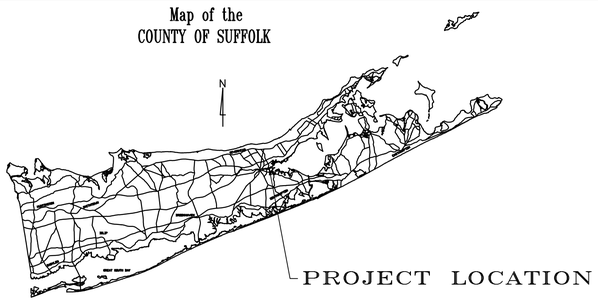


COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS

PLANS FOR IMPROVEMENTS TO

COUNTY ROAD 94, ROUNDABOUT

TOWN OF RIVERHEAD
SUFFOLK COUNTY, NEW YORK

CAPITAL PROJECT No. 5557.110 & 3301.124/127

PLAN REVIEWED BY		
SECTION	INITIAL	DATE
HIGHWAY DESIGN		
CONSULTANT MANAGEMENT		
TRAFFIC SAFETY		
BRIDGES, STRUCTURES & WATERWAYS		
CONSTRUCTION		

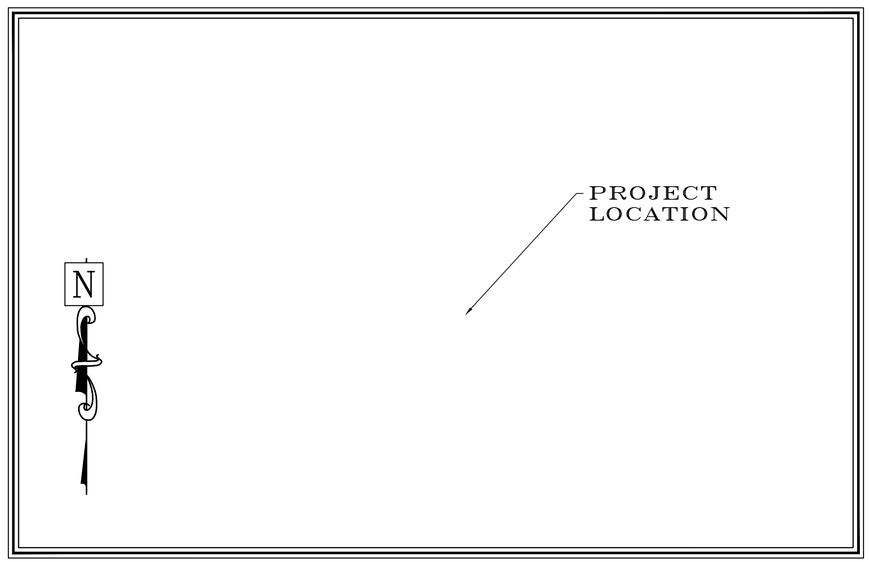
PREPARED UNDER ARTICLE 6 – SECTION 116 OF THE HIGHWAY LAW

APPROVED BY: _____ DATE: _____
WILLIAM HILLMAN, P.E., CHIEF ENGINEER

APPROVED BY: _____ DATE: _____
GILBERT ANDERSON, P.E.
COMMISSIONER OF PUBLIC WORKS

RECOMMENDED BY: _____
ERIC J. MCFERRAN, P.E., PARTNER
NELSON & POPE ENGINEERS AND SURVEYORS

PROGRESS PRINT



LOCATION MAP
SCALE 1" = 250'

Prepared by:
NELSON & POPE
ENGINEERS • SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
631.427.5665 WWW.NELSONPOPE.COM FAX 631.427.5620

GENERAL NOTES:

1. THE DATUM USED ON THIS PROJECT IS THE MEAN SEA LEVEL ELEVATION 0.000 FT. AT SANDY HOOK, NEW JERSEY AS DETERMINED BY THE UNITED STATES COAST AND GEODETIC SURVEY COORDINATES IN THE N.Y.S. SYSTEM AS ESTABLISHED FOR LONG ISLAND BY THE U.S. COAST AND GEODETIC SURVEY – BEARINGS ARE REFERRED TO THE TRUE NORTH AT 74°-00' WEST LONGITUDE.
2. ALL SLOPES ARE TO BE TRIMMED AND GRADED TO MEET EXISTING GROUND CONDITIONS AS DIRECTED BY THE ENGINEER. ALL AREAS DISTURBED BY THE CONSTRUCTION SHALL BE GRADED AND FINISHED AS INDICATED ON THE TYPICAL SECTIONS OR AS DIRECTED BY THE ENGINEER.
3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE GOLDEN NEMATODE QUARANTINE OF THE NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS REGULATING THE MOVEMENTS OF TOP SOIL, MACHINERY AND EQUIPMENT IN NASSAU AND SUFFOLK COUNTIES, AND CONCERNING THE EUROPEAN CHAFER REGULATING THE MOVEMENT OF MATERIALS AND EQUIPMENT IN OR FROM KINGS COUNTY. DETAILED INSTRUCTION AND ASSISTANCE IN THE NECESSARY STEAM CLEANING MAY BE OBTAINED FROM THE FIELD AGENT. TELEPHONE (516)288-1751 OR WRITE THE DEPT. OF AGRICULTURE & MARKETS, 4 STEWART AVE. WESTHAMPTON BEACH, NEW YORK 11978
4. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE VEHICLE AND TRAFFIC LAW OF THE STATE OF NEW YORK IN REGARD TO THE SIZE AND WEIGHT OF VEHICLES. THE CONTRACTOR IS HEREBY NOTIFIED THAT NO VEHICLE IN EXCESS OF THE LIMITS SET BY THE VEHICLE AND TRAFFIC LAW WILL BE ALLOWED ON ANY PUBLIC ROAD.
5. THE CONTRACTOR SHALL PERFORM HIS WORK IN SUCH A MANNER AND SEQUENCE AS TO MAINTAIN TWO– WAY TRAFFIC ON EXISTING ROADS WHILE MAINTAINING FULL ACCESS TO ADJACENT PRIVATE PROPERTY. TEMPORARY PAVEMENT AND THE ASSOCIATED WARNING DEVICES SHALL BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE LATEST EDITION OF THE N.Y. STATE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES." THE APPROPRIATE ILLUSTRATION IN SUBCHAPTER "H" OF SAID MANUAL SHALL BE APPLIED FOR ALL DETOURS AND SITUATIONS WHICH INTERFERE WITH TRAFFIC.
6. ANY TRENCH, PIT OR OTHER EXCAVATION THAT IS OPEN AND UNATTENDED SHALL BE PROTECTED, AS DIRECTED BY THE ENGINEER, WITH FENCE, BARRICADES OR ANOTHER APPROVED METHOD. NO DIRECT PAYMENT WILL BE MADE FOR THIS WORK. ALL EXCAVATIONS SHALL BE CONDUCTED IN COMPLIANCE WITH NEW YORK INDUSTRIAL CODE RULE NO. 23 AND INDUSTRIAL CODE PART (RULE NO.) 53 AND OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1926/1910).
7. AT THE COMPLETION OF WORK COVERED BY THE CONTRACT, THE CONTRACTOR SHALL CLEAR ALL AREAS WITHIN THE R.O.W. OF CONSTRUCTION DEBRIS TO THE SATISFACTION OF THE ENGINEER AND LEAVE THE AREA IN A NEAT, ORDERLY CONDITION.
8. MAINTENANCE OF TRAFFIC AND THE ASSOCIATED WARNING DEVICES SHALL BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE LATEST EDITION OF THE N.Y. STATE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".
9. WHENEVER ITEMS IN THE CONTRACT REQUIRE MATERIAL TO BE REMOVED AND DISPOSED OF, THE COST OF SUPPLYING A DISPOSAL AREA AND TRANSPORTATION TO THAT AREA SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THOSE ITEMS.
10. NO TREES SHALL BE REMOVED UNLESS SO ORDERED BY THE ENGINEER.
11. RESTORE ALL DRIVEWAYS AS DIRECTED BY THE ENGINEER.
12. CLEAR AND GRUB AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.
13. EXCAVATION OF UNSUITABLE MATERIAL WILL BE PAID FOR UNDER THE ITEM FOR "UNCLASSIFIED EXCAVATION".
14. GRADE, PLACE SELECT MATERIAL, SEED AND MULCH AS SHOWN ON PLANS OR AS DIRECTED. USE MATERIAL AVAILABLE ON SITE.
15. CUTTING PAVEMENT AND SIDEWALK ITEM NO. 205 WILL BE PAID ONLY AT THE LOCATIONS INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER.
16. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE RECLAIMED ASPHALT CONCRETE PAVEMENT (RAP) OPTION AS OUTLINED IN THE PROJECT PROPOSAL.
17. THE CONTRACTOR IS ADVISED THAT THE PLANS AND OTHER CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON THE BEST CURRENTLY AVAILABLE FIELD DATA. HOWEVER, ACTUAL FIELD CONDITIONS MAY VARY REQUIRING MODIFICATIONS TO THE CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL ADVISE THE ENGINEER OF VARIATIONS IN FIELD CONDITIONS, AND MODIFY HIS WORK TO CONFORM TO THESE CONDITIONS, AS ORDERED BY THE ENGINEER.
18. THE CONTRACTOR SHALL NOT WORK ON BOTH SIDES OF THE ROADWAY IN THE SAME AREA AT THE SAME TIME UNLESS APPROVED BY THE ENGINEER.
19. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO ARRANGE THE ADJUSTMENT OF EXISTING MANHOLE CASTINGS TO PROPOSED GRADE. THE CONTRACTOR SHALL SUPPLY SUFFICIENT SURVEY CONTROL TO ASCERTAIN THE PROPER GRADE AND PITCH OF ALL CASTINGS, VALVES, MANHOLES, HYDRANTS AND GRATES WITHIN THE LIMITS OF WORK.

FEATURE	SYMBOL EXISTING	SYMBOL PROPOSED
BOUNDARIES		
HIGHWAY BOUNDARY LINE		
VILLAGE, CITY OR TOWN LIMITS		
BUILDING		
BUILDING LINE		
ROADWAY AND SIDEWALK		
CURB LINE		
SIDEWALK	SW	
DECORATIVE CONCRETE ISLAND		
TRUCK APRON		
DRIVEWAY APRON		
SIDEWALK RAMP		
TRAFFIC FLOW		
ASPHALT ROAD		
VEGETATION		
TREES, DECIDUOUS		
TREES, CONIFEROUS		
SHRUBS, BUSHES		
GRASS RESTORATION		
TRAFFIC SIGNAL SYSTEMS		
PULLBOX		
SPAN WIRE	SPAN	
TRAFFIC SIGNAL POLE		
TRAFFIC SIGNAL POLE WITH CONTROLLER CABINET		
CONTROLLER OR DETECTOR CABINET		
TRAFFIC SIGNAL FACE		
PEDESTRIAN SIGNAL FACE		
PEDESTRIAN PUSH BUTTON		
ALUMINUM VEHICLE DETECTOR HOUSING		
AERIAL TRAFFIC SIGNAL COMMUNICATION CABLE	TS TS	
UNDERGROUND TRAFFIC SIGNAL CONDUIT		
LOOP DETECTOR	LOOP	
SURVEY DATA		
SPOT ELEVATION	X 34.13	X 35.96
BASELINE		
HORIZONTAL CONTROL LINE		
EROSION CONTROL		
SILT FENCE		
DRAINAGE STRUCTURE PROTECTION		
STREET LIGHTING SYSTEM		
PULLBOX		
DECORATIVE LIGHT FIXTURE		
ELECTRIC RISER		

FEATURE	SYMBOL EXISTING	SYMBOL PROPOSED
UTILITIES BELOW GROUND		
STORM DRAIN INLET		
GAS VALVE		
WATER VALVE		
ELECTRIC LINE	E	
FIRE COMMUNICATIONS LINE	FD	
GAS LINE	8"G	
SANITARY SEWER LINE	S	
STORM DRAINAGE LINE	D	
TELEPHONE LINE	T	
WATER LINE	8"W	
INFORM LINE	INFORM	
CABLEVISION LINE	CA	
ELECTRIC MANHOLE	Ⓔ	
GAS MANHOLE	Ⓖ	
LIPA MANHOLE	Ⓛ	
SANITARY SEWER MANHOLE	Ⓢ	
STORM DRAINAGE MANHOLE	Ⓓ	
TELEPHONE MANHOLE	Ⓣ	
FIRE HYDRANT		
STREET LIGHT		
FIELD INLET		
UTILITIES ABOVE GROUND		
MISCELLANEOUS OVERHEAD WIRES	OHW OHW	
GUY WIRE		
UTILITY POLE		
UTILITY POLE WITH RISER		
MISCELLANEOUS FEATURES		
SIGNS		
GUIDE RAIL		
MEDIAN BARRIER		
RETAINING WALL		
FENCE	X X X	X X X
NORTH ARROW (TRUE)		
TOPOGRAPHY		
CONTOURS	36.0 36.5 37.0	36.0 36.5 37.0
LIMIT OF RESTORATION, GRADING OR CLEARING AND GRUBBING		

FULL DEPTH ASPHALT TRAVEL PAVEMENT RESTORATION

BUTT-JOINT

ASPHALT DRIVEWAY PAVEMENT RESTORATION

RAIN GARDEN, VEGETATED SWALE AREA

SPECIAL NOTES:

THIS CONTRACTOR'S ATTENTION IS DIRECTED TO UTILITIES IN THE AREA. THE CONTRACTOR SHALL SATISFY THEM SELF AS TO THE EXACT LOCATION OF ALL UTILITIES AND WILL TAKE EVERY PRECAUTION NOT TO DISTURB THEM.

THE CONTRACTOR SHALL BE AWARE THAT UTILITY RELOCATIONS OR HIGHWAY PERMIT CONSTRUCTION MAY PROGRESS WITHIN THE LIMITS OF THIS PROJECT DURING THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE WITH EACH UTILITY OR PERMITEE SHALL BE RESPONSIBLE FOR THE ALTERATION OR ADJUSTMENT OF FACILITIES WITHIN THE COUNTY RIGHT OF WAY, UNLESS OTHERWISE STATED IN THE PLANS AND SPECIFICATIONS. IN SUCH CASE THAT LACK OF RESPONSE FROM SUCH, MAY CAUSE A DELAY WITH RESPECT TO THE COMPLETION DATE, THE CONTRACTOR MUST NOTIFY THE ENGINEER IN WRITING SO THAT APPROPRIATE STEPS SHALL BE TAKEN.

UTILITY COMPANIES INVOLVED (BUT NOT LIMITED TO)

PSEG	– –	(516) 545-5222
NATIONAL GRID	– –	(516) 545-5222
SCWA	MATTHEW VESSIE	(631) 589-5278
VERIZON	STEPHEN SCANDURA	(631) 687-8630

THE CONTRACTOR'S ATTENTION IS ALSO DIRECTED TO THE POSSIBILITY OF ENCOUNTERING GROUND WATER DURING EXCAVATION AND WILL PROCEED WITH THEIR WORK HAVING FULL KNOWLEDGE OF THIS FACT.

TOPOGRAPHIC ABBREVIATIONS

E	ELECTRIC
G	GAS
GP	GUY POLE
GSB	GAS SERVICE BOX (HOUSE CONNECTION)
GV	GAS VALVE (MAIN LINE)
HPG	HIGH PRESSURE GAS
HYD	HYDRANT
LP	LIGHT POLE
LPG	LOW PRESSURE GAS
SA	SANITARY SEWER
ST	STORM DRAINAGE DEWRE
T	TELEPHONE
TEL P	TELEPHONE POLE
CA	CABLE TELEVISION
W	WATER
WM	WATER METER
WSB	WATER SERVICE BOX (HOUSE CONNECTION)
WV	WATER VALVE (MAIN LINE)
ABUT	ABUTMENT
AOBE	AS ORDERED BY THE ENGINEER
ASPH	ASPHALT
BLDG	BUILDING
BM	BENCH MARK
BR	BRIDGE
CONC	CONCRETE
CONST	CONSTRUCTION
CR	COUNTY ROAD
DWY	DRIVEWAY
EP	EDGE OF PAVEMENT
ES	EDGE OF SHOULDER
FP	FENCE POST
FND	FOUNDATION
FL	FENCE LINE
GAR	GARAGE
GR	GRAVEL
HO	HOUSE
HWY	HIGHWAY
MB	MAIL BOX
MON	MONUMENT
PAV'T	PAVEMENT
RR	RAILROAD
RTE	ROUTE
ROW	RIGHT OF WAY
RW	RETAINING WALL
ST.	STREET
SW	SIDEWALK
TL	TREELINE
BC	BOTTOM OF CURB
CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CULV.	CULVERT
DI	DROP INLET
EL	ELEVATION

DRAINAGE ABBREVIATIONS

BB	BOTTOM OF BANK (STREAM)
BC	BOTTOM OF CURB
BO	BOTTOM OF OPENING
CAP	CORRUGATED ALUMINUM PIPE
CB	CATCH BASIN
CI	CURB INLET
CIP	CAST IRON PIPE
℄ STRM	CENTERLINE OF STREAM
CMP	CORRUGATED METAL PIPE
CP	CONCRETE PIPE
CSP	CORRUGATED STEEL PIPE
CULV	CULVERT
DI	DROP INLET
D'XING	DITCH CROSSING
EHW	EXTREME HIGH WATER
ELEV OR EL	ELEVATION
ELW	EXTREME LOW WATER
ES	END SECTION
FI	FIELD INELT
HW	HEADWALL
INV	INVERT
LB	LEATCHING BASIN
MH	MANHOLE
MHW	MEAN HIGH WATER
OCMP	OBLATE CORRUGATED METAL PIPE
OHW	ORDINARY HIGH WATER
OLW	ORDINARY LOW WATER
RCP	REINFORCED CONCRETE PIPE
TB	TOP OF BANK
TC	TOP OF CURB
TG	TOP OF GRATE
TO	TOP OF OPENING
VCP	VITRIFIED CLAY PIPE
VTP	VITRIFIED TILE PIPE

ALIGNMENT ABBREVIATIONS

AH	AHEAD
AZ	AZIMUTH
BK	BACK
℄	BASELINE
BRG	BEARING
℄	CENTERLINE
CS	CURVE TO SPIRAL
D	DEGREE OF CURVE
DIA	DIAMETER
E MAX	MAXIMUM SUPERELEVATION
EQ	EQUALITY
EXT	EXTERNAL
HCL	HORIZONTAL CONTROL LINE
HSD	HEADLIGHT SIGHT DISTANCE
L	LENGTH OF CIRCULAR CURVE
LS	LENGTH OF SPIRAL
LVC	LENGTH OF VERTICAL CURVE
MC	CENTER CORRECTION OF VERTICAL CURVE
℄	MAIN LINE
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
POI	POINT ON LINE
PSD	PASSING SIGHT DISTANCE
PT	POINT OF TANGENT
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
R	RADIUS
SC	SPIRAL TO CURVE
SSD	STOPPONG SIGHT DISTANCE
ST	SPIRAL TO TANGENT
STA	STATION
T	TANGENT LENGTH
TGL	THEORETICAL GRADE LINE
TS	TANGENT TO SPIRAL
VC	VERTICAL CURVE

THE FOLLOWING IS A LIST OF NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SHEETS AND REGIONAL GUIDE SHEETS THAT APPLY TO THE WORK WITHIN THE NEW YORK STATE RIGHT OF WAY AND WITHIN THE LIMITS SHOWN ON THE PLANS:

645-7	TYPICAL TRAFFIC SIGNS ASSEMBLY DETAILS
619-02	TYPE III CONSTRUCTION BARRICADES (SHEETS 1 & 2)
619-04	PORTABLE TEMPORARY WOODEN SIGN SUPPORT
619-63	SINGLE LANE SHIFT 2-LANE 2-WAY ROADWAY WITH CENTER TURN LANE
625-01	R.O.W. AND SURVEY MARKERS
645-01	SIGN BLANK DETAILS (SHEET 1 & 2)
645-03	POSITIONING OF TRAFFIC SIGNS (SHEET 1 OF 2)
685-01	PAVEMENT MARKING DETAILS (SHEET 1 THRU 5)
606-8R1	HEAVY POST BLOCKED-OUT CORRUGATED BEAM GUIDE RAILING (SHEET 1 OF 2)
606-9R1	HEAVY POST BLOCKED-OUT CORRUGATED BEAM GUIDE RAILING (SHEET 2 OF 2)
645-8R1	STANDARD REGULATORY AND AND WARNING SIGNS
619-3R3	TEMPORARY CONCRETE BARRIER

NOTES FOR PORTLAND CEMENT CONCRETE:

COARSE AGGREGATE: SCREENED GRAVEL WILL BE PERMITTED IN CONCRETE HEADWALLS, CATCH BASINS, MANHOLES, AND LEACHING BASINS

PROGRESS PRINT

NELSON & POPE
ENGINEERS · SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
631.427.5665 WWW.NELSONPOPE.COM FAX 631.427.5620

SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

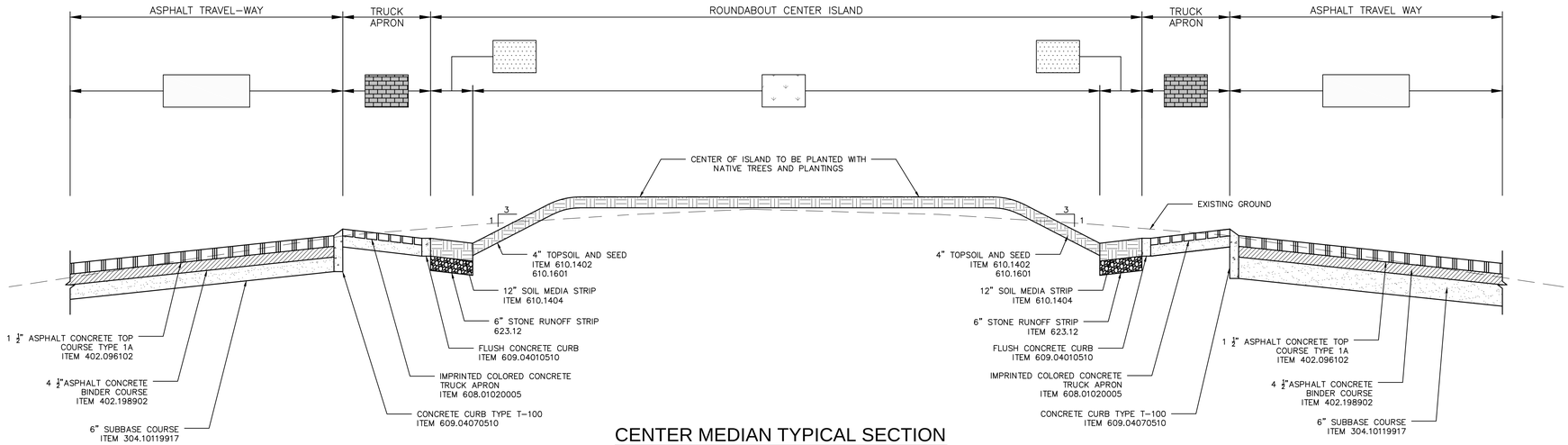
COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

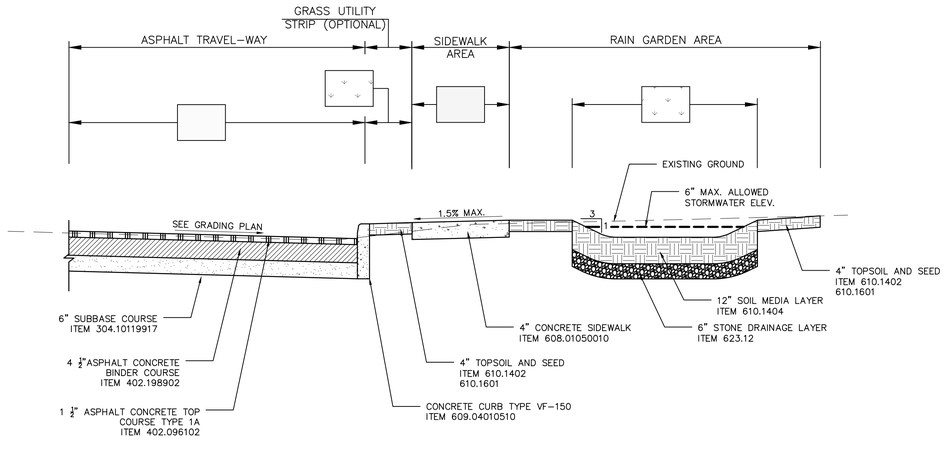
LEGEND PLAN
LEGEND, INDEX & GENERAL NOTES

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT. 2015	



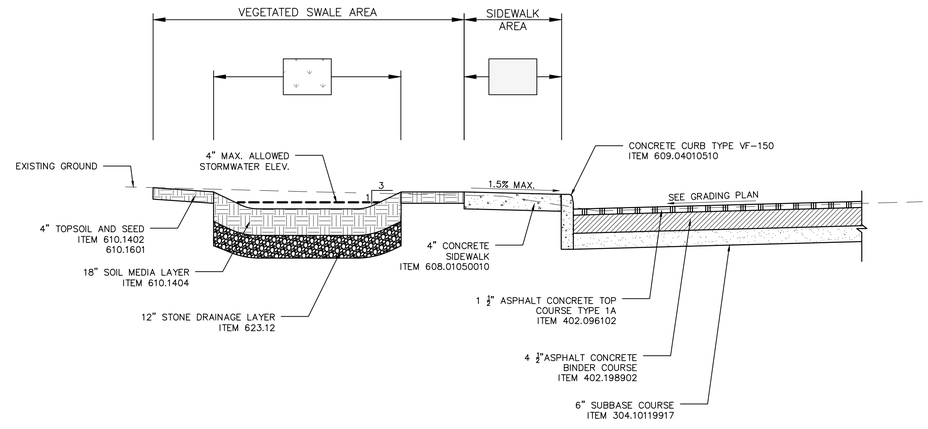
CENTER MEDIAN TYPICAL SECTION

N.T.S.



RAIN GARDEN TYPICAL SECTION

N.T.S.



VEGETATED SWALE TYPICAL SECTION

N.T.S.

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SYMBOL	DESCRIPTION	APPROVED	DATE
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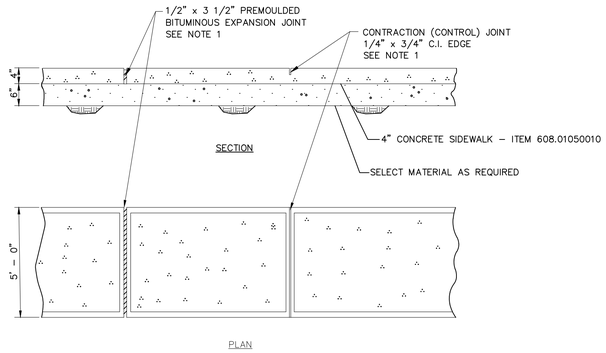
COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

TYPICAL SECTIONS – 1
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT. 2015	



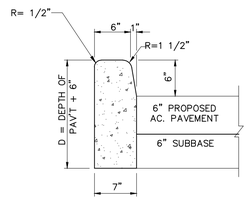
CONCRETE SIDEWALK DETAIL

NOT TO SCALE

ITEM 608.01050010

SIDEWALK NOTES:

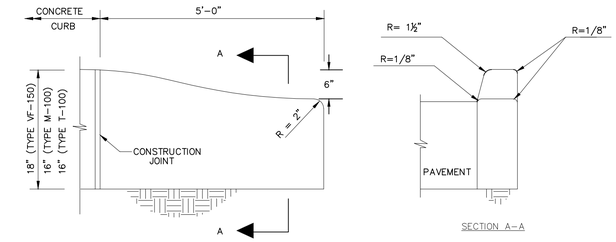
1. CONTROL JOINTS ARE TO BE PLACED EVERY 5'–0" AND EXPANSION JOINTS ARE TO BE PLACED EVERY 20', OR AS DIRECTED BY THE ENGINEER.
2. ALL SIDEWALK RAMPS SHALL BE CONSTRUCTED 6" THICK WITH WELDED WIRE FABRIC (6 X 6 – W2.9 X W2.9), ITEM 608.0101
3. ALL SIDEWALKS IN INTERSECTIONS AND IN SMALL RADII SHALL BE PLACED MONOLITHICALLY AND SHALL BE 6 INCHES THICK REINFORCED CONCRETE FROM THE PC TO THE PT. THE AREA TO BE PAID FOR THE SIDEWALK ITEM SHALL NOT INCLUDE THE CURB. CURB IN THESE SECTIONS SHALL BE PAID FOR UNDER THE APPROPRIATE CURB ITEM.



TYPE VF-150 CONCRETE CURB

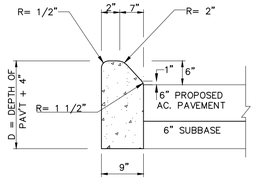
NOT TO SCALE

ITEM 609.04010510



CONCRETE CURB END SECTION

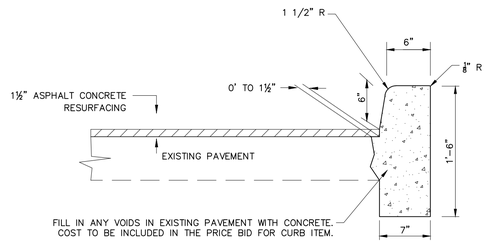
NOT TO SCALE



TYPE M-100 MOUNTABLE CONCRETE CURB

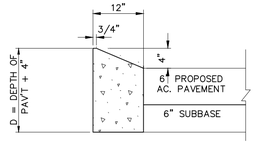
NOT TO SCALE

ITEM 609.04050510



INSTALLATION OF NEW CONCRETE CURB ABUTTING EXISTING PAVEMENT

NOT TO SCALE



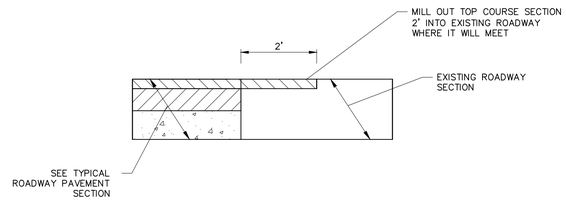
TYPE T-100 TRAVERSABLE CONCRETE CURB

NOT TO SCALE

ITEM 609.04070510

CURB NOTES:

1. ¾" PREMOLDED BITUMINOUS JOINT FILLER SHALL BE PLACED IN JOINTS AT 20' TO 25' INTERVALS ALONG THE LENGTH OF THE CURB; WHERE CURB ABUTS DRAINAGE STRUCTURES; AT ALL PC'S AND PT'S; BETWEEN FULL HEIGHT CURB SECTIONS AND CURB ENDINGS AND WHERE ORDERED BY THE ENGINEER.



ASPHALT ROADWAY MILLING END SECTION

NOT TO SCALE

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SYMBOL	DESCRIPTION	APPROVED	DATE

REVISIONS

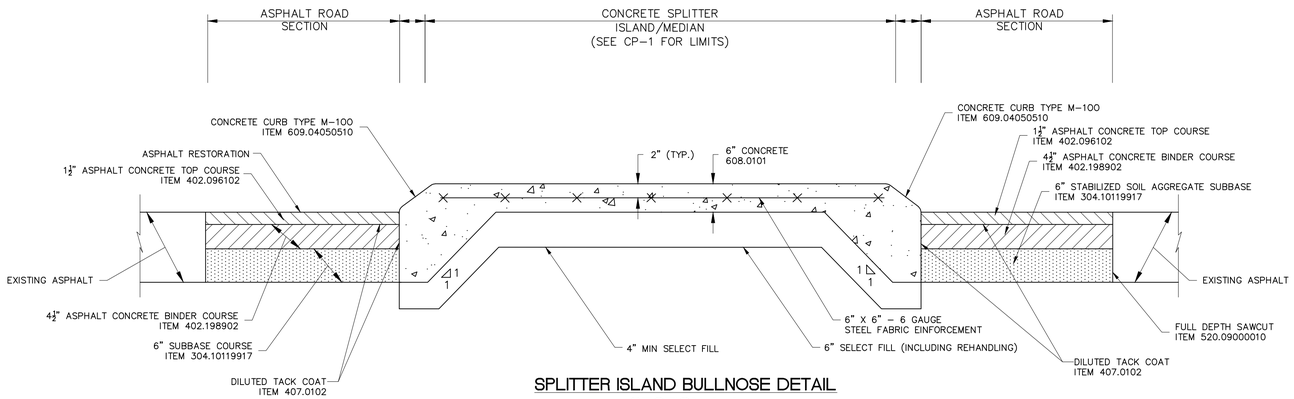
COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

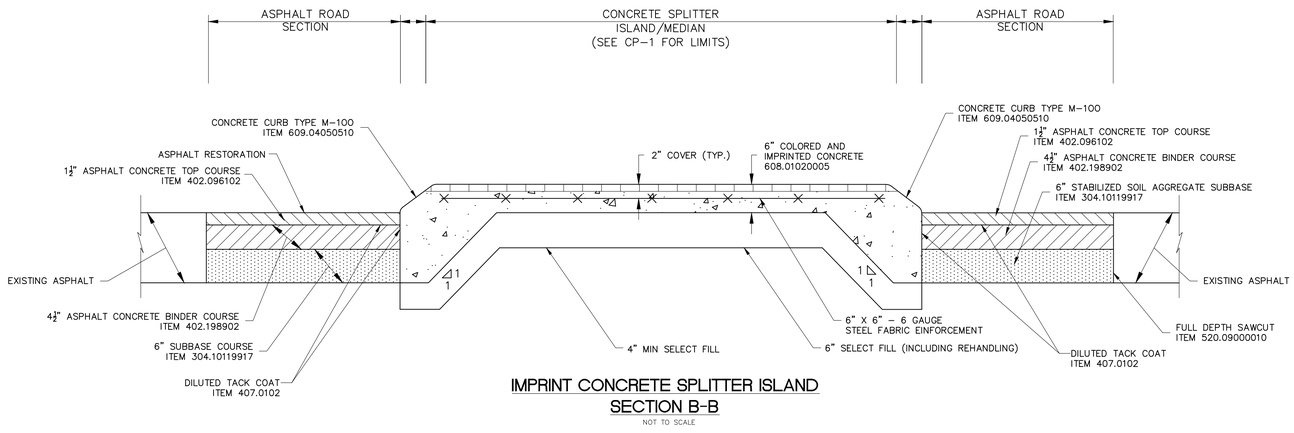
MISCELLANEOUS DETAILS – 1
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X



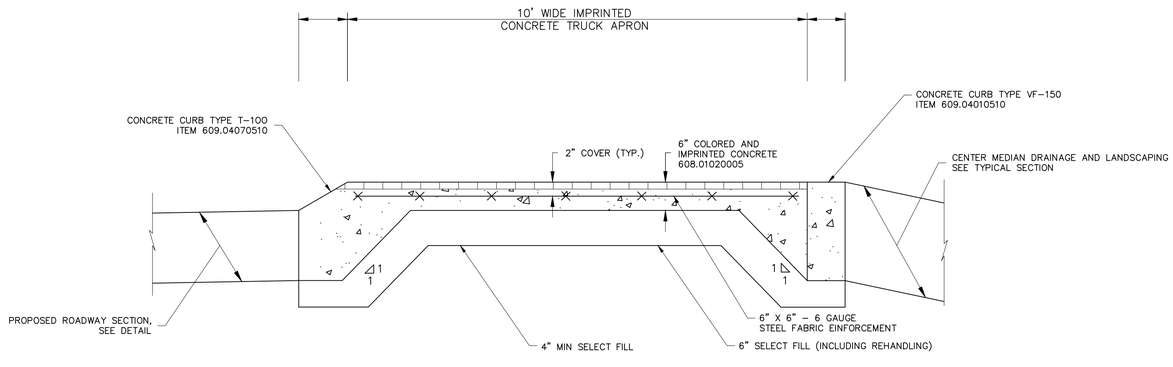
SPLITTER ISLAND BULLNOSE DETAIL SECTION A-A

NOT TO SCALE



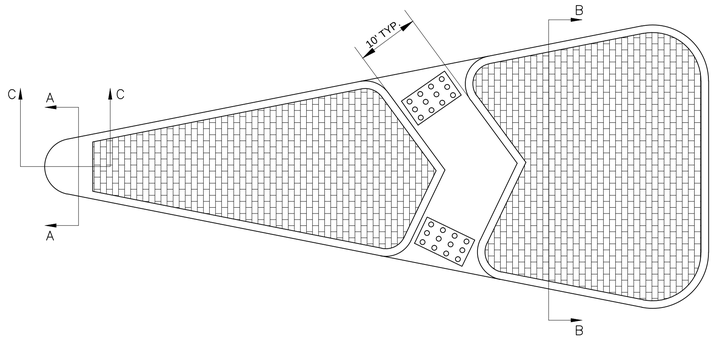
IMPRINT CONCRETE SPLITTER ISLAND SECTION B-B

NOT TO SCALE

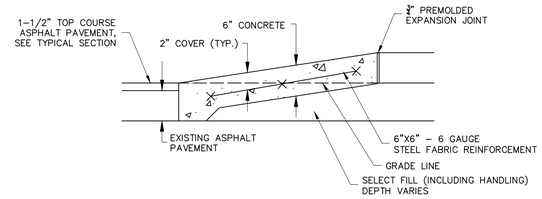


IMPRINT CONCRETE TRUCK RAMP SECTION

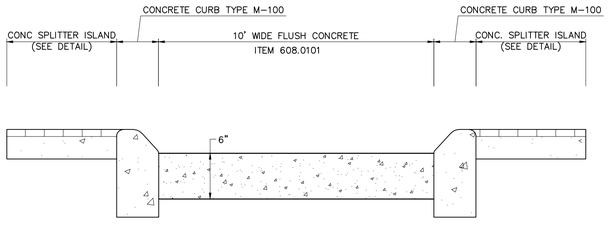
NOT TO SCALE



TYPICAL SPLITTER ISLAND LAYOUT



CONCRETE BULLNOSE TRANSITION SPLITTER ISLAND SECTION C-C



FLUSH CONCRETE CROSSWALK DETAIL

NOT TO SCALE

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SYMBOL	DESCRIPTION	APPROVED	DATE

REVISIONS

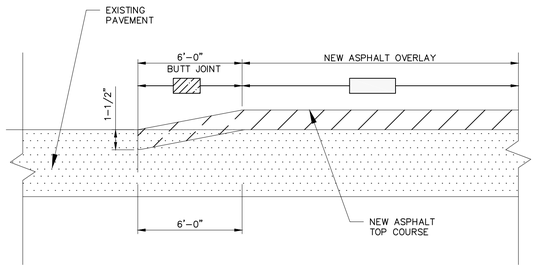
COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

MISCELLANEOUS DETAILS – 2
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X



SECTION A-A

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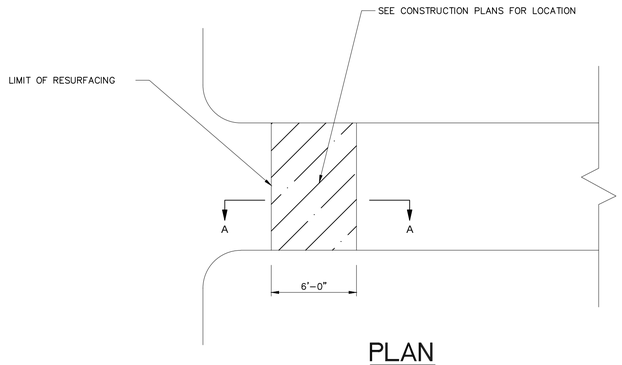
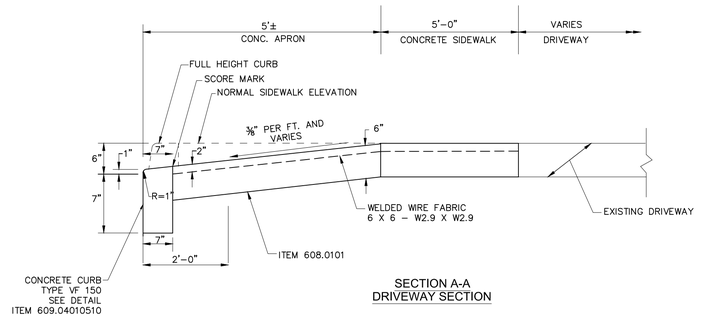


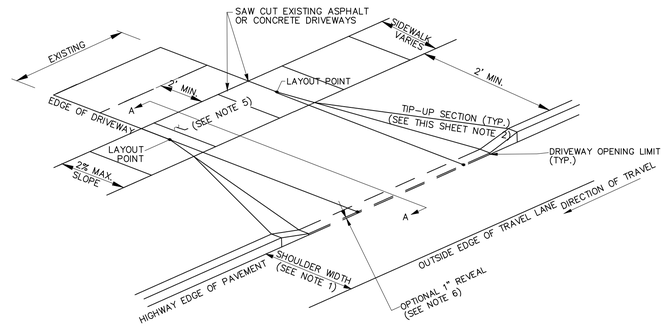
PLAN

BUTT JOINT DETAIL

NOT TO SCALE

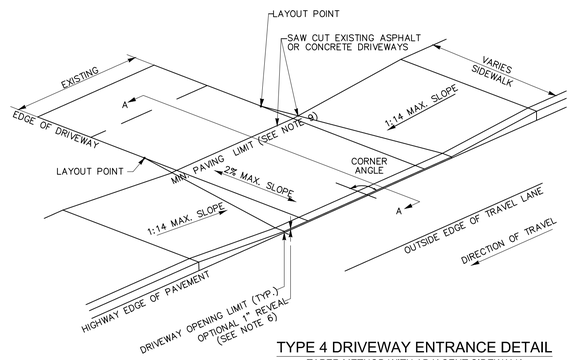


SECTION A-A
DRIVEWAY SECTION



TYPE 3 DRIVEWAY ENTRANCE DETAIL

TAPER METHOD WITH ADJACENT SIDEWALK

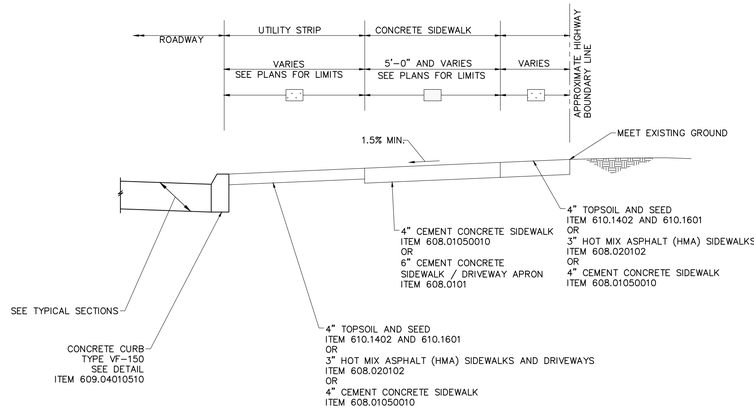


TYPE 4 DRIVEWAY ENTRANCE DETAIL

TAPER METHOD WITH ADJACENT SIDEWALK

DRIVEWAY APRONS NOTES:

