PLAN FOR THE RAIN GARDENS. INCREASE OR DECREASE NUMBERS OF PLANTS FOR EACH RAIN GARDEN DEPENDING ON SIZE OF RAIN GARDEN AND SPACING OF PLANTS. MAINTAIN RELATIVE PLANT SPECIES POSITION IN RELATION TO PIPE INLET AND BERM.



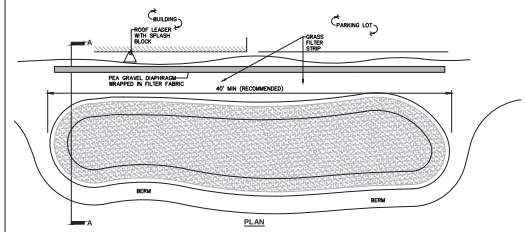
TYPICAL RAIN GARDEN DETAIL
SCALE: NTS

NOTES:
1. RAIN GARDEN FACILITIES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH "THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL", CHAPTER 9, ALTERNATIVE STORMWATER MANAGEMENT PRACTICE.
2. RAIN GARDEN MUST BE LOCATED AT LEAST 10' FROM ANY BUILDING FOUNDATION AND 25' FROM A WELL HEAD OR SEPTIC SYSTEM, BUT WITHIN APPROXIMATELY 30' OF A ROOF DOWNSPOUT OR IMPERVIOUS AREA. THEY SHOULD NOT BE LOCATED IN AREAS WITH HEAVY TREE COVER.
3. GARDEN LOCATION SHOULD BE RELATIVELY FLAT, 3–4% PREFERRED AND NOT EXCEEDING 12%. A BERM SHOULD BE CONSTRUCTED ON THE DOWNHILL SIDE TO TRAP THE WATER IN THE GARDEN. TOP OF BERM SHOULD NOT BE HIGHER THAN THE UPHILL EDGE OF THE GARDEN OR GREATER THAN 12" HIGH. THE SOIL OF THE BERM SHOULD BE FIRMLY COMPACTED AND PLANTED WITH GRASS OR ENSIDE GROUNDCOVER.
4. RUNOFF SHALL BE DIRECTED TO THE RAIN GARDEN AT A NON-EROSIVE RATE, THROUGH SHALLOW SWALES, CORRUGATED DRAIN PIPE, OR SHORT DISTANCES OF SHEET FLOW.
5. SURFACE AREA SHOULD NOT EXCEED A LOADING RATIO OF 5:1 (DRAINAGE AREA TO INFILTRATION AREA, WHERE DRAINAGE AREA IS ASSUMED TO BE 100% IMPERVIOUS)
6. A LENGTH TO WIDTH RATIO OF 2:1 IS RECOMMENDED, WITH THE LONG AXIS PERPENDICULAR TO THE SLOPE AND FLOW PATH.
7. EEAL SOIL COMPOSITION SHOULD CONSIST OF 50% SAND, 20–30% TOPSOIL WITH LESS THAN 5% CLAY CONTENT, AND 20–30% LEAF COMPOST. SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN LIFTS OF 12", LOOSELY COMPACTED (TAMPED LIGHTLY WITH A SMALL DIGGER OR BACHOE BUCKET). THE SOIL SHALL HAVE A PERMEABILITY OF AT LEAST 0.5" PER HOUR.
8. THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE, SHREDDED HARDWOOD MULCH.
9. SOIL COMPOSITION:
   50% SAND
   20–30% TOPSOIL WITH LESS THAN 5% CLAY CONTENT
   20–30% LEAF COMPOST.
   SOIL WILL BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. PLACE PLANTING SOIL IN 6" LIFTS, LOOSELY COMPACTED (TAMPED LIGHTLY WITH A SMALL DIGGER OR BACHOE BUCKET). THE SOIL SHALL HAVE A PERMEABILITY OF AT LEAST 0.5" PER HOUR.
10. MULCH: SINGLE OR DOUBLE SHREDDED, WELL COMPOSTED, UNCOLORED HARDWOOD MULCH.

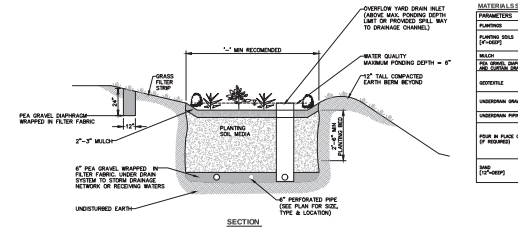


NOTE:
1. CASTINGS RATED STANDARD H520-44 LOADING
2. MATERIAL SHALL CONFORM TO ASTM A48-CLASS 30B
3. PAINT: CASTINGS TO BE FURNISHED WITH A BLACK PAINT
4. IN-LINE DRAIN BY NYLOPLAST OR APPROVED EQUIVALENT
5. DRAIN AREA = 6LT SQ. INCH

12" IN-LINE DRAIN & GRATE
SCALE: NOT TO SCALE



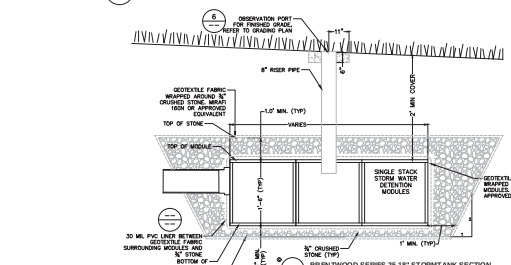
NOTES:
1. BIORETENTION FACILITIES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH "THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL", CHAPTER 6.
2. PLANTING SOIL SHALL BE TESTED & MEET THE FOLLOWING CRITERIA:
   PH RANGE 5.2–7.0
   ORGANIC MATTER 1.5–4%
   MAGNESIUM 35 LB/AC
   PHOSPHORUS P_2O_5 75LB/AC
   POTASSIUM K_2O 85LB/AC
   SOLUBLE SALTS NOT TO EXCEED 500PPM
3. ROTOTILL 2–3" OF SAND BASE INTO THE BASE OF THE BIORETENTION FACILITY.
4. BACK FILLING OF BIORETENTION FACILITY SHALL BE PLACED IN 12" LIFTS.
5. MAIN COLLECTOR PIPE OF THE UNDER DRAIN SYSTEM SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS OR CLEAN OUT PIPES MUST BE PLACED EVERY 1000SF OF SURFACE AREA.
6. BIORETENTION AREA MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