1. "SHOULDER WIDTH" REFERS TO THE PAVED SHOULDER WIDTH. THE SHOULDER WIDTH MAY BE DESIGNATED AS A PARKING LANE, BIKE LANE, CURB OFFSET, OR OTHER PAVED AREA.
2. A DRIVEWAY TIP-UP SECTION SHOULD EXTEND TO A LOGICAL TERMINI (EXAMPLE: SIDEWALK EDGE, WHERE THE DRIVEWAY GRADE MATCHES EXISTING GROUND, OR LAYOUT POINT). FOR REFERENCE, A REASONABLE LENGTH FOR TAPERING THE TIP-UP SECTION BACK TO THE EDGE OF DRIVEWAY IS 3 TO 4 TIMES THE LENGTH OF CURB DROP. THE TIP-UP SECTION IS NOT PART OF THE DRIVEWAY OPENING WIDTH.
3. FOR DRIVEWAYS WITH A DRIVEWAY OFFSET LESS THAN 16', THE TAPER METHOD IS NOT GENERALLY RECOMMENDED, UNLESS IT CAN BE FIELD VERIFIED THAT THE DRIVEWAY ENTRANCE WIDTH WILL ACCOMMODATE THE VEHICLES THAT USE THE DRIVEWAY ON A REGULAR BASIS.
4. TYPE 3 AND TYPE 4 DRIVEWAY ENTRANCES CAN BE USED WITHOUT CURB IF A TAPER STYLE ENTRANCE BETTER MATCHES THE HIGHWAY CORRIDOR AESTHETICS OR SPECIFIC SITE CONDITIONS THAN A RADIUS STYLE ENTRANCE.
5. ANY SIDEWALK WHICH CROSSES A DRIVEWAY SHALL HAVE A MINIMUM THICKNESS OF 6" AND INCLUDE WIRE FABRIC REINFORCEMENT WITH 3" OF TOP COVER.
6. WHERE DRAINAGE IS CARRIED ALONG THE CURB, CONSTRUCT THE DRIVEWAY WITH A SHORT UPGRADE TO PREVENT RUNOFF FROM PONDING AT THE DRIVEWAY ENTRANCE (FLAT DRIVEWAY) OR RUNNING DOWN THE DRIVEWAY (DOWNHILL DRIVEWAY SLOPE). IF CONDITIONS MAKE THE ADDITION OF A SHORT UPGRADE IMPRACTICAL, CURB REVEAL WILL NOT BE CONSTRUCTED IN RURAL AREAS.
7. FOR RESIDENTIAL DRIVEWAYS, THE MINIMUM PAVING LIMIT SHALL BE 10' FROM THE OUTSIDE EDGE OF TRAVEL LANE OR 2' BEHIND ANY SIDEWALK, IF PRESENT, WHICHEVER IS GREATER. FOR MINOR COMMERCIAL DRIVEWAYS, THE MINIMUM PAVING LIMIT SHALL EXTEND TO THE RIGHT-OF-WAY LINE OR 2' BEHIND ANY SIDEWALK, IF PRESENT, OR 10 FEET FROM THE OUTSIDE EDGE OF TRAVEL LANE, WHICHEVER IS GREATER. THE PAVING LIMIT MAY EXTEND BEYOND THE MINIMUM PAVING LIMIT FOR NEW DRIVEWAYS AND TO TRANSITION TO EXISTING PAVED DRIVEWAYS.
8. IN ORDER TO MAINTAIN A CONSISTENT 6 INCH CURB REVEAL, SELECT FILL IS REQUIRED IN AREAS WHERE THE PROPOSED SIDEWALK ELEVATION WILL BE GREATER THAN THE EXISTING ELEVATION. SELECT FILL MAY ALSO BE REQUIRED IF UNSUITABLE MATERIAL IS ENCOUNTERED AND IDENTIFIED AS SUCH BY THE ENGINEER-IN-CHARGE DURING CONSTRUCTION. THE MATERIAL SHALL BE REMOVED AND REPLACED WITH SELECT FILL TO THE LIMITS DETERMINED BY THE ENGINEER.



SIDEWALK AREA RESTORATION

NOT TO SCALE

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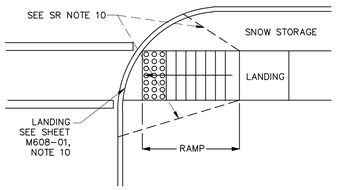
C.R. 94 ROUNDABOUT

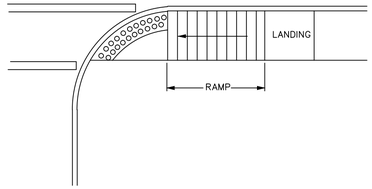
MISCELLANEOUS DETAILS – 3
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	



CURB RAMP CONFIGURATION: TYPE 1

NOT TO SCALE



CURB RAMP CONFIGURATION: TYPE 2

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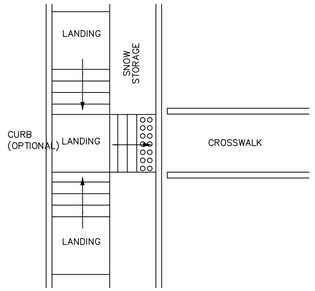
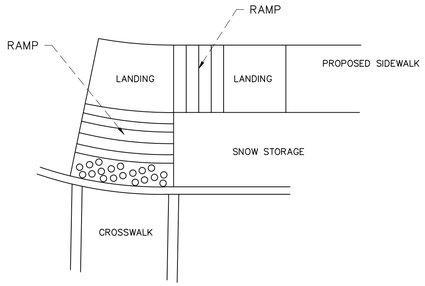


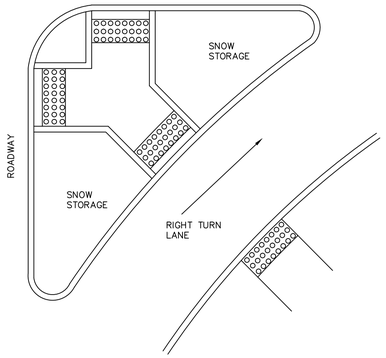
CURB RAMP CONFIGURATION: TYPE 10

NOT TO SCALE



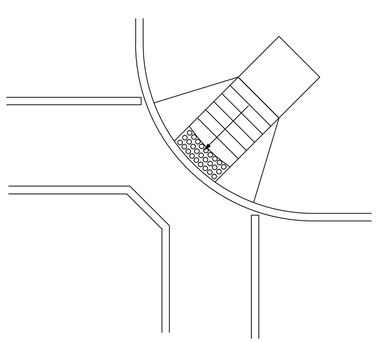
CURB RAMP CONFIGURATION: TYPE 10B

NOT TO SCALE



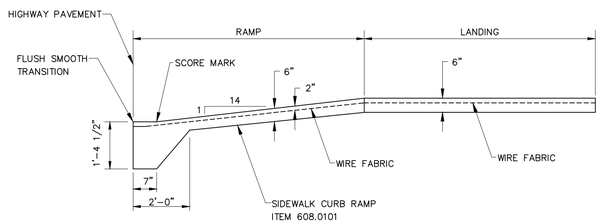
CURB RAMP CONFIGURATION: TYPE 12

NOT TO SCALE



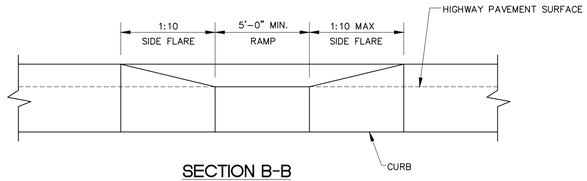
CURB RAMP CONFIGURATION: TYPE 8

NOT TO SCALE



SECTION A-A

NOT TO SCALE



SECTION B-B

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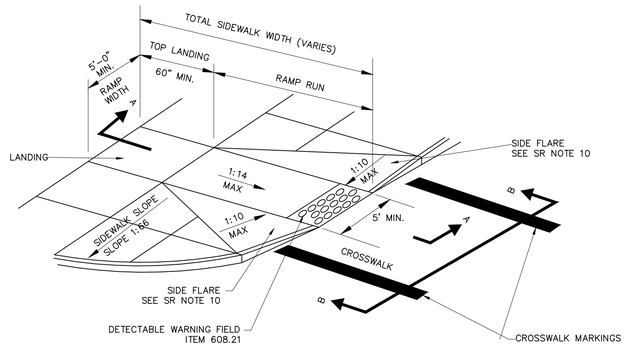
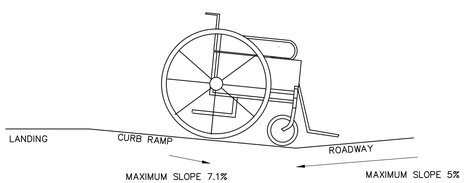


SIDEWALK CURB RAMP (PERPENDICULAR)

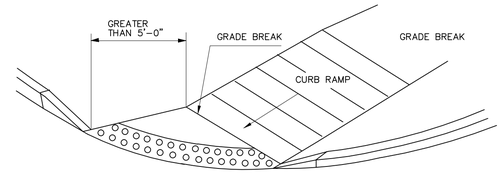
NOT TO SCALE



NOTE:
THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF A CURB RAMP, LANDING, OR BLENDED TRANSITION SHALL BE 5% MAXIMUM.

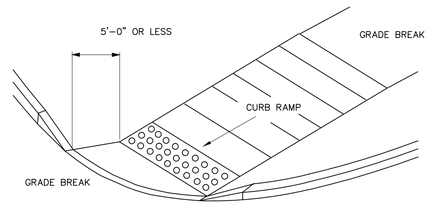
COUNTER SLOPE CONDITIONS

NOT TO SCALE



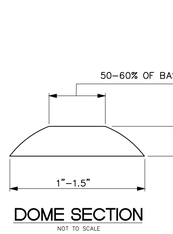
DETECTABLE WARNING PLACEMENT DETAIL 1

IF THE DISTANCE FROM THE GRADE BREAK AT THE BASE OF THE CURB RAMP TO THE ROAD IS GREATER THAN 5" DETECTABLE WARNINGS SHOULD BE PLACED ALONG THE RADIUS OF THE CURVE AS SHOWN IN THE ABOVE DETAIL.



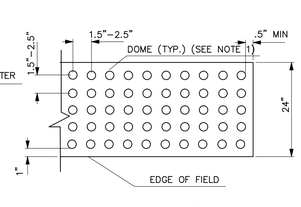
DETECTABLE WARNING PLACEMENT DETAIL 2

IF THE DISTANCE FROM THE GRADE BREAK IS LESS THAN OR EQUAL TO 5'-0" DETECTABLE WARNINGS SHOULD BE PLACED ON THE CURB RAMP ALONG THE BOTTOM GRADE BREAK WITH AT LEAST ONE CORNER 6" TO 5" FROM THE FRONT OF THE CURB OR EDGE OF THE ROADWAY.



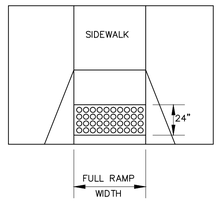
DOME SECTION

NOT TO SCALE



DOME SPACING

NOT TO SCALE



DETECTABLE WARNING AT CURB RAMP

NOT TO SCALE

SIDEWALK RAMP (SR) NOTES:

1. SIDEWALK CURB RAMP TYPE AND LOCATION ARE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER RESPONSIBLE FOR CONSTRUCTION INSPECTION.
2. THE SIDEWALK RAMPS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS AS DIRECTED BY THE ENGINEER.
3. SIDEWALK CURB RAMP TYPES MAY BE DIFFERENT AT EACH LOCATION WITHIN AN INTERSECTION.
4. THE MINIMUM WIDTH OF A SIDEWALK CURB RAMP SHALL BE FIVE FEET, EXCLUSIVE OF FLARED SIDES.
5. IF FEASIBLE, PROVIDE FOR DRAINAGE INLETS OR GRATES IMMEDIATELY UPSTREAM FROM THE CURB RAMPS. RETICULINE OR RECTANGULAR DRAINAGE GRATES ARE TO BE USED IN AREA OF CURB RAMPS.
6. THERE SHALL BE A LANDING AT THE TOP OF EACH CURB RAMP. THERE SHALL BE A LANDING AT THE TOP AND BOTTOM OF TYPE 2 AND TYPE 3 RAMPS.
7. LANDINGS SHALL HAVE A MINIMUM CLEAR DIMENSION OF A 60" BY 60" SQUARE. LANDINGS MAY OVERLAP WITH ADJACENT LANDINGS OR A SINGLE LANDING MAY SERVE MULTIPLE CURB RAMPS. LANDINGS MAY OVERLAP WITH THE CLEAR GROUND SPACE REQUIRED AT PEDESTRIAN SIGNAL PUSH BUTTONS.
8. THE MAXIMUM CROSS SLOPE OF CURB RAMPS SHALL BE 1.5 PERCENT. THE MAXIMUM CROSS SLOPE AT LANDINGS IS 1.5 PERCENT IN ANY DIRECTION. SURFACES SHALL GENERALLY LIE IN CONTINUOUS PLANES WITH A MINIMUM SURFACE WARP.
9. THE RUNNING GRADE OF CURB RAMPS SHOULD BE AS FLAT AS PRACTICABLE. THE MAXIMUM RUNNING GRADE OF ANY PORTION OF ANY CURB RAMP SHALL BE 1:14 (7.1%). CURB RAMPS ARE NOT REQUIRED TO BE LONGER THAN 15 FEET.
10. CURB RAMPS LOCATED WHERE PEDESTRIANS MAY WALK ACROSS THE CURB RAMP SHALL HAVE FLARED SIDES. THE LENGTH OF THE FLARES SHALL BE AT LEAST TEN (10) TIMES THE CURB HEIGHT, MEASURED ALONG THE CURB LINE. WHEN INFEASIBLE OR IMPRACTICABLE TO PROVIDE A LANDING THAT IS AT LEAST 60" WIDE (MEASURED FROM THE TOP OF THE RAMP TO THE BACK OF THE SIDEWALK),
11. THE SURFACE OF ALL CURB RAMPS SHALL BE STABLE, FIRM AND SLIP RESISTANT. A COARSE BROOM FINISH RUNNING PERPENDICULAR TO THE SLOPE IS RECOMMENDED ON CONCRETE RAMP SURFACES, EXCLUSIVE OF DETECTABLE WARNING FIELDS.
12. RAMP TRANSITIONS BETWEEN WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES (¼" MAX).
13. COORDINATE ALL TRAFFIC CONTROL DEVICES, UTILITY LOCATIONS, SIGNS, STREET FURNITURE AND DRAINAGE TO ENSURE A CONTINUOUS PEDESTRIAN ACCESS ROUTE AT ALL CURB RAMP LOCATIONS. GUIDANCE FOR CROSSWALK MARKINGS AND TRAFFIC CONTROL DEVICES IS PROVIDED IN THE MUTCD. DRAINAGE GRATES AND UTILITY ACCESS COVERS ARE NOT ALLOWED IN RAMP WALKING SURFACES OR LANDINGS.
14. WHERE FEASIBLE, E.G., WHERE R.O.W. WIDTH PROVIDES SUFFICIENT SPACE TO INSTALL SIDEWALKS SET BACK FROM THE CURBS, RAMP TYPES 3 AND 6 SHOULD BE INSTALLED AS THE SEPARATION PROVIDED BETWEEN SIDEWALK AND CURB OR TRAVELWAY MAKE FOR GREATER PEDESTRIAN SAFETY AND COMFORT.
15. AT MARKED CROSSINGS, THE FULL WIDTH OF THE RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS. THE SIDES OF THE RAMPS (THE FLARES) NEED NOT BE WITHIN THE WIDTHS OF THE MARKINGS.

DETECTABLE WARNING FIELD NOTES:

1. THE DETAILS PROVIDED ARE NOT DRAWN TO SCALE. THE QUANTITY OF DOMES DEPICTED ON THE DETECTABLE WARNING FIELD (THE DOMES AND THE ENTIRE 24" LEVEL SURFACE) IS FOR ILLUSTRATION ONLY.

DETECTABLE WARNING FIELD DIMENSIONS

2. THE SIZE OF THE DETECTABLE WARNING FIELD SHALL BE 24" IN THE DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE, EXCLUSIVE OF SIDE FLARES.

DOME ALIGNMENT

3. THE ROWS OF DOMES SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK BETWEEN THE RAMP LANDING OR CURB RAMP AND THE STREET.
4. WHERE DOMES ARE ARRAYED RADIALLY THEY MAY DIFFER IN DOME DIAMETER AND CENTER-TO-CENTER SPACING WITHIN THE RANGES SPECIFIED ON THIS SHEET.

COLOR REQUIREMENTS

5. THE DETECTABLE WARNING FIELD SHALL BE THE COLOR SPECIFIED IN THE CONTRACT DOCUMENTS OR MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

DETECTABLE WARNINGS LOCATIONS

6. DETECTABLE WARNINGS SHALL BE LOCATED SO THAT THE EDGE OR ON CURB RAMP TYPE 1 AT LEAST ONE CORNER OF THE WARNING FIELD NEAREST TO THE ROADWAY IS 6" TO 9" FROM THE FRONT OF THE CURB OR THE EDGE (12" WHERE TRAVERSABLE CURB IS USED).
7. THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 6'-0" MINIMUM AND 15'-0" MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL.

PROGRESS PRINT

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C.R. 94 ROUNDABOUT

PEDESTRIAN RAMP DETAILS - 1
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
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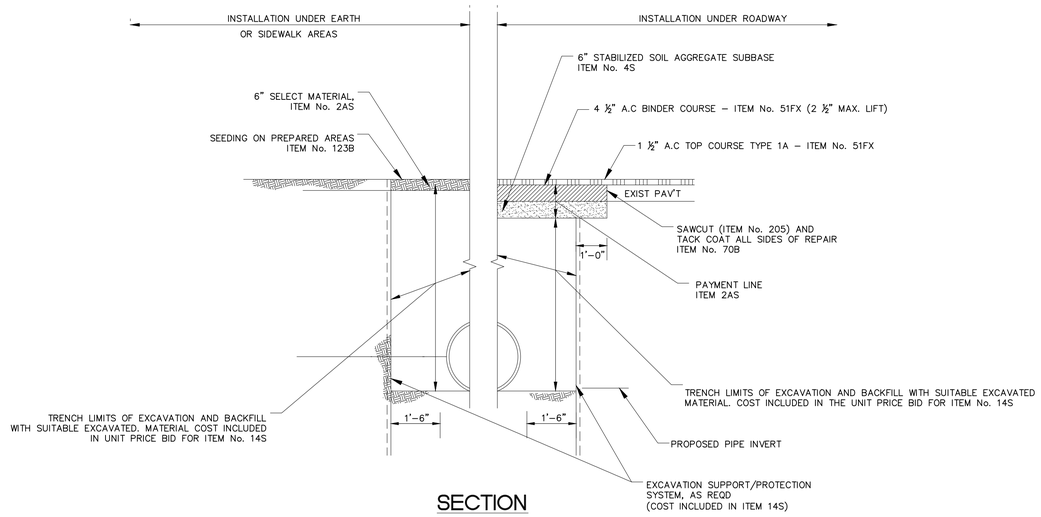


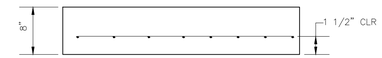
SECTION

DRAINAGE PIPE EXCAVATION, BACKFILL AND SURFACE RESTORATION

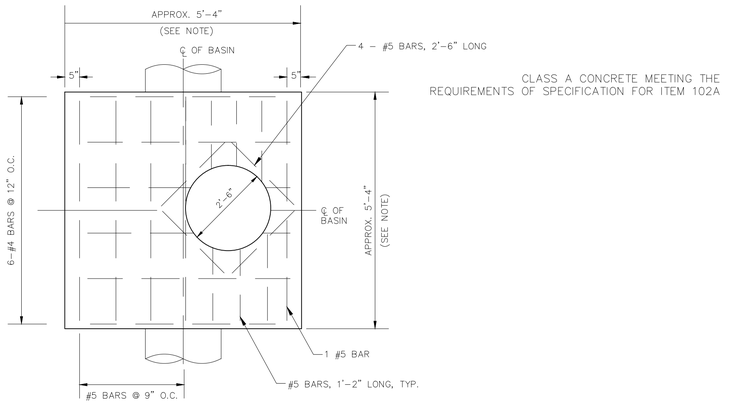
NOT TO SCALE

NOTE:

1. ASPHALT BASE COURSE THICKNESS SHALL BE 1 ½" LESS THAN TOTAL THICKNESS OF EXIST. PAV'T SECTION



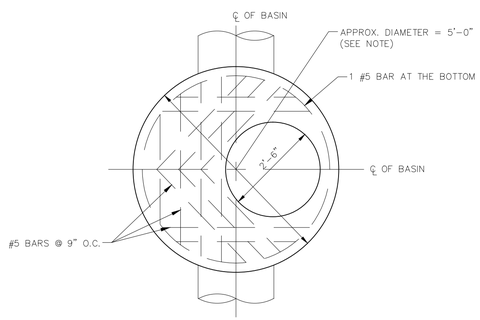
ELEVATION



PLAN

NYSDOT
TYPE A MANHOLE TOP SLAB

NOT TO SCALE



PLAN

NYSDOT

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DRAINAGE DETAILS – 1
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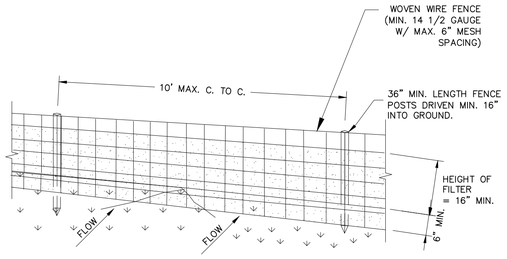
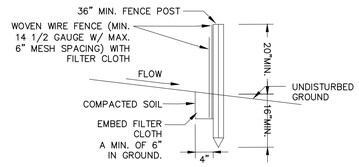


PERSPECTIVE VIEW



SECTION VIEW

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.

2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.

3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.

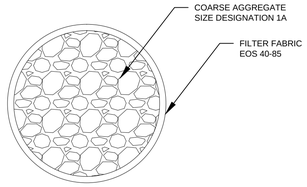
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.

5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE

NOT TO SCALE

ITEM 209.05110010



TYPICAL BOLSTER DETAIL

INLET FILTER SEDIMENT CONTROL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. MAINTENANCE: WITH A STIFF BRISTLE BROOM, SWEEP SILT AND OTHER DEBRIS OFF SURFACE AFTER EACH EVENT.

2. INSTALLATION:

A. STAND GRATE ON END
B. SLIDE THE SILT BAG ON WITH THE DAM ON TOP OF THE GRATE PULL ALL EXCESS DOWN
C. LAY THE UNIT ON ITS SIDE AND CAREFULLY TUCK THE FLAP IN
D. PRESS THE VELCRO STRIPS TOGETHER
E. INSTALL THE UNIT MAKING SURE THE FRONT EDGE OF GRATE IS INSERTED IN THE FRAME FIRST THEN LOWER IT BACK IN PLACE
F. PRESS THE VELCRO DOTS THAT ARE LOCATED UNDER THE LIFTING STRAPS TOGETHER, THIS INSURES THAT THE STRAPS REMAIN FLUSH WITH THE GUTTER

3. INSTALLATION:

A. STAND GRATE ON END
B. PLACE THE SILT BAG OVER GRATE
C. FLIP THE GRATE OVER SO THAT THE OPEN END IS UP
D. PULL UP THE SLACK AND TUCK THE FLAP IN
E. BE SURE THAT THE END OF THE GRATE IS COMPLETELY COVERED BY THE FLAP OR THE DANDY BAY WILL NOT FIT PROPERLY.
F. WHILE HOLDING THE HANDLES, CAREFULLY PLACE DANDY BAG WITH THE GRATE INSERTED INTO THE CATCH BASIN FRAME SO THAT THE RED DOT ON THE TOP OF THE DANDY BAG IS VISIBLE.

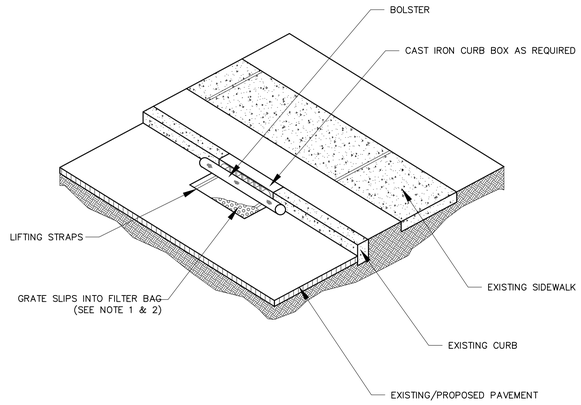
MAINTENANCE: AFTER THE SILT HAS DRIED, REMOVE IT FROM THE SURFACE OF THE SILT BAG WITH A BROOM.

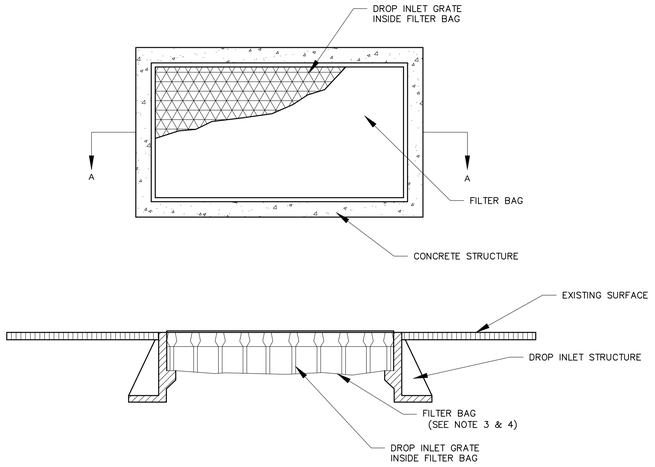
4. PRIOR AND/OR DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL COMPLY WITH ALL ADDITIONAL MEASURES DEEMED NECESSARY BY THE ENGINEER AND SHALL BE RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROL DEVICES.

5. ALL DEBRIS OR EXCESS MATERIALS FROM CONSTRUCTION OF THIS PROJECT SHALL BE IMMEDIATELY AND COMPLETELY REMOVED FROM THE PROJECT AREA.

6. ALL INLET SEDIMENT CONTROL DEVICES AT EACH LOCATION SHALL BE INSTALLED PRIOR TO COMMENCING ANY PAVEMENT WORK IN THAT LOCATION OR AS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL MAINTAIN ALL SEDIMENT CONTROLS AND REMOVE COLLECTED SEDIMENT ON A WEEKLY BASIS OR AS DIRECTED BY THE ENGINEER. COLLECTED MATERIAL SHALL BE DISPOSED OF PROPERLY TO AN OFF-SITE LOCATION AS DIRECTED BY THE ENGINEER.

7. ALL SEDIMENT CONTROL DEVICES SHALL BE REMOVED FROM THE SITE AFTER CONSTRUCTION IS COMPLETED.





SECTION A-A

TEMPORARY SEDIMENT FILTER BAGS

NOT TO SCALE

ITEMS 209.11000011 AND 209.12000011

PROGRESS PRINT

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ENGINEERS · SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
631.427.5665 WWW.NELSONPOPE.COM FAX 631.427.5620

SYMBOL	DESCRIPTION	APPROVED	DATE

REVISIONS

COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. - COMMISSIONER

C.R. 94 ROUNDABOUT

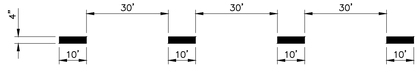
EROSION CONTROL DETAILS
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

ITEM No.

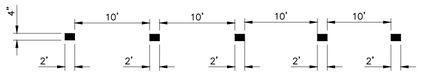
LANE LINE
EDGE LINE

ITEM 685.11



NORMAL BROKEN LANE LINE

ITEM 685.11

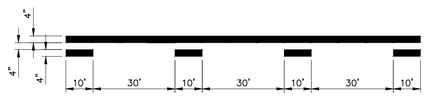


NORMAL DOTTED LANE LINE–LONG

ITEM 685.11

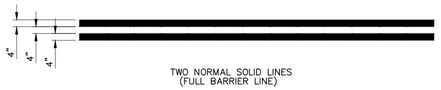
NORMAL DOTTED LANE LINE–SHORT

ITEM 685.11



NORMAL SOLID LANE LINE AND NOMINAL BROKEN LINE
(PARTIAL BARRIER LINE)

ITEM 685.12

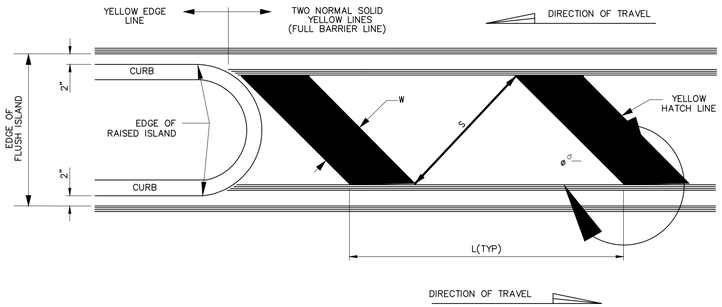


TWO NORMAL SOLID LINES
(FULL BARRIER LINE)

ITEM 685.12

ITEM 685.11

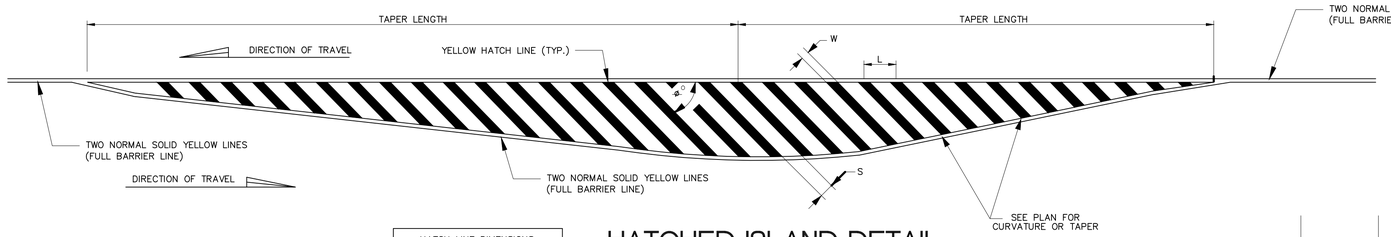
NORMAL DOUBLE BROKEN LINE
FOR CLIMBING LANE ON ONE–WAY ROADWAY



GENERAL PAVEMENT MARKING NOTE:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. EDGE LINES SHALL BE YELLOW ON THE LEFT SIDE AND WHITE ON THE RIGHT SIDE IN THE DIRECTION OF TRAVEL UNLESS OTHERWISE SHOWN ON THE PLANS. IF THE CURB OFFSET IS LESS THAN 2'–0", NO EDGE LINE SHALL BE APPLIED ADJACENT TO CURBS UNLESS OTHERWISE SHOWN ON THE PLANS. EDGE LINES SHALL BE PROVIDED AT THE CURB ADJACENT TO RAISED ISLANDS (SEE TYPICAL ISLAND DETAIL).
3. WHERE MARKINGS NORMALLY FOLLOW A PAVEMENT JOINT, SINGLE LINE MARKINGS SHALL BE PLACED ALONG ONE SIDE OF THE JOINT. DOUBLE LINE MARKINGS SHALL STRADDLE THE JOINT. LANE LINES ON ROADWAYS WHICH ARE MORE THAN TWO LANES WIDE AND HAVE LONGITUDINAL JOINTS BETWEEN ADJACENT LANES, SHALL BE PLACED ON THE SIDE OF THE JOINT WHICH WILL OBTAIN OPTIMUM LANE WIDTHS. THE SINGLE CENTER LINE OF A TWO–LANE PAVEMENT HAVING A CENTER LONGITUDINAL JOINT MAY BE PLACED ON EITHER SIDE OF THE JOINT.

   AT THE JUNCTION OF SINGLE AND DOUBLE LINE MARKINGS WHICH FOLLOW A PAVEMENT JOINT, THE SINGLE LINE SHALL BE AN EXTENSION OF EITHER OF THE DOUBLE LINES AND NOT THE SPACE BETWEEN THEM. AT THE JUNCTION OF SINGLE AND DOUBLE LINE MARKINGS WHICH DO NOT FOLLOW A PAVEMENT JOINT, THE SINGLE LINE MAY BE ALIGNED WITH THE CENTER OF THE DOUBLE LINE MARKING OR WITH EITHER LINE OF THE DOUBLE LINE.
4. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.



HATCHED ISLAND DETAIL

N.T.S.

SHOWN FOR RADIUS TAPER
STRAIGHT TAPER STRIPING SIMILAR

HATCH LINE DIMENSIONS				
TYPE	W	ø°	S	L
A	8"	15n	2'	10'
B	1'–0"	20n	3'	12'
C	2'–0"	45n	6'	11'

NOTE: TYPE SHALL BE AS PER PLAN. DEFAULT VALUE IS TYPE C UNLESS OTHERWISE SHOWN.

HATCH LINE

CHANNELIZING LINE	
TYPE A	8"
TYPE B	1'
TYPE C	2'
CROSS BAR	2'
CLEARANCE LINE	2'
STOP LINE	
TYPE A	1'–6"
TYPE B	2'

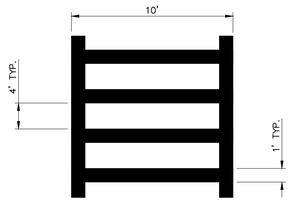
(SEE NOTE L1)

* – DEFAULT VALUE UNLESS OTHERWISE SHOWN ON THE PLANS.

ITEM Nos.
ITEM 685.11 (WHITE)
ITEM 685.12 (YELLOW)

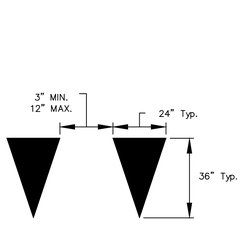
SUPPLEMENTAL LINES

N.T.S.



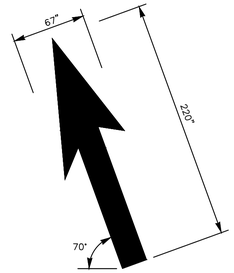
TYPICAL CROSSWALK DETAIL

N.T.S.



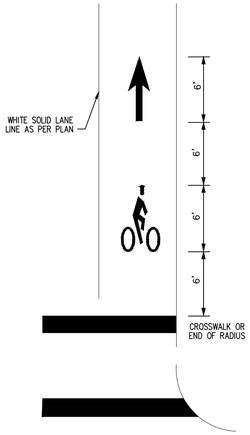
YIELD MARKING DETAIL

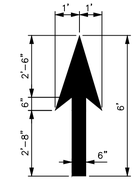
N.T.S.



MERGE ARROW

N.T.S.





BICYCLE ARROW

BICYCLE LANE MARKING NOTES:

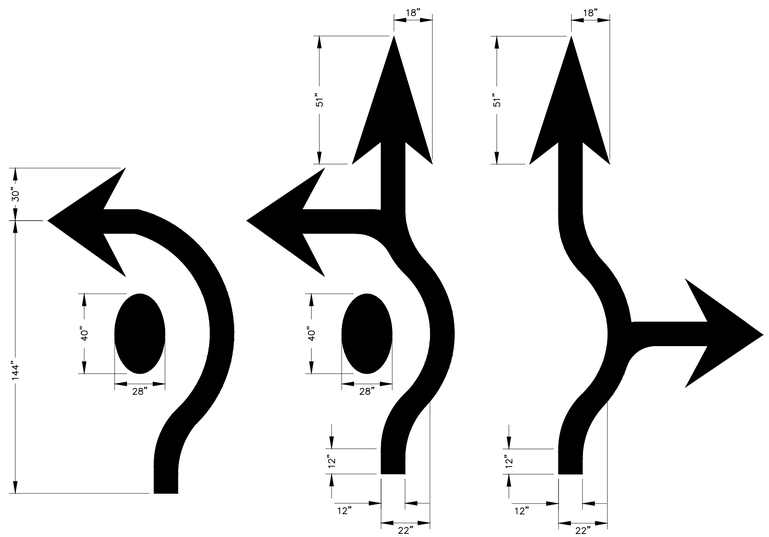
B1. CENTER BICYCLE SYMBOL AND LANE ARROW IN BIKE LANE

B2. PLACE BICYCLE LANE ARROW AND SYMBOL AFTER MAJOR OR SIGNALIZED INTERSECTIONS.

B3. PLACE BICYCLE SYMBOL AND LANE ARROW AS SHOWN ON PLANS ALONG BICYCLE LANE. SPACING SHOULD NOT EXCEED 1200'.

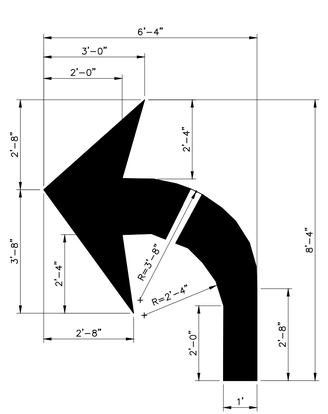
BICYCLE MARKINGS

N.T.S.



ROUNDABOUT APPROACH LANE "FISH-HOOK" MARKINGS

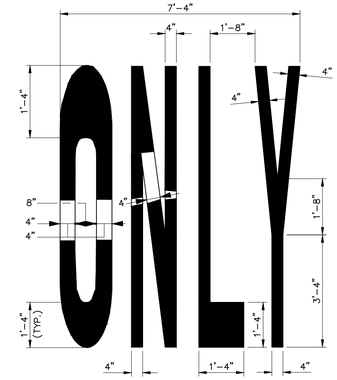
N.T.S.



TURN ARROW

ITEM 688.04

N.T.S.



"ONLY" LETTER

SEE NOTE 4
ITEM 688.03

N.T.S.

PROGRESS PRINT

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SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

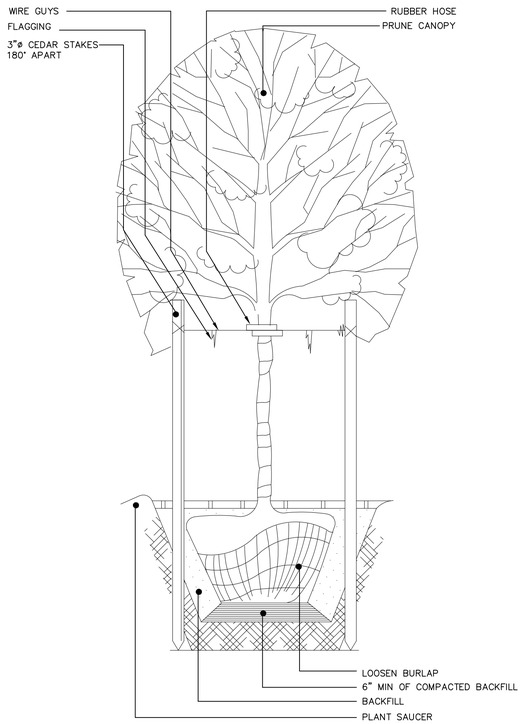
COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

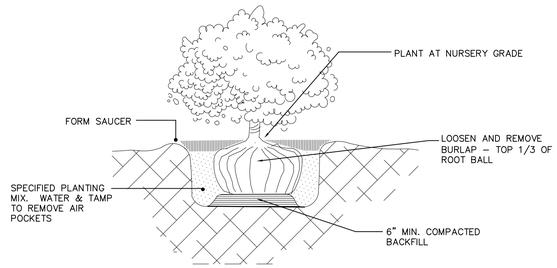
PAVEMENT MARKING DETAILS – 1
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	



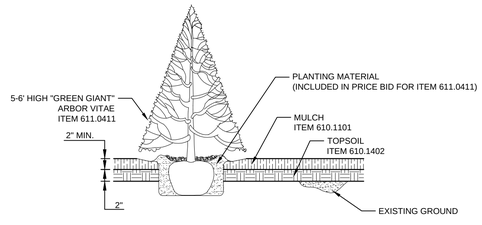
TREE PLANTING DETAIL

NOT TO SCALE
ITEM XXXX



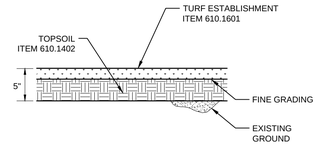
SHRUB PLANTING

NOT TO SCALE
ITEM XXXX



MULCH PLANTING BED DETAIL

NOT TO SCALE



TOPSOIL AND TURF ESTABLISHMENT DETAIL

NOT TO SCALE

PROGRESS PRINT

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SYMBOL	DESCRIPTION	APPROVED	DATE

REVISIONS

COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

LANDSCAPING DETAILS – 1
CR 94 ROUNDABOUT

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X

MATCHLINE
SEE CONSTRUCTION PLAN - 6
PECONIC AVE

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 9, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE SIDEWALK RAMP, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT IMPRINTED/ STAMPED CONCRETE SPLITTER ISLAND ITEM 608.01020005

CONSTRUCT CONCRETE CURB TYPE M-100 ITEM 609.04050510

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 10, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT IMPRINTED/ STAMPED CONCRETE SPLITTER ISLAND ITEM 608.01020005

CONSTRUCT CONCRETE CURB TYPE VR-150 ITEM 609.04010510

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT 5' WIDE CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 9, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE CURB TYPE M-100 ITEM 609.04050510

CONSTRUCT CONCRETE CURB TYPE VR-150 ITEM 609.04010510

CONSTRUCT 5' WIDE CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT 2.5' WIDE GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

MATCHLINE
SEE CONSTRUCTION PLAN - 2
NUGENT DRIVE (C.R. 94)

NUGENT DR (C.R. 94)

MATCHLINE
SEE CONSTRUCTION PLAN - 2
WOODHULL AVE

WOODHULL AVENUE

WOODHULL AVE

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 10, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT CONCRETE CURB TYPE VR-150 ITEM 609.04010510

EXISTING UNDERGROUND ELECTRIC TO REMAIN FOR FLAG POLE LIGHTING

INSTALL PVC CONDUIT FOR FUTURE SCDPW IRRIGATION TO CENTER MEDIAN

MEET EXISTING SIDEWALK

CONSTRUCT 5' WIDE CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT 2.5' WIDE GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 1, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 10, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE CURB TYPE M-100 ITEM 609.04050510

CONSTRUCT IMPRINTED/ STAMPED CONCRETE TRUCK APRON SPLITTER ISLAND ITEM 608.01020005 SEE DETAIL

CONSTRUCT CONCRETE DRIVEWAY APRON ITEM 608.01101015

MATCHLINE
SEE CONSTRUCTION PLAN - 3
LAKE AVE (C.R. 63)

LAKE AVE (C.R. 63)

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 1, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT CONCRETE CURB TYPE VR-150 ITEM 609.04010510

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 10, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT CONCRETE CURB TYPE VR-150 ITEM 609.04010510

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 10, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 1, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT IMPRINTED/ STAMPED CONCRETE SPLITTER ISLAND ITEM 608.01020005

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 1, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE CURB TYPE M-100 ITEM 609.04050510

CONSTRUCT CONCRETE DRIVEWAY APRON ITEM 608.01101015

MEET EXISTING SIDEWALK

FLANDERS RD (N.Y.S. 24)

MATCHLINE
SEE CONSTRUCTION PLAN - 5
(FLANDERS ROAD (N.Y.S. 24)

CONSTRUCT CONCRETE SIDEWALK RAMP, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 9, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT CONCRETE CURB TYPE VR-150 ITEM 609.04010510

RIVERLEIGH AVE (C.R. 104)

MATCHLINE
SEE CONSTRUCTION PLAN - 4
RIVERLEIGH AVE (C.R. 104)

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 10, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE CURB TYPE M-100 ITEM 609.04050510

CONSTRUCT IMPRINTED/ STAMPED CONCRETE SPLITTER ISLAND ITEM 608.01020005

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT CONCRETE CURB TYPE VR-150 ITEM 609.04010510

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 10, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT STAMPED ASPHALT TRUCK APRON

CONSTRUCT CONCRETE CURB TYPE T-100 ITEM 609.04070510

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 1, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT IMPRINTED/ STAMPED CONCRETE SPLITTER ISLAND ITEM 608.01020005

CONSTRUCT CONCRETE SIDEWALK CURB RAMP TYPE 1, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS, ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

CONSTRUCT CONCRETE CURB TYPE M-100 ITEM 609.04050510

CONSTRUCT CONCRETE DRIVEWAY APRON ITEM 608.01101015

MEET EXISTING SIDEWALK

138-2-31

N

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

LEGEND:
SEE SHEET No. 2 FOR ADDITIONAL SYMBOLS

- FULL DEPTH ASPHALT TRAVEL PAVEMENT RESTORATION
- BUTT-JOINT
- ASPHALT DRIVEWAY PAVEMENT RESTORATION
- RAIN GARDEN, VEGETATED SWALE AREA

PROGRESS PRINT

NELSON & POPE
ENGINEERS · SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
631.427.5665 WWW.NELSONPOPE.COM FAX 631.427.5620

SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. - COMMISSIONER

C.R. 94 ROUNDABOUT

CONSTRUCTION PLAN - 1
OVERALL ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT. 2015	

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

LEGEND:
SEE SHEET No. 2 FOR ADDITIONAL SYMBOLS

- FULL DEPTH ASPHALT TRAVEL PAVEMENT RESTORATION
- BUTT-JOINT
- ASPHALT DRIVEWAY PAVEMENT RESTORATION
- RAIN GARDEN, VEGETATED SWALE AREA

CONSTRUCT CONCRETE CURB TYPE VR-150, ITEM 609.04010510

CONSTRUCT CONCRETE CURB TYPE M-100, ITEM 609.04050510

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT IMPRINTED/ STAMPED CONCRETE SPLITTER ISLAND ITEM 608.01020005

MEET EXISTING CURB AND SIDEWALK

NUGENT DRIVE (C.R. 94)

NUGENT DRIVE CR.94

NF 10+00 NF 11+00 NF 12+00 NF 13+00 NF 14+00

MATCHLINE SEE CONSTRUCTION PLAN - 1 OVERALL ROUNDABOUT

MATCHLINE SEE CONSTRUCTION PLAN - 1 OVERALL ROUNDABOUT

WOODHULL AVENUE

LIMITS OF RESURFACING

MEET EXISTING CURB AND SIDEWALK

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT CONCRETE BICYCLE RAMP, ITEM 608.0101 WITH CAST IRON EMBEDDED DETECTABLE WARNING UNITS ITEM 608.21000003 (SEE DETECTABLE WARNING PLACEMENT DETAILS)

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SYMBOL	DESCRIPTION	APPROVED	DATE

REVISIONS

COUNTY OF SUFFOLK
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C.R. 94 ROUNDABOUT

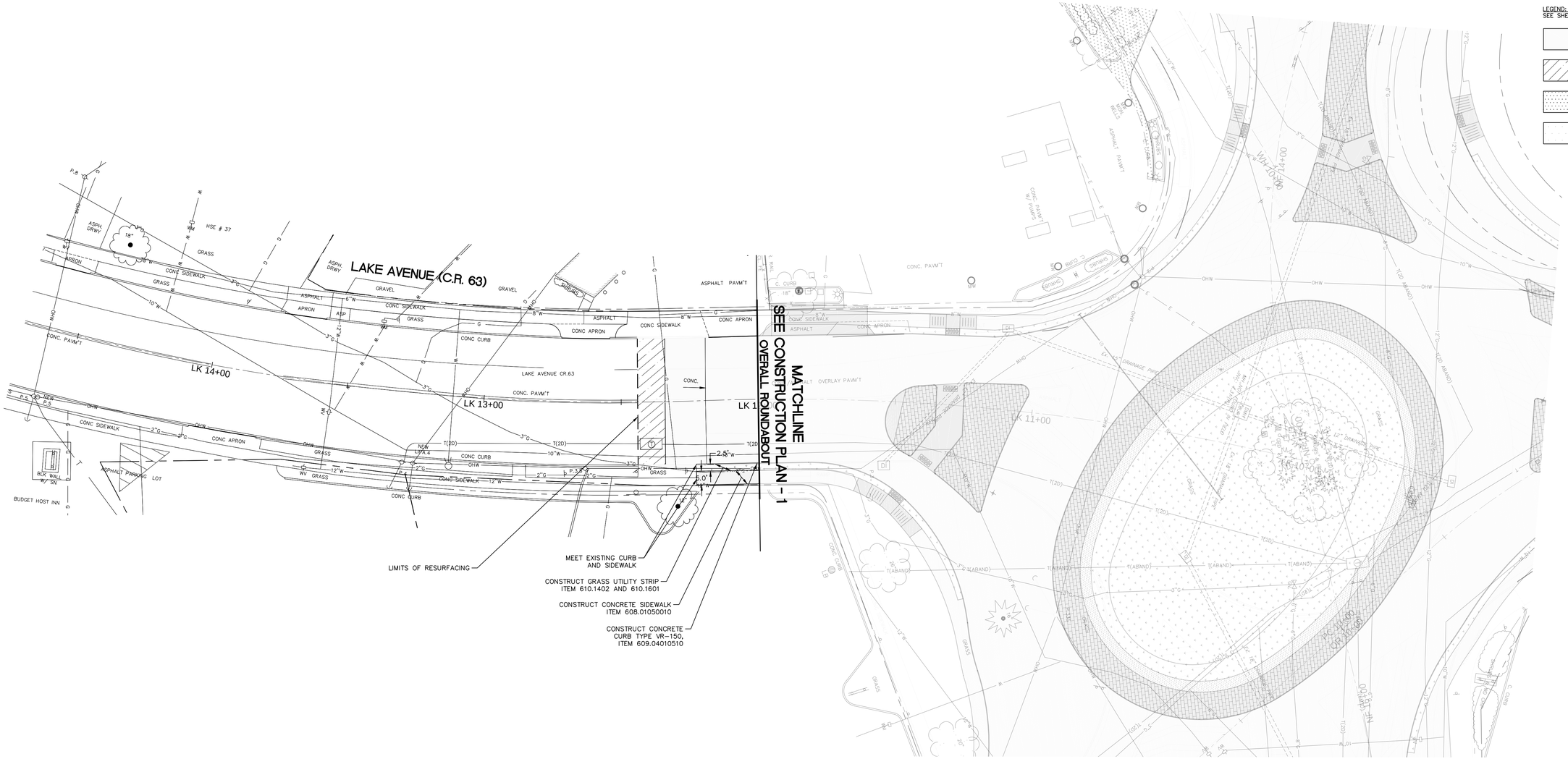
CONSTRUCTION PLAN – 2
NUGENT DRIVE (C.R. 94)

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT. 2015	

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

LEGEND:
SEE SHEET No. 2 FOR ADDITIONAL SYMBOLS

- FULL DEPTH ASPHALT TRAVEL PAVEMENT RESTORATION
- BUTT-JOINT
- ASPHALT DRIVEWAY PAVEMENT RESTORATION
- RAIN GARDEN, VEGETATED SWALE AREA



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SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

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C.R. 94 ROUNDABOUT

CONSTRUCTION PLAN – 3
LAKE AVE (C.R. 63)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT. 2015	X OF X

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

LEGEND:
SEE SHEET No. 2 FOR ADDITIONAL SYMBOLS

- FULL DEPTH ASPHALT TRAVEL PAVEMENT RESTORATION
- BUTT-JOINT
- ASPHALT DRIVEWAY PAVEMENT RESTORATION
- RAIN GARDEN, VEGETATED SWALE AREA

MATCHLINE
SEE CONSTRUCTION PLAN - 1
OVERALL ROUNDABOUT

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

CONSTRUCT GRASS UTILITY STRIP ITEM 610.1402 AND 610.1601

CONSTRUCT CONCRETE CURB TYPE VR-150, ITEM 609.04010510

CONSTRUCT CONCRETE DRIVEWAY APRON ITEM 608.01101015

MEET EXISTING SIDEWALK

MEET EXISTING CURB

RIVERLEIGH AVENUE (C.R. 104)

QUOGUE-RIVERHEAD ROAD CR.104

QR 13+00

QR 14+00

QR 15+00

QR 15+66

LIMITS OF RESURFACING

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SYMBOL	DESCRIPTION	APPROVED	DATE

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C.R. 94 ROUNDABOUT

CONSTRUCTION PLAN - 4
RIVERLEIGH AVE (C.R. 104)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT. 2015	X OF X

LEGEND:
SEE SHEET No. 2 FOR ADDITIONAL SYMBOLS

- FULL DEPTH ASPHALT TRAVEL PAVEMENT RESTORATION
- BUTT-JOINT
- ASPHALT DRIVEWAY PAVEMENT RESTORATION
- RAIN GARDEN, VEGETATED SWALE AREA

N

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

MATCHLINE
SEE CONSTRUCTION PLAN - 1
OVERALL ROUNDABOUT

FLANDERS ROAD (N.Y.S. 24)

NF 17+00 | NF 18+00 | NF 19+00 | NF 20+00 | NF 21+00

CONSTRUCT CONCRETE DRIVEWAY APRON ITEM 608.0101015

CONSTRUCT CONCRETE CURB TYPE VR-150, ITEM 609.04010510

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

RELOCATE EXISTING BUS SHELTER APPROX. 210' EAST

LIMITS OF RESURFACING

MEET EXISTING CURB AND SIDEWALK

CONSTRUCT CONCRETE DRIVEWAY APRON ITEM 608.01101015

CONSTRUCT MID-BLOCK BUS TURNOUT.

CONSTRUCT CONCRETE CURB TYPE VR-150, ITEM 609.04010510

CONSTRUCT CONCRETE SIDEWALK ITEM 608.01050010

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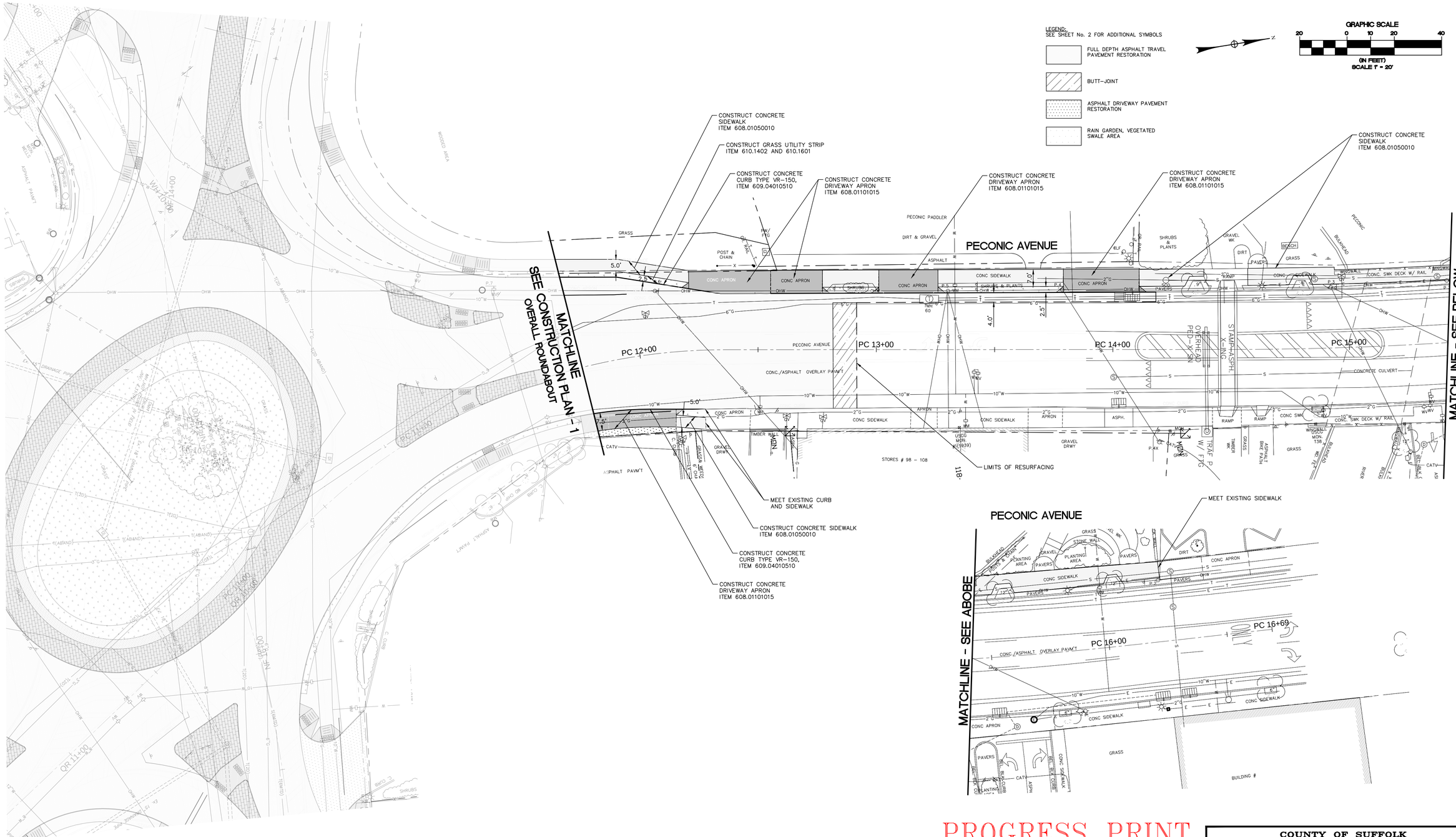
C.R. 94 ROUNDABOUT

CONSTRUCTION PLAN - 5
FLANDERS RD (N.Y.S. 24)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT. 2015	X OF X



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C.R. 94 ROUNDABOUT	
CONSTRUCTION PLAN – 6 PECONIC AVENUE	

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SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT. 2015	X OF X


MATCHLINE
SEE GRADING AND DRAINAGE PLAN -6
PECONIC AVE
INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 5.50 INV. 3.35 (24)
INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE RIM 7.21 N INV. 3.38 S INV. 3.81 NE INV. 3.24 (23)
INSTALL 6'ø MH RIM 8.70 N. INV. 3.88 S. INV. 3.88 E. INV 3.18 (22)
INSTALL MH RIM 7.20 INV. 2.50 (26)
INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 5.83 INV. 2.45 (25)
(27) INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE CONNECT TO EXISTING DRAINAGE SYSTEM, REMOVE REMAINDER OF PIPE SOUTH OF STRUCTURE. RIM 5.92 INV. 2.75
(28) INSTALL 6'ø MH RIM 12.0 SE INV. 6.25 W INV. 5.08
INSTALL 12" CPP MANIFOLD PIPES (TYP.)
INSTALL 97LF 18" CPP ECCENTRIC HEADER TREATMENT SYSTEM
(29) INSTALL 6'ø MH WITH OVERFLOW WEIR RIM 12.00 INV.S 6.45
(30) VORTECH 4000 OR APPROVED EQUAL RIM 12.0 NW INV. 6.58 SW INV. 6.58
EXISTING DRAINAGE STRUCTURE TO REMAIN ADJUST STRUCTURE TO FINAL GRADE AND REPLACE WITH CLOSED COVER RIM= 8.88
GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'
MATCHLINE
SEE GRADING AND DRAINAGE PLAN - 2
NUGENT DRIVE (C.R. 94)
NUGENT DR (C.R. 94)
PECONIC AVE
FLANDERS RD (N.Y.S. 24)
MATCHLINE
SEE GRADING AND DRAINAGE PLAN - 5
(FLANDERS ROAD (N.Y.S. 24))
INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE RIM 9.80 INV. 6.63 (21)
INSTALL CATCH BASIN TYPE C RIM 9.10 INV. 6.56 (20)
INSTALL CATCH BASIN TYPE C RIM 9.10 INV. 6.46 (19)
WOODHULL AVE
MATCHLINE
SEE GRADING AND DRAINAGE PLAN 2
WOODHULL AVE
(1) INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE CONNECT TO EXISTING DRAINAGE SYSTEM, REMOVE REMAINDER OF PIPE SOUTH OF STRUCTURE. RIM 8.70 N. INV. 5.30
REMOVE EXISTING DRAINAGE PIPE SOUTH OF PROPOSED STRUCTURE NO. 1
138-2-31
(2) INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 10.00 INV. 6.83
INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE RIM 10.82 N INV. 6.36 NW INV. 6.36 E INV. 6.87 (18)
INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE RIM 10.40 INV. 6.95 (17)
INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE RIM 8.75 INV. 5.60 (16)
INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 6.50 INV. 4.50 (15)
INSTALL CATCH BASIN TYPE A RIM 7.17 N INV. 3.99 E INV. 3.99 (14)
INSTALL CATCH BASIN TYPE C RIM 6.50 INV. 4.40 (13)
INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE RIM 7.0 NW INV. 4.05 S INV. 4.05 (12)
INSTALL STORMTECH MC 3500 CHAMBERS WITH END CAPS, OR APPROVED EQUAL (TYP.) INV. 6.25 (11)
INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 8.90 INV. 5.73 (10)
INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 9.29 NW INV. 5.55 NE INV. 5.55 (9)
INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 8.53 N,S,SW INV. 5.11 (8)
INSTALL CATCH BASIN TYPE C RIM 8.0 INV. 5.18 (7)
(6) INSTALL 6'ø MH RIM 12.0 NE INV. 6.59 SE INV. 5.91 SW INV 4.93
(5) INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 9.23 INV. 6.06
(4) INSTALL CATCH BASIN TYPE C RIM 8.0 INV. 6.0
INSTALL CATCH BASIN TYPE C W/ CURB BOX, FRAME AND GRATE RIM 10.14 INV. 6.20 (3)
MATCHLINE
SEE GRADING AND DRAINAGE PLAN - 3
LAKE AVE (C.R. 63)
MATCHLINE
SEE GRADING AND DRAINAGE PLAN - 4
RIVERLEIGH AVE (C.R. 104)
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COUNTY OF SUFFOLK
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C.R. 94 ROUNDABOUT

GRADING AND DRAINAGE PLAN – 1
OVERALL ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

INSTALL CATCH BASIN TYPE C (35)
RIM 5.0
INV. 2.81

INSTALL CATCH BASIN TYPE C (36)
RIM 5.25
INV. 3.10

B-1
(SEE TABLE THIS SHEET)

VORTECH 5000 OR APPROVED EQUAL (34)
RIM 9.92
INLET INV. 4.50
OUTLET INV. 4.50

B-3
(SEE TABLE THIS SHEET)

INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE (33)
RIM 8.10
E INV. 4.75
S INV. 4.75

HEADWALL
INV. 4.40

OUTLET INTO CONIC RIVER

NF 10+00 NF 11+00 NF 12+00

ASPHALT PAVM'T

CONC. PAVM'T

NUGENT DRIVE CR.94

CONC. SIDEWALK

GR. RAIL

CONC. BLK WALL

DRAIN (VINYL FENCE (DILAPIDATED))

NUGENT DRIVE (C.R. 94)

CONC. ABUT. WALL

B-2
(SEE TABLE THIS SHEET)

INSTALL CATCH BASIN TYPE A W/ CURB BOX, FRAME AND GRATE (32)
RIM 8.10
N INV. 4.93

INSTALL LEACHING BASIN TYPE B-1 (31)
W/ CURB BOX, FRAME AND GRATE
RIM 10.64
N INV. 6.21
SE INV. 6.21

MATCHLINE
SEE GRADING AND DRAINAGE PLAN - 1
OVERALL ROUNDABOUT

NF 13+00 NF 14+00

WOODED AREA

ASPHALT PAVM'T

CONC. CURB

MATCHLINE - SEE GDP-1
OVERALL ROUNDABOUT

WOODHULL AVENUE

BORING LOG# B-1
NORTH SIDE
NUGENT DRIVE (C.R. 94)
STA. NF10+29±
GRADE EL.=6.7
TURF
1'
2'
3'
4'
5'
DTW = 52 IN BELOW GRADE

BORING LOG# B-2
SOUTH SIDE
NUGENT DRIVE (C.R. 94)
STA. NF10+28±
GRADE EL.=6.3
TURF
1'
2'
3'
4'
5'
DTW = 36 IN BELOW GRADE

BORING LOG# B-3
NORTH SIDE
NUGENT DRIVE (C.R. 94)
STA. NF11+44±
GRADE EL.=7.6
TURF
1'
2'
3'
4'
5'
DTW = 49 IN BELOW GRADE

DATE: SEPT 2015
CONDUCTED BY: NELSON AND POPE ENGINEERS AND SURVEYORS, LLP

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	REVISIONS		

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YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

GRADING AND DRAINAGE PLAN – 2
NUGENT DRIVE (C.R. 94)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X

GRAPHIC SCALE
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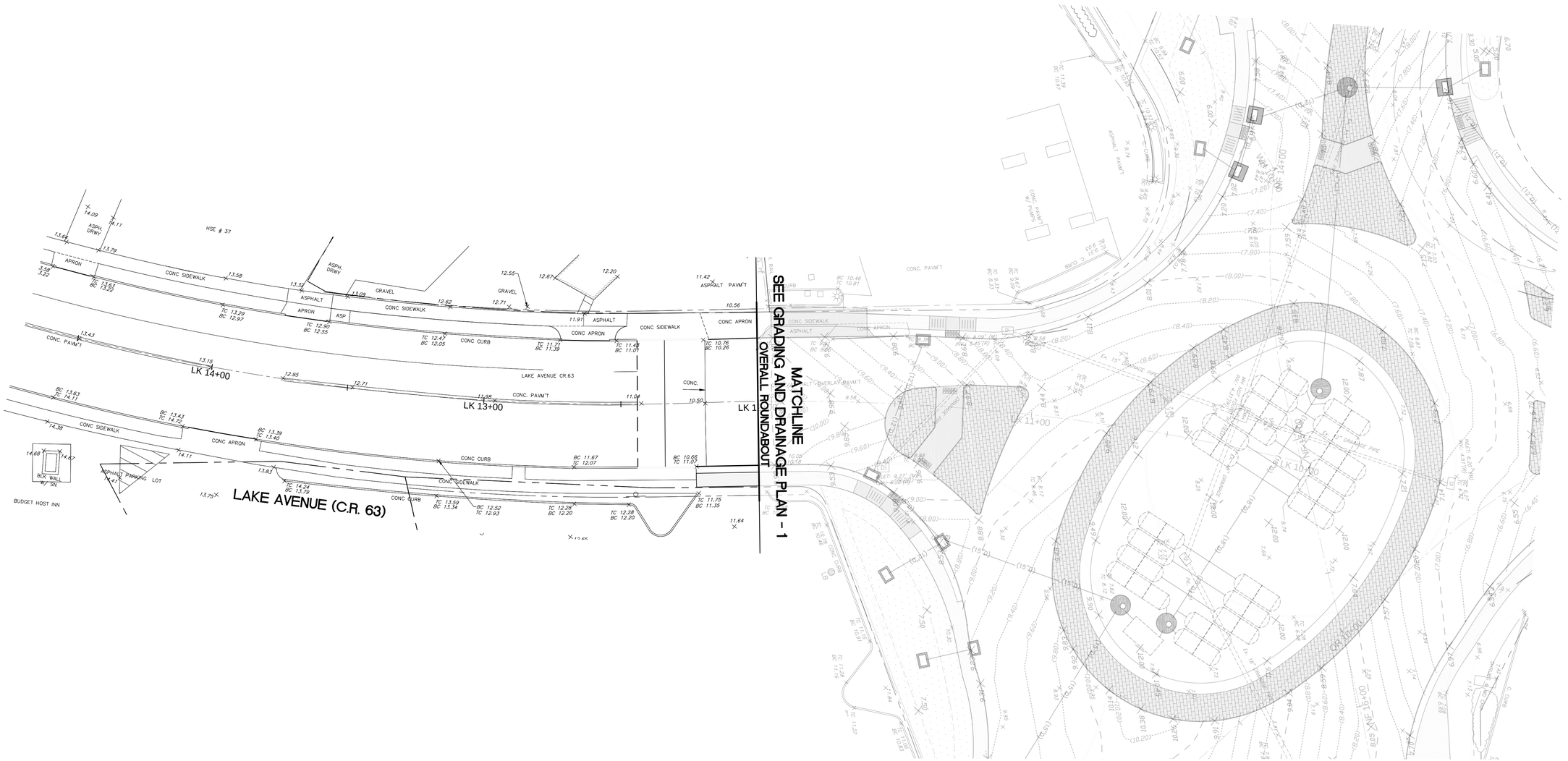
(IN FEET)
SCALE 1" = 20'

N



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COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

GRADING AND DRAINAGE PLAN – 3
LAKE AVE (C.R. 63)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

SEE GRADING AND DRAINAGE PLAN – 1
MATCHLINE
OVERALL ROUNDABOUT

RIVERLEIGH AVENUE (C.R. 104)

QR 10+00 QR 11+00 QR 12+00 QR 13+00 QR 14+00 QR 15+00 QR 15+66

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	REVISIONS		

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C.R. 94 ROUNDABOUT

GRADING AND DRAINAGE PLAN – 4
RIVERLEIGH AVE (C.R. 104)

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

SEE GRADING AND DRAINAGE PLAN - 1
OVERALL ROUNDABOUT

MATCHLINE

CLEAN EXISTING CATCH BASINS
ITEM 621.04

FLANDERS ROAD (N.Y.S. 24)

CLEAN EXISTING CATCH BASIN
ITEM 621.04

CLEAN EXISTING CATCH BASIN
ITEM 621.04

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C.R. 94 ROUNDABOUT

GRADING AND DRAINAGE PLAN - 5
FLANDERS RD (N.Y.S. 24)

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

MATCHLINE
SEE GRADING AND DRAINAGE PLAN - 1
OVERALL ROUNDABOUT

PECONIC AVENUE

CLEAN EXISTING CATCH BASINS
ITEM 621.04

CLEAN EXISTING CATCH BASIN
ITEM 621.04

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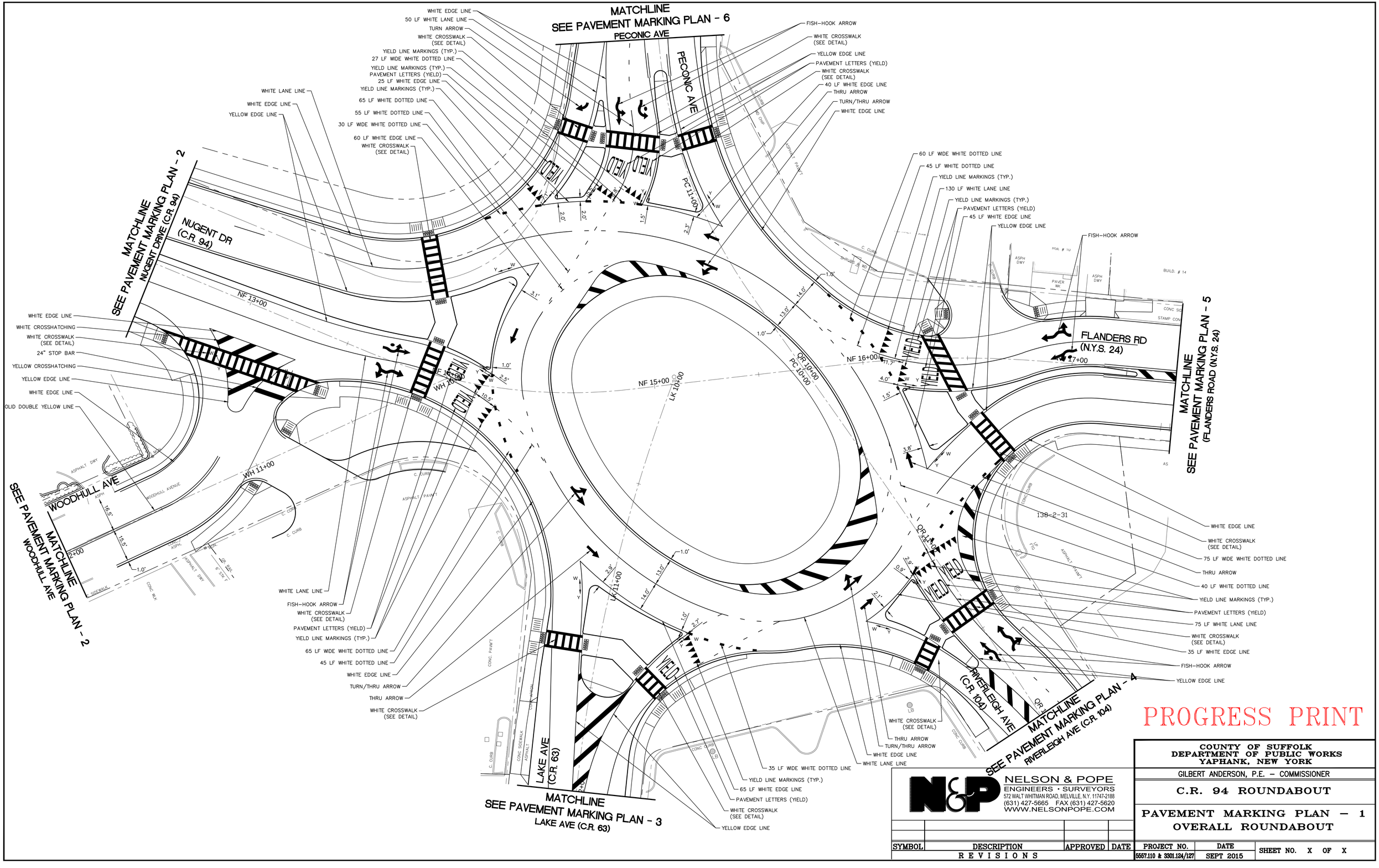
C.R. 94 ROUNDABOUT

GRADING AND DRAINAGE PLAN – 6
PECONIC AVENUE

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X



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C.R. 94 ROUNDABOUT

PAVEMENT MARKING PLAN – 1
OVERALL ROUNDABOUT

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X

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C.R. 94 ROUNDABOUT

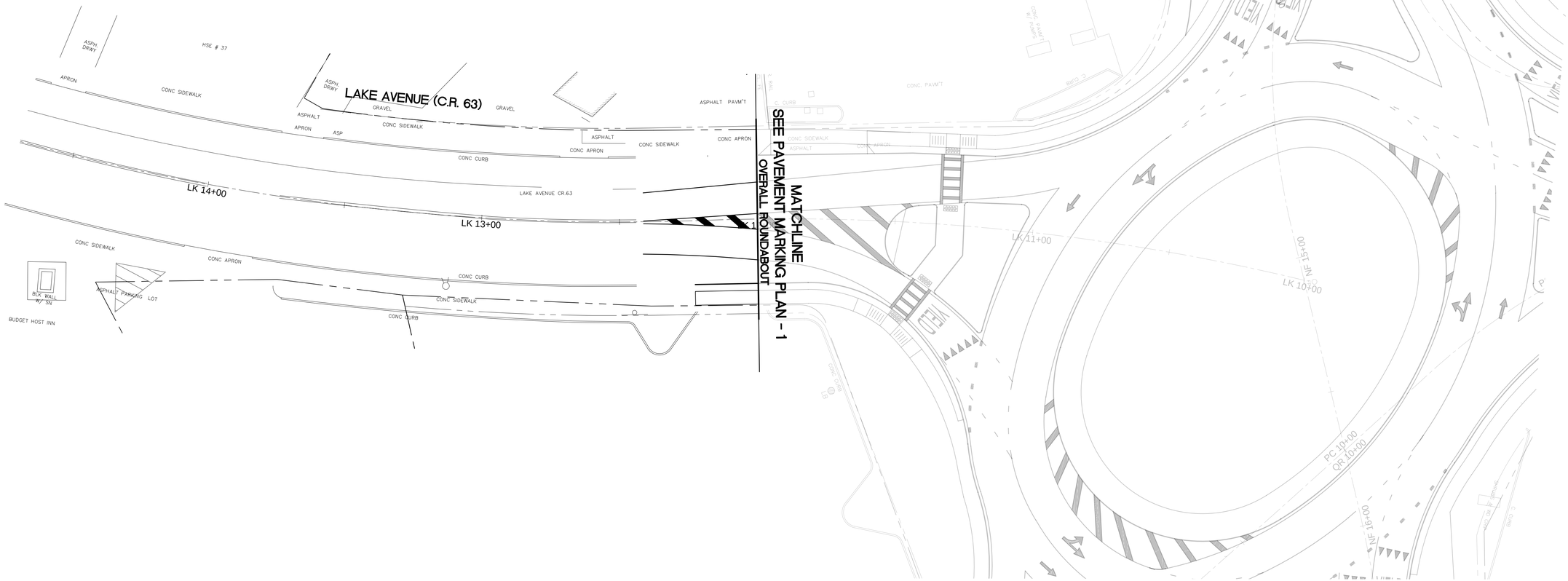
PAVEMENT MARKING PLAN – 2
NUGENT DRIVE (C.R. 94)

SYMBOL	DESCRIPTION	APPROVED	DATE

REVISIONS

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'



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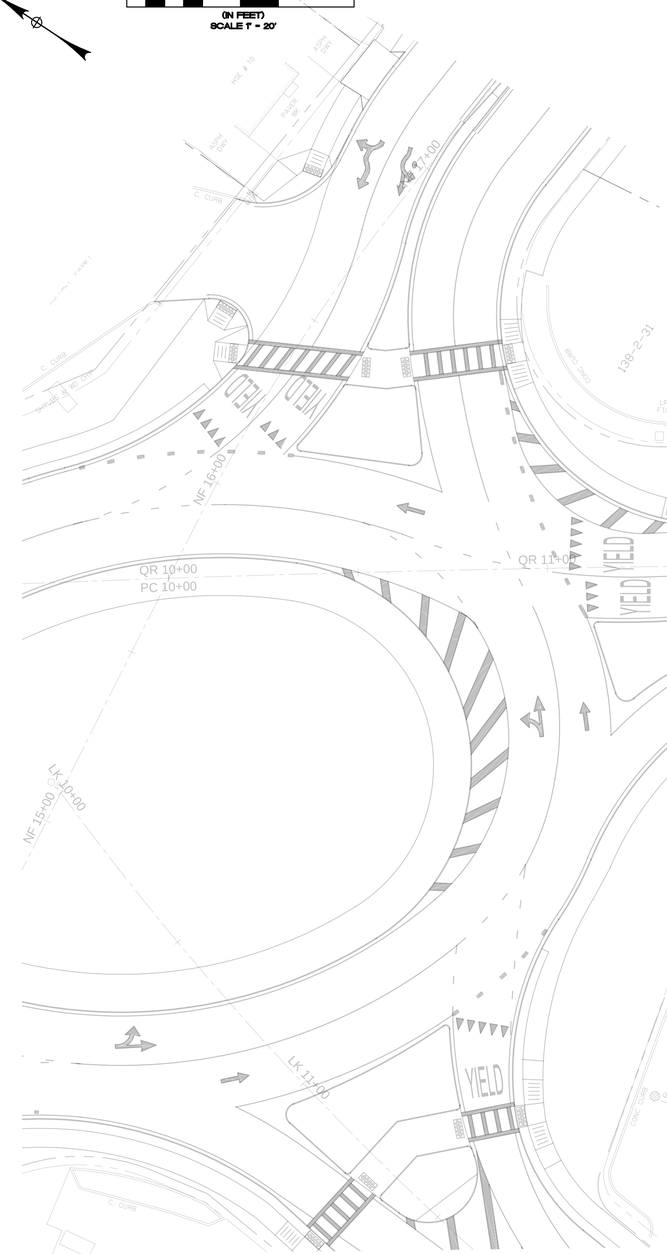
C.R. 94 ROUNDABOUT

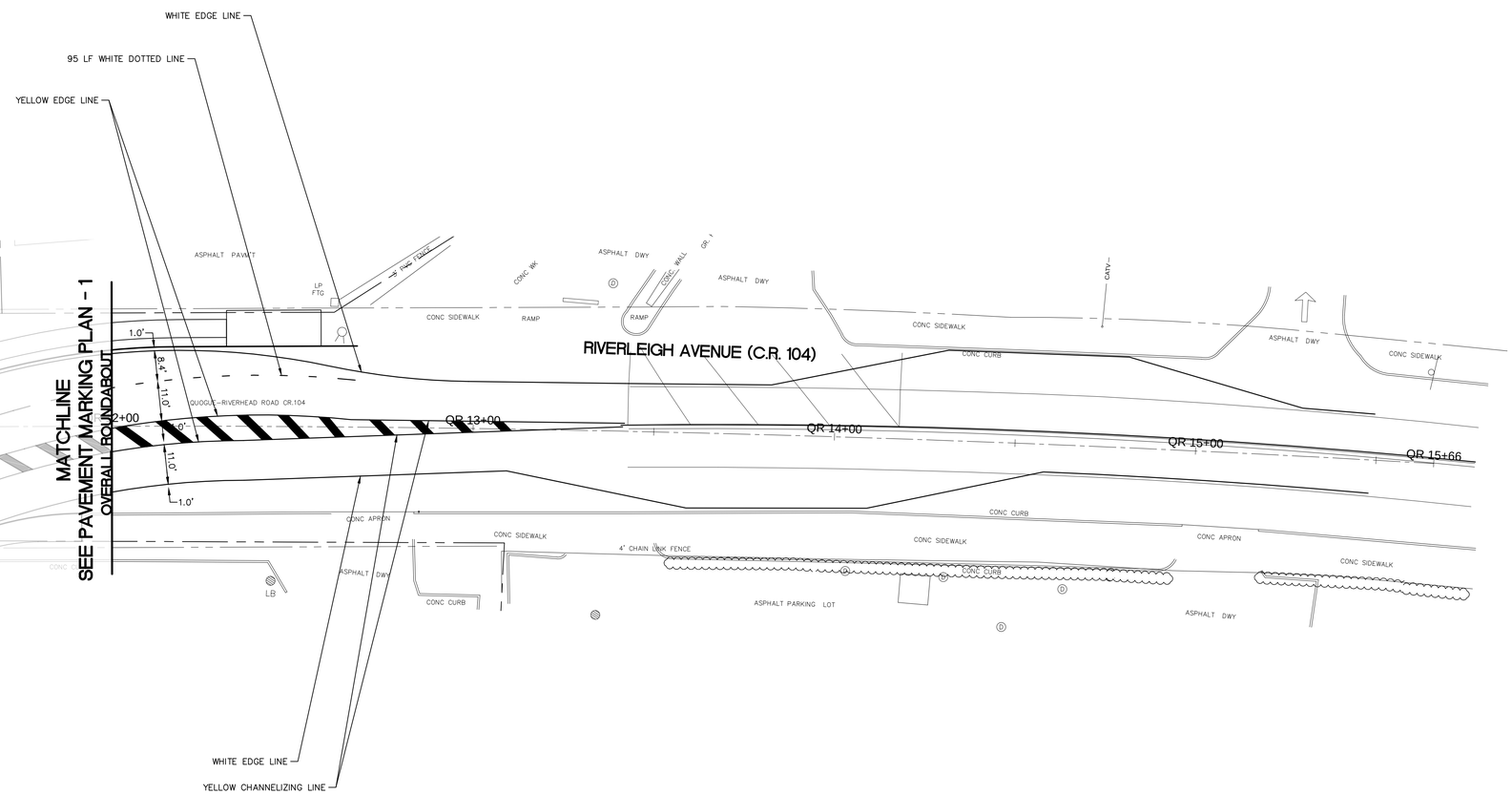
PAVEMENT MARKING PLAN – 3
LAKE AVE (C.R. 63)

PROJECT NO.	DATE	SHEET NO.
5567.110 & 3301.124/127	SEPT 2015	X OF X

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

N





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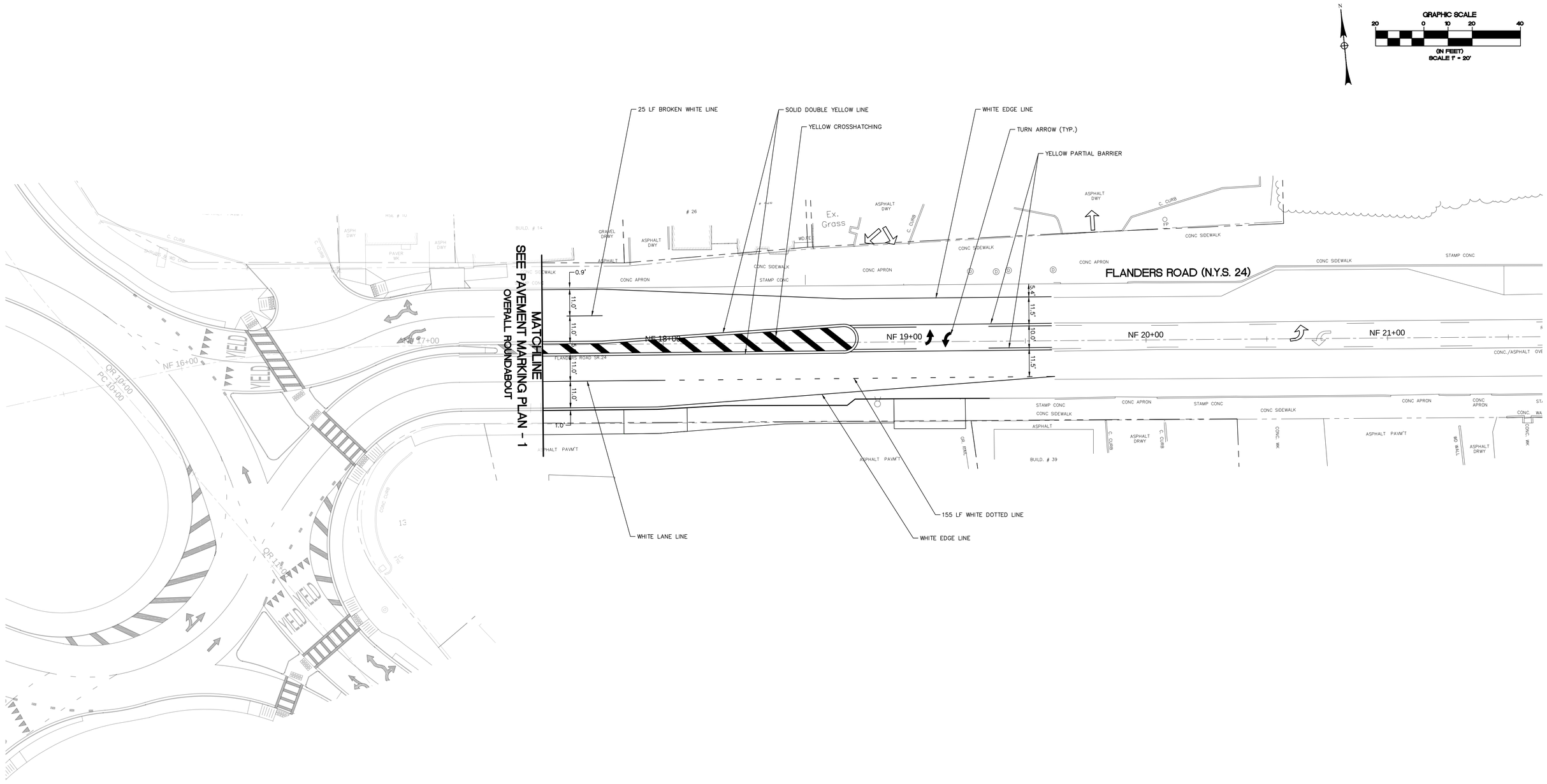
PAVEMENT MARKING PLAN – 4
RIVERLEIGH AVE (C.R. 104)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	SHEET NO. X OF X



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COUNTY OF SUFFOLK
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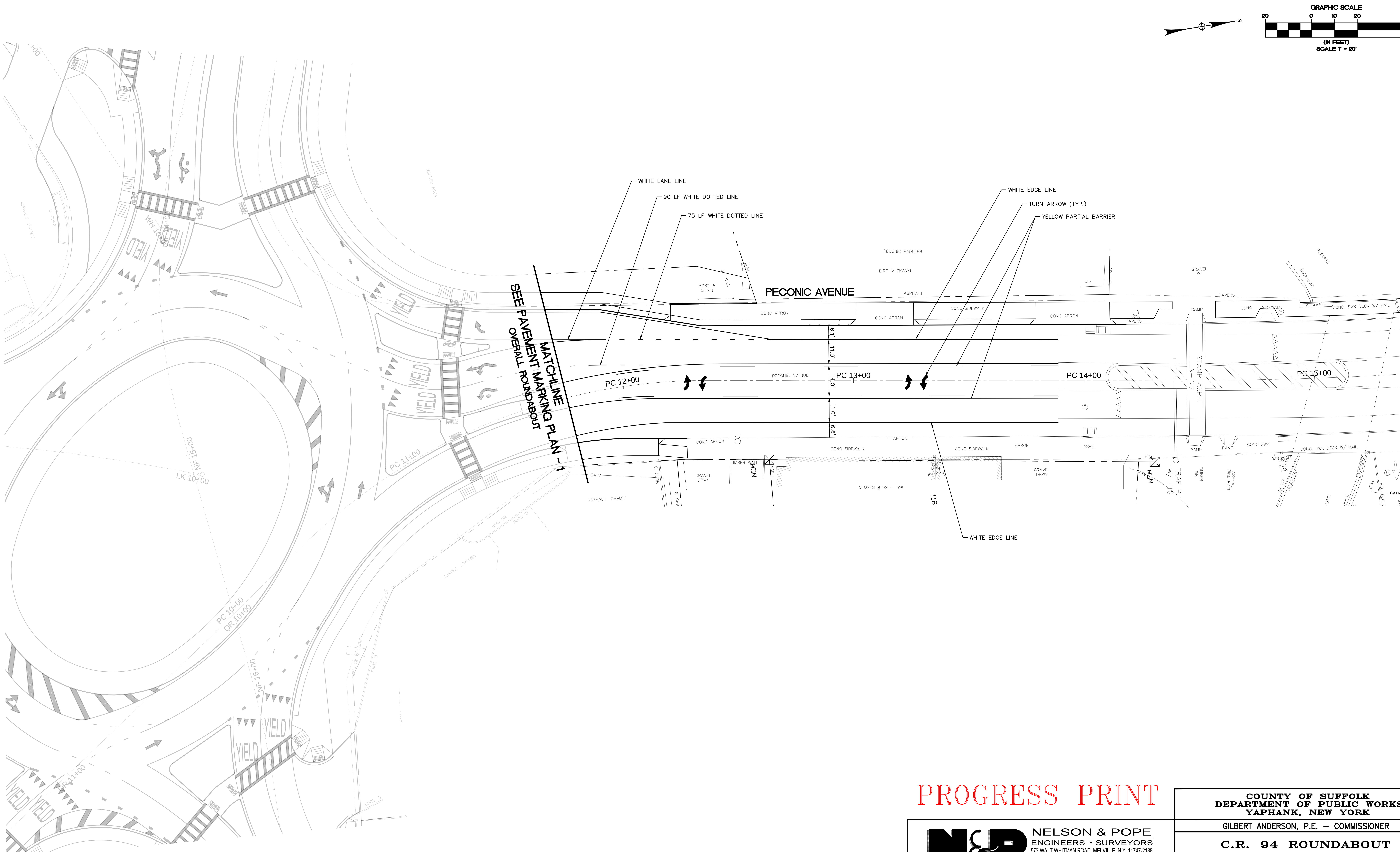
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

PAVEMENT MARKING PLAN – 5
FLANDERS RD (N.Y.S. 24)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X



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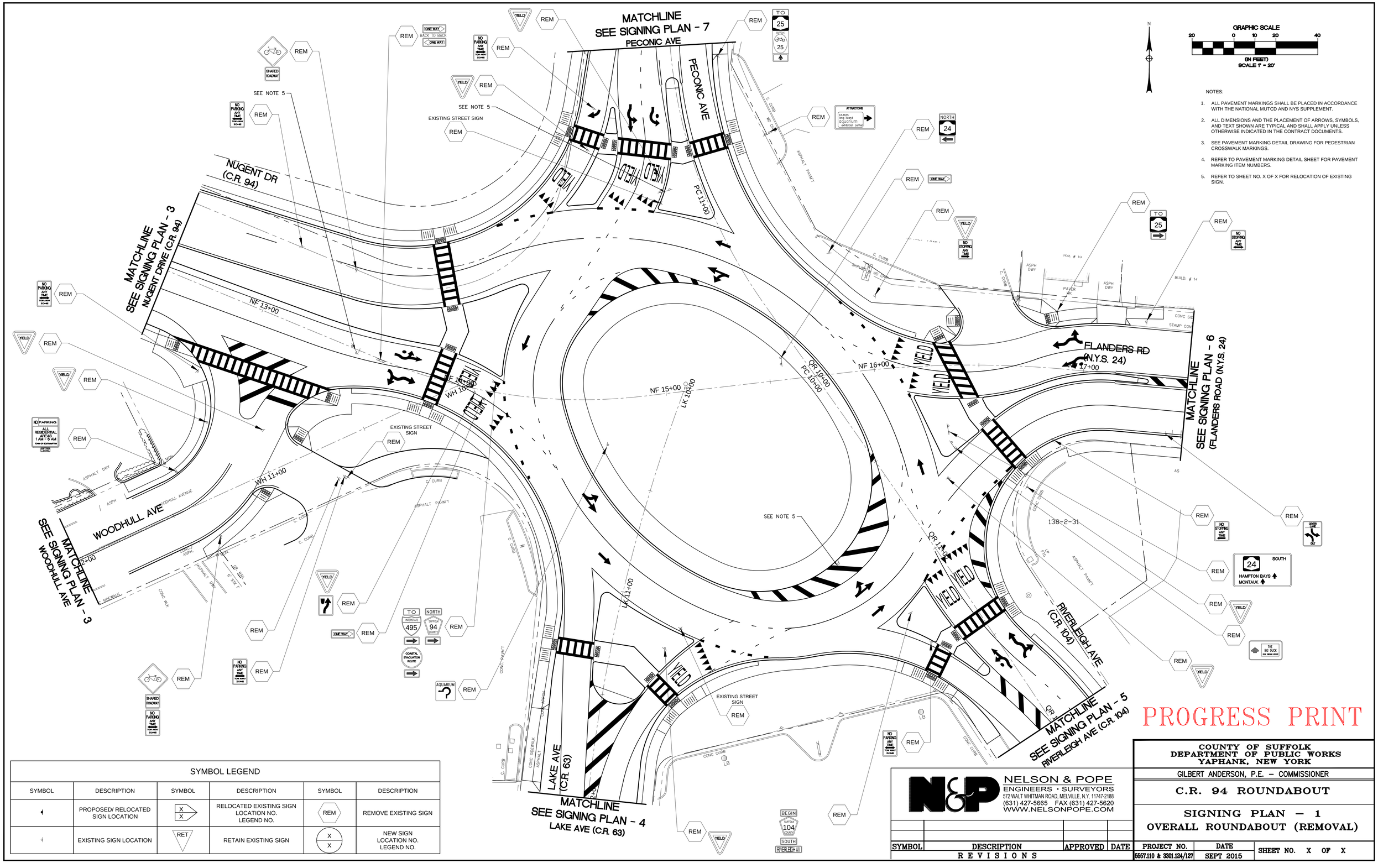
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

PAVEMENT MARKING PLAN – 6
PECONIC AVENUE

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	



N

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
3. SEE PAVEMENT MARKING DETAIL DRAWING FOR PEDESTRIAN CROSSWALK MARKINGS.
4. REFER TO PAVEMENT MARKING DETAIL SHEET FOR PAVEMENT MARKING ITEM NUMBERS.
5. REFER TO SHEET NO. X OF X FOR RELOCATION OF EXISTING SIGN.

PROGRESS PRINT

SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROPOSED/ RELOCATED SIGN LOCATION	X / X	RELOCATED EXISTING SIGN LOCATION NO. LEGEND NO.	REM	REMOVE EXISTING SIGN
	EXISTING SIGN LOCATION	RET	RETAIN EXISTING SIGN	X / X	NEW SIGN LOCATION NO. LEGEND NO.

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COUNTY OF SUFFOLK
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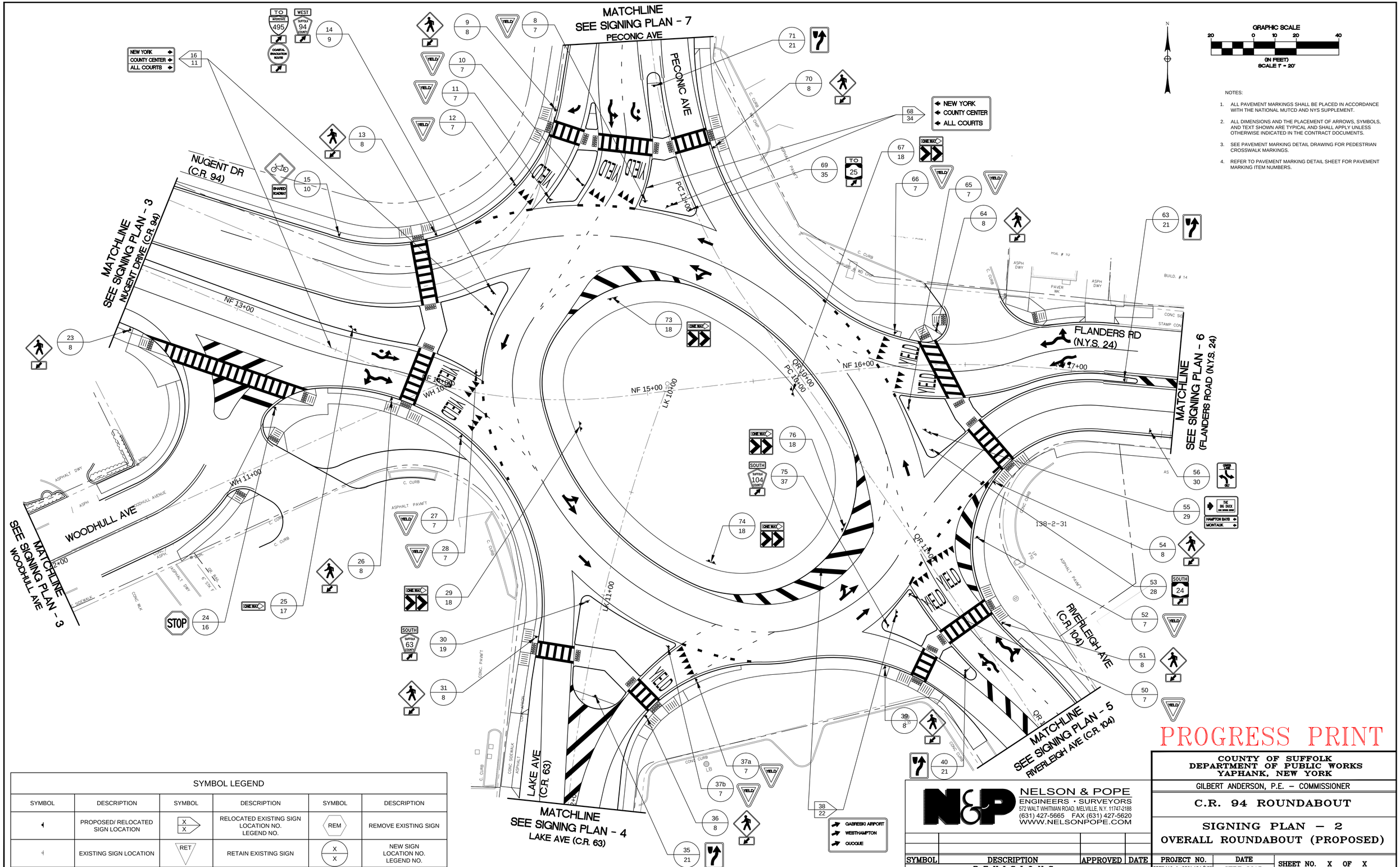
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

SIGNING PLAN – 1
OVERALL ROUNDABOUT (REMOVAL)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X



GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
3. SEE PAVEMENT MARKING DETAIL DRAWING FOR PEDESTRIAN CROSSWALK MARKINGS.
4. REFER TO PAVEMENT MARKING DETAIL SHEET FOR PAVEMENT MARKING ITEM NUMBERS.

SYMBOL LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROPOSED/ RELOCATED SIGN LOCATION	X / X	RELOCATED EXISTING SIGN LOCATION NO. LEGEND NO.	REM	REMOVE EXISTING SIGN
	EXISTING SIGN LOCATION	RET	RETAIN EXISTING SIGN	X / X	NEW SIGN LOCATION NO. LEGEND NO.

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COUNTY OF SUFFOLK
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YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

SIGNING PLAN – 2
OVERALL ROUNDABOUT (PROPOSED)

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

NUGENT DRIVE (C.R. 94)

MATCHLINE
SEE SIGNING PLAN - 1
OVERALL ROUNDABOUT

MATCHLINE
SEE SIGNING PLAN - 1 AND/OR 2
OVERALL ROUNDABOUT

WOODHULL AVENUE

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
3. SEE PAVEMENT MARKING DETAIL DRAWING FOR PEDESTRIAN CROSSWALK MARKINGS.
4. REFER TO PAVEMENT MARKING DETAIL SHEET FOR PAVEMENT MARKING ITEM NUMBERS.

SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROPOSED/ RELOCATED SIGN LOCATION	X / X	RELOCATED EXISTING SIGN LOCATION NO. LEGEND NO.	REM	REMOVE EXISTING SIGN
	EXISTING SIGN LOCATION	RET	RETAIN EXISTING SIGN	X / X	NEW SIGN LOCATION NO. LEGEND NO.

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SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

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YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

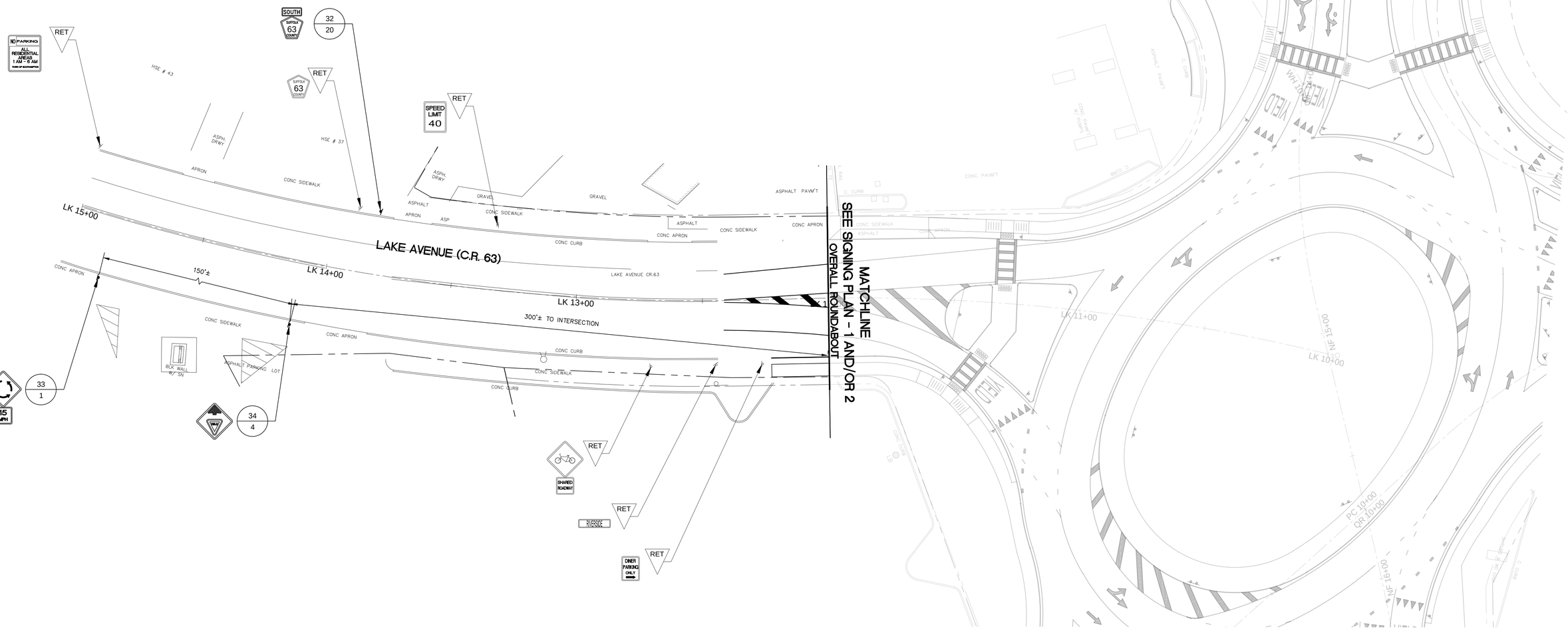
C.R. 94 ROUNDABOUT

SIGNING PLAN – 3
NUGENT DRIVE (C.R. 94)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
SCALE 1" = 20'

N



SYMBOL LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROPOSED/ RELOCATED SIGN LOCATION	X / X	RELOCATED EXISTING SIGN LOCATION NO. LEGEND NO.	REM	REMOVE EXISTING SIGN
	EXISTING SIGN LOCATION	RET	RETAIN EXISTING SIGN	X / X	NEW SIGN LOCATION NO. LEGEND NO.

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
3. SEE PAVEMENT MARKING DETAIL DRAWING FOR PEDESTRIAN CROSSWALK MARKINGS.
4. REFER TO PAVEMENT MARKING DETAIL SHEET FOR PAVEMENT MARKING ITEM NUMBERS.

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SYMBOL	DESCRIPTION	APPROVED	DATE

REVISIONS

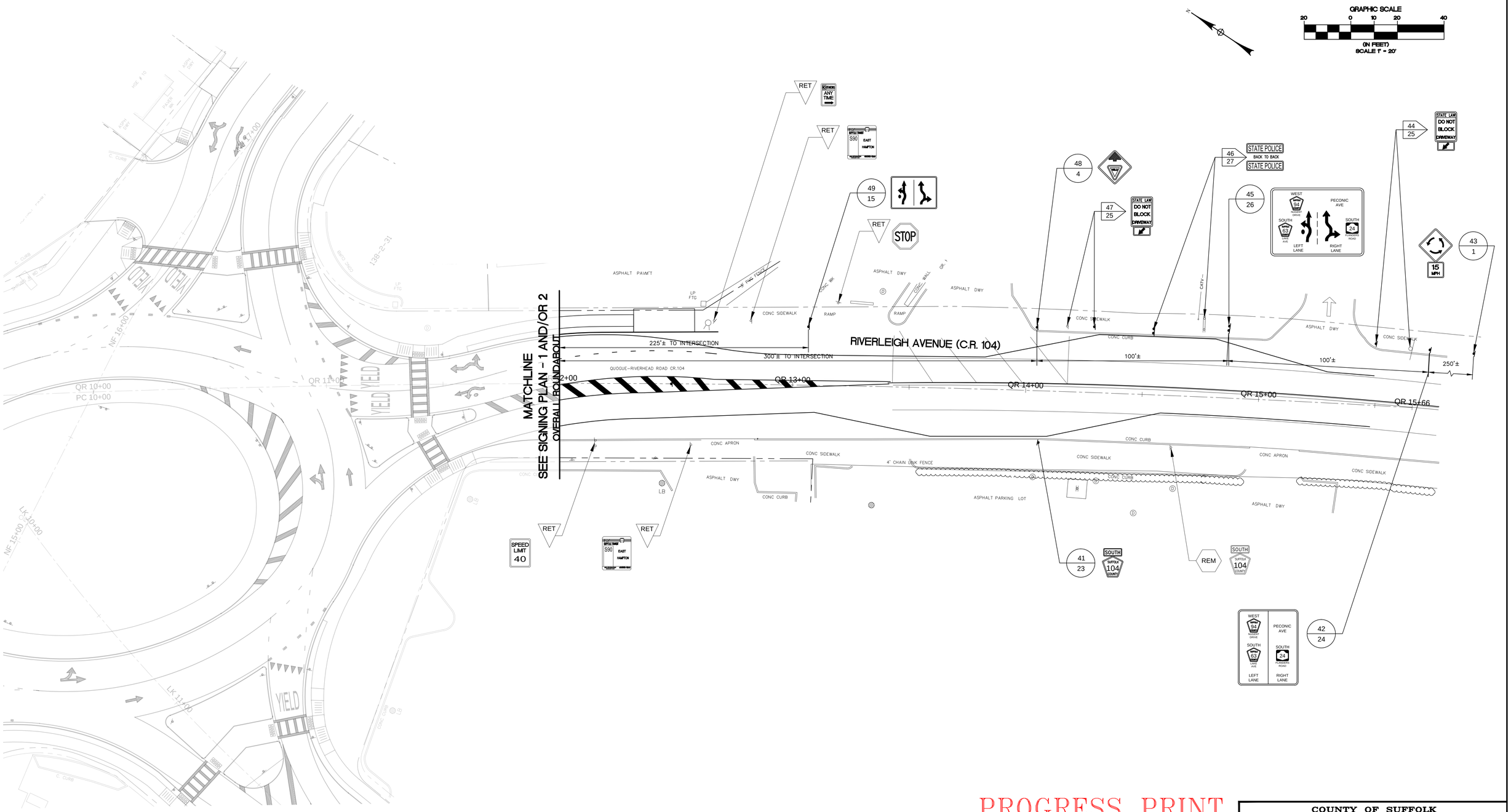
COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

SIGNING PLAN – 4
LAKE AVE (C.R. 63)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X



SYMBOL LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROPOSED/ RELOCATED SIGN LOCATION	X / X	RELOCATED EXISTING SIGN LOCATION NO. LEGEND NO.	REM	REMOVE EXISTING SIGN
	EXISTING SIGN LOCATION	RET	RETAIN EXISTING SIGN	X / X	NEW SIGN LOCATION NO. LEGEND NO.

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
3. SEE PAVEMENT MARKING DETAIL DRAWING FOR PEDESTRIAN CROSSWALK MARKINGS.
4. REFER TO PAVEMENT MARKING DETAIL SHEET FOR PAVEMENT MARKING ITEM NUMBERS.

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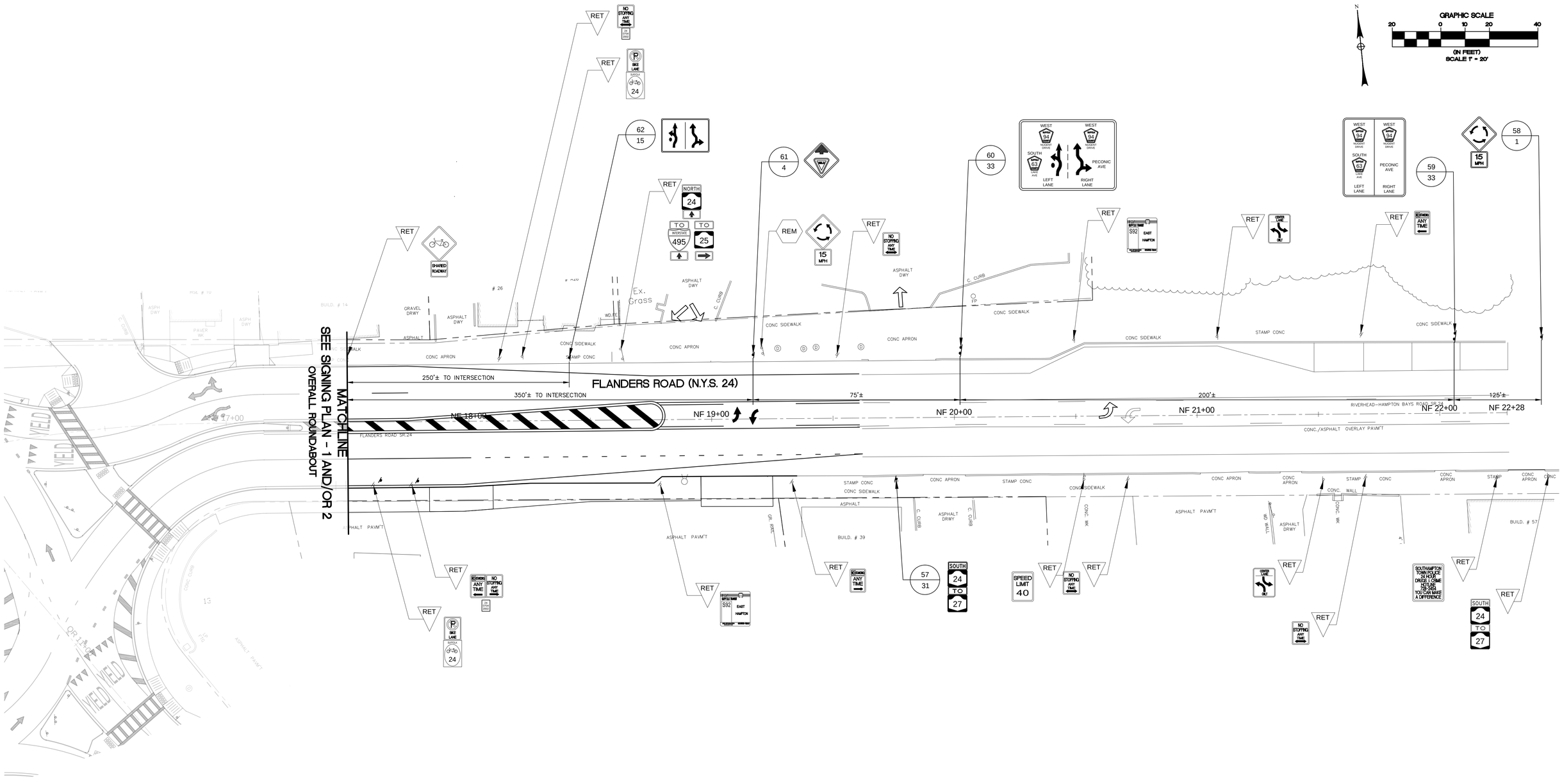
C.R. 94 ROUNDABOUT

SIGNING PLAN – 5
RIVERLEIGH AVE (C.R. 104)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	X OF X



SYMBOL LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROPOSED/ RELOCATED SIGN LOCATION	X / X	RELOCATED EXISTING SIGN LOCATION NO. LEGEND NO.	REM	REMOVE EXISTING SIGN
	EXISTING SIGN LOCATION	RET	RETAIN EXISTING SIGN	X / X	NEW SIGN LOCATION NO. LEGEND NO.

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
3. SEE PAVEMENT MARKING DETAIL DRAWING FOR PEDESTRIAN CROSSWALK MARKINGS.
4. REFER TO PAVEMENT MARKING DETAIL SHEET FOR PAVEMENT MARKING ITEM NUMBERS.

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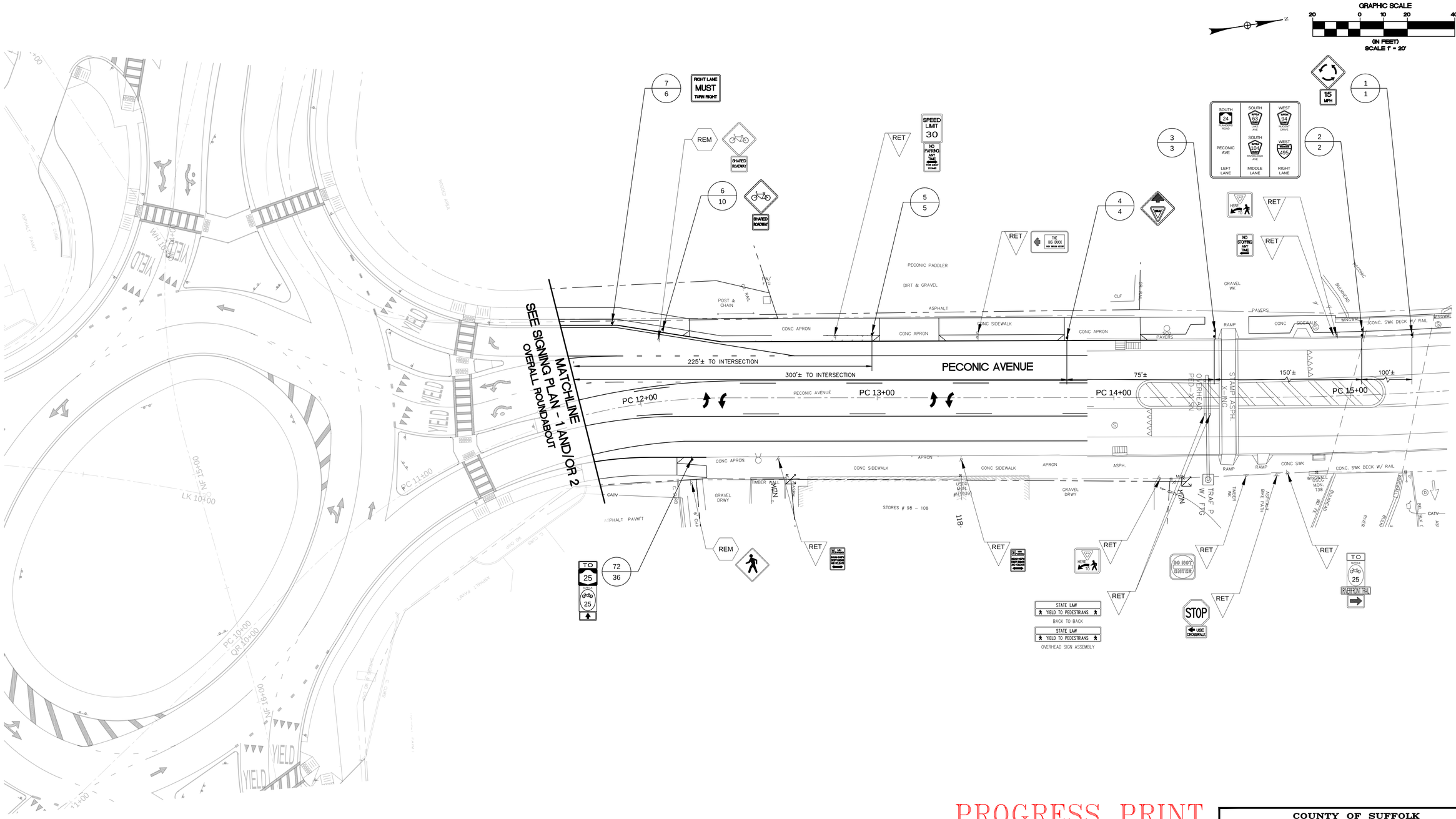
C.R. 94 ROUNDABOUT

SIGNING PLAN – 6
FLANDERS RD (N.Y.S. 24)

PROJECT NO.	DATE	SHEET NO.
5557.110 & 3301.124/127	SEPT 2015	SHEET NO. X OF X



SYMBOL LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	PROPOSED/ RELOCATED SIGN LOCATION	X / X	RELOCATED EXISTING SIGN LOCATION NO. LEGEND NO.	REM	REMOVE EXISTING SIGN
	EXISTING SIGN LOCATION	RET	RETAIN EXISTING SIGN	X / X	NEW SIGN LOCATION NO. LEGEND NO.

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT.
2. ALL DIMENSIONS AND THE PLACEMENT OF ARROWS, SYMBOLS, AND TEXT SHOWN ARE TYPICAL AND SHALL APPLY UNLESS OTHERWISE INDICATED IN THE CONTRACT DOCUMENTS.
3. SEE PAVEMENT MARKING DETAIL DRAWING FOR PEDESTRIAN CROSSWALK MARKINGS.
4. REFER TO PAVEMENT MARKING DETAIL SHEET FOR PAVEMENT MARKING ITEM NUMBERS.

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C.R. 94 ROUNDABOUT

SIGNING PLAN - 7
PECONIC AVENUE

PROJECT NO.	DATE	SHEET NO.
5567.110 & 3301.124/127	SEPT 2015	SHEET NO. X OF X

TEXT NUMBER	LOCATION NUMBER	ITEM No.	PAYMENT FACTOR	TOTAL QUANTITY	TEXT WxH(in.)	MUTCD NUMBER	MOUNT
1	1, 18, 32, 42, 57	645.5201	2.25 SF	11.25 SF	30" X 30"	W2-6	GR.MTD.
		645.5202	6.25 SF	31.25 SF			
	5	645.81	1 EA	5 EA	15 MPH 18" X 18"	W13-1	
2	2	645.5102	49.0 SF	49.0 SF	SOUTH 24 FLANDERS ROAD; SOUTH 63 LAKE AVE; WEST 94 NUGENT DRIVE; PECONIC AVE; SOUTH 104 RIVERLEIGH AVE; WEST INTRSTATE 495; LEFT LANE; MIDDLE LANE; RIGHT LANE 7' X 7'		GR.MTD.
		645.81	2 EA	2 EA			
	1						
3	3	645.5102	96.0 SF	96.0 SF	SOUTH 24 FLANDERS ROAD; EAST 104 RIVERLEIGH AVE; SOUTH 63 LAKE AVE; LEFT LANE; RIGHT LANE 12' X 8'		TOP.MTD.
		644.41000010	1 EA	1 EA			
	1						
4	4, 20, 33, 47, 60	645.5102	6.25	31.25 SF	ONLY 30" X 30"		GR.MTD.
		645.81	1 EA	5 EA			
	5						
5	5	645.5102	13.5 SF	13.5 SF	ONLY 54" X 36"		GR.MTD.
		645.81	2 EA	2 EA			
	1						
6	7	645.5102	6.25 SF	6.25 SF	RIGHT LANE MUST TURN RIGHT 30" X 30"	R3-7	GR.MTD.
		645.81	1 EA	1 EA			
	1						
7	8, 10, 11, 12, 27, 28, 37a, 37b, 50, 52, 65, 66	645.5102	3.9 SF	42.9 SF	YIELD 36" X 36" X 36"	R1-2	GR.MTD.
		645.81	1 EA	11 EA			
	11						
8	9, 13, 23, 26, 31, 36, 39, 51, 54, 64, 70	645.5101	2.0 SF	22.0 SF	30" X 30"	W11-2	GR.MTD.
		645.5102	6.25 SF	68.75 SF	24" X 12"	W16-7PL	
		645.81	1 EA	11 EA			
	11						
9	14	645.5101	2.0 SF	2.0 SF	TO 24" X 12"; WEST 24" X 12"	M4-5 M3-4	GR.MTD.
		645.5101	2.0 SF	2.0 SF			
		645.5101	5.0 SF	5.0 SF	INTRSTATE 495 30" X 24"; SUFFOLK 94 COUNTY 30" X 24"	M1-1 M1-6	
		645.5101	5.0 SF	5.0 SF			
		645.5101	2.2 SF	2.2 SF	21" X 15"; 21" X 15"	M6-2 M6-2	
		645.5101	2.2 SF	2.2 SF			
		645.5101	4.0 SF	4.0 SF	COASTAL EVACUATION ROUTE 24" X 24"	EM-1	
		645.5101	2.2 SF	2.2 SF			
	1	645.81	1 EA	2 EA	21" X 15"	M6-2	
10	6, 15	645.5101	3.0 SF	6.0 SF	36" X 36" SHARED ROADWAY	W11-1	GR.MTD.
		645.5102	9.0 SF	18.0 SF			
	2	645.81	1 EA	2 EA	18" X 24"	W16-1P (MOD.)	

TEXT NUMBER	LOCATION NUMBER	ITEM No.	PAYMENT FACTOR	TOTAL QUANTITY	TEXT WxH(in.)	MUTCD NUMBER	MOUNT
11	16	645.5202	EXISTING	EXISTING	NEW YORK; COUNTY CENTER; ALL COURTS 72" X 48"	D1-3A	GR.MTD.
		645.81	2 EA	2 EA			
	1						
12	17	645.5101	2.0 SF	2.0 SF	SOUTH 24" X 12"; WEST 24" X 12"	M3-3 M3-4	GR.MTD.
		645.5101	2.0 SF	6.0 SF			
		645.5101	5.0 SF	6.0 SF	SUFFOLK 51 COUNTY 30" X 24"; SUFFOLK 94 COUNTY 30" X 24"	M1-6 M1-6	
		645.5101	5.0 SF	6.0 SF			
		645.5101	6.0 SF	6.0 SF			
		645.5101	6.0 SF	6.0 SF	LEFT LANE 36" X 24"; RIGHT LANE 36" X 24"	M5-4 M5-6	
	1	645.81	1 EA	2 EA			
13	18	645.5102	65.0 SF	65.0 SF	SOUTH 24 FLANDERS ROAD; EAST 104 RIVERLEIGH AVE; PECONIC AVE; SOUTH 63 LAKE AVE; LEFT LANE; RIGHT LANE 6.5' X 10'		GR.MTD.
		645.81	2 EA	2 EA			
	1						
14	20	645.5102	96.0 SF	96.0 SF	SOUTH 24 FLANDERS ROAD; EAST 104 RIVERLEIGH AVE; SOUTH 63 LAKE AVE; PECONIC AVE; LEFT LANE; RIGHT LANE 12' X 8'		TOP.MTD.
		644.41000010	1 EA	1 EA			
	1						
15	22, 49, 62	645.5202	3.0 SF	9.0 SF	36" X 36"		GR.MTD.
		645.81	2 EA	6 EA			
	3						
16	24	645.5202	6.25 SF	6.25 SF	STOP 30" X 30"	R1-1	GR.MTD.
		645.81	1 EA	1 EA			
	1						
17	25	645.5101	3.0 SF	3.0 SF	ONE WAY 36" X 12"	R6-1	GR.MTD.
		645.81	1 EA	1 EA			
	1						
18	29, 67, 73, 74, 76	645.5101	1.0 SF	5.0 SF	ONE WAY 36" X 12"	R6-1R	GR.MTD.
		645.5101	3.0 SF	15.0 SF			
		645.81	1 EA	5 EA	18" X 24"	W1-8	
	5						
19	30	645.5201	2.0 SF	2.0 SF	SOUTH 24" X 12"	M3-3	GR.MTD.
		645.5201	5.0 SF	5.0 SF	SUFFOLK 63 COUNTY 30" X 24"	M1-6	
		645.5201	2.2 SF	2.2 SF	21" X 15"	M6-2	
	1	645.81	1 EA	1 EA			

NOTES:

1. SIGN LOCATIONS AS SHOWN ON PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL REMOVE EXISTING SIGNS AND INSTALL NEW SIGNS IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT. THE EIC SHALL CONTACT SCDPW – TRAFFIC ENGINEERING TO DISCUSS PROBLEM AREAS.
2. THE PAYMENT FACTORS FOR SIGNS ARE FROM THE APPLICABLE N.Y.S.D.O.T. STANDARD SHEETS OR SIGN FACE LAYOUTS.
3. THE PAYMENT FACTOR FOR POSTS IS THE NUMBER OF POSTS PROVIDED PER INSTALLATION.
4. THE TOTAL PAYMENT QUANTITY IS OBTAINED BY MULTIPLYING THE NUMBER OF LOCATIONS (SHOWN IN THE LOWER RIGHT CORNER OF THE LOCATIONS BLOCK) BY THE PAYMENT FACTOR.
5. SIGN LOCATION Nos. 1 THROUGH 17 ARE LOCATED ON COUNTY ROAD 13 AND WILL BE REQUIRED ONLY IF BID ALTERNATE Nos. 2 OR 4 ARE PROGRESSED.

* INDICATES SIGN TO BE FABRICATED WITH "HIGH VISIBILITY SHEETING" TYPE IX (CLASS E) PER NYSDOT SPEC. 645.

** INDICATES SIGN TO BE FABRICATED WITH "HIGH VISIBILITY FLUORESCENT YELLOW-GREEN SHEETING" TYPE IX (CLASS E) FOR THE YELLOW PORTION OF THE SIGN FACE.

PROGRESS PRINT

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SYMBOL	DESCRIPTION	APPROVED	DATE

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DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

SIGNING TEXT DATA SHEET – 1

PROJECT NO.	DATE	SHEET NO. X OF X
XXXX	SEPT 2015	

TEXT NUMBER	LOCATION NUMBER	ITEM No.	PAYMENT FACTOR	TOTAL QUANTITY	TEXT WxH(in.)	MUTCD NUMBER	MOUNT
20	32 [1]	645.5101	2.0 SF	2.0 SF	SOUTH 24" X 12"	M3-3	GR.MTD.
		645.5102	5.0 SF	5.0 SF	SUFFOLK 63 COUNTY 30" X 24"	M1-6	
		645.81	1 EA	1 EA			
21	35, 40, 63, 71 [4]	645.5201	5.0 SF	20.0 SF	 24" X 30"	R4-7	GR.MTD.
		645.81	1 EA	4 EA			
22	38 [1]	645.5202	EXISTING	EXISTING	GABRESKI AIRPORT WESTHAMPTON QUOGUE 72" X 48"	D1-3A	GR.MTD.
		645.81	2 EA	2 EA			
23	41 [1]	645.5101	2.0 SF	2.0 SF	SOUTH 24" X 12"	M3-3	GR.MTD.
		645.5102	5.0 SF	5.0 SF	SUFFOLK 104 COUNTY 30" X 24"	M1-6	
		645.81	1 EA	1 EA			
24	42 [1]	645.5102	65.0 SF	65.0 SF	WEST 94 NUGENT DRIVE; PECONIC AVE; SOUTH 63 LAKE AVE; SOUTH 24 RIVERHEAD ROAD; LEFT LANE; RIGHT LANE 6.5' X 10'		GR.MTD.
		645.81	2 EA	2 EA			
25	44, 47 [2]	645.5101	EXISTING	EXISTING	STATE LAW DO NOT BLOCK DRIVEWAY 24" X 36"	NYR9-4 (MOD.)	GR.MTD.
		645.5101	EXISTING	EXISTING	 21" X 15"	W16-7PL	
		645.85	1 EA	2 EA			
26	45 [1]	645.5102	96.0 SF	96.0 SF	WEST 94 NUGENT DRIVE; PECONIC AVE; SOUTH 63 LAKE AVE; SOUTH 24 RIVERHEAD ROAD; LEFT LANE; RIGHT LANE 12' X 8'		TOP.MTD.
		644.41000010	1 EA	1 EA			
27	46 [1]	645.5201	EXISTING	EXISTING	STATE POLICE BACK TO BACK STATE POLICE		GR.MTD.
		645.81	1 EA	1 EA			
28	53 [1]	645.5201	2.0 SF	2.0 SF	SOUTH 24" X 12"	M3-3	GR.MTD.
		645.5201	4.0 SF	4.0 SF	24 24" X 24"	NYM3-1	
		645.5201	2.2 SF	2.2 SF		M6-2	
		645.81	1 EA	1 EA	21" X 15"		
29	55 [1]	645.5101	5.0 SF	5.0 SF	THE BIG DUCK 24" X 30"	2K-()	GR.MTD.
		645.5101	3.1 SF	3.1 SF	HAMPTON BAYS MONTAUK 15" X 30"	D1-2A	
		645.81	1 EA	1 EA			
30	56 [1]	645.5101	6.0 SF	6.0 SF	CENTER LANE ONLY 24" X 36"	R3-9b	GR.MTD.
		645.81	1 EA	1 EA			

TEXT NUMBER	LOCATION NUMBER	ITEM No.	PAYMENT FACTOR	TOTAL QUANTITY	TEXT WxH(in.)	MUTCD NUMBER	MOUNT
31	57 [1]	645.5101	2.0 SF	2.0 SF	SOUTH 24" X 12"	M3-4	GR.MTD.
		645.5101	4.0 SF	4.0 SF	24 24" X 24"	NYM