TYPICAL BIORETENTION DETAIL
SCALE: NTS

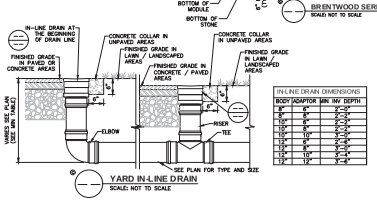
MATERIALS SPECIFICATION FOR BIORETENTION

PARAMETERS	SPECIFICATIONS	SIZE	NOTES:
PLANTINGS	SEE YOUR LOCAL NRCS STANDARD SPECIFICATIONS GUIDANCE	N/A	PLANTINGS ARE SITE-SPECIFIC
PLANTING SOILS [4"+DEEP]	SAND 35–65% SILT 30-55% CLAY 10–25%	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM OR LOAM
MULCH	UN COLORED SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM
PEA GRAVEL DIAPHRAGM AND CURTAIN DRAIN	PEA GRAVEL ASTM D 448 (ROUNDED)& STONE WASHED COBBLES	PEA GRAVEL: 1/8" & STONE: 2"–6"	
GEOTEXTILE	MIN. REQUIREMENTS FOR FABRIC SIZE (ASTM D–4751) GRAB TENSILE STRENGTH (ASTM D–4632) BURST STRENGTH (ASTM D–3786)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	AASHTO M–43, NO. 67,	0.25" – 0.75"	3/4" REQ'. & 6" O.C., 4 HOLES PER ROW; MINIMUM 2" COVER OVER PIPE; NOT NECESSARY UNDERDRAIN PIPE
UNDERDRAIN PIPING	ASTM D 1785 OR AASHTO M–278	6" RIGIDD SCHEDULE 40 PVC	3/4" REQ'. & 6" O.C., 4 HOLES PER ROW
POUR IN PLACE CONCRETE [IF REQUIRED]	SEE LOCAL DOT STANDARDS SPECIFICATIONS FOR CONCRETE MIXES, NORMAL WEIGHT, AIR ENTRAINED, RE–INFORCED TO MEET ASTM 615–60	N/A	ON–SITE TESTING OF POURED–IN–PLACE CONCRETE REQUIRED. 28 DAY STRENGTH AND SLUMP TEST: ALL CONCRETE DESIGN (CAST IN PLACE OR PRE–CAST) MUST USING PREVAILING WAIVER SIZE OR LOCAL STANDARDS AND BE STAMPED AND SIGNED BY A LICENCED PROFESSIONAL STRUCTURAL ENGINEER
SAND [12"–DEEP]	AASHTO M–6 OR ASTM C–33	0.02" – 0.04"	SAND SUBSTITUTION SUCH AS GARNET, GRANITONE #10 AND NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITE SAND SUBSTITUTES ARE ACCEPTABLE. NO "VEGIX (ASTM" CAN BE USED FOR SAND



BRENTWOOD SERIES 25 18" STORMTANK SECTION
SCALE: NOT TO SCALE

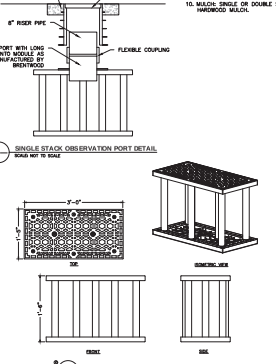
SINGLE STACK OBSERVATION PORT DETAIL
SCALE: NOT TO SCALE



IN-LINE DRAIN DIMENSIONS

BODY	ADAPTOR	MIN. SKY DEPTH
6"	6"	2'-0"
8"	8"	2'-3"
10"	10"	2'-6"
12"	12"	2'-9"
15"	15"	3'-0"
18"	18"	3'-3"
12"	12"	3'-6"

YARD IN-LINE DRAIN
SCALE: NOT TO SCALE



MODULE DETAIL
SCALE: NOT TO SCALE

NOTES:
1. REFERENCE CURRENT BRENTWOOD INSTALLATION INSTRUCTIONS FOR PROPER ASSEMBLY AND INSTALLATION PRACTICES.
2. SIDE PANELS REQUIRED AROUND THE PERIMETER OF INSTALLATION ONLY, UNLESS OTHERWISE NOTED.
3. SIDE PANELS ARE TO BE CUT FROM A 36" PANEL AT THE PRE-SCRIBED LOCATIONS.
4. STACKING PINS REQUIRED BETWEEN MODULE LAYERS, FOR ALL STACKED SYSTEM (SEE DETAIL).

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TOWN OF HIGHLAND
SULLIVAN COUNTY

REV. NO.	DATE:	DESCRIPTION:
3	07/07/2022	PB RESUBMISSION
2	06/13/2022	PB RESUBMISSION
1	05/13/2022	PB LD UPDATES, SWA OUTFALLS & WETLAND D-2

PROJECT NUMBER: 2220488
DRAWN BY:
REVIEWED BY:
ISSUED FOR: REVIEW
DATE: 07/07/2022
DRAWING NAME:

STORM SEWER & GREEN INFRASTRUCTURE DETAILS

DRAWING NUMBER:

C603

SVY-MAP: 7116

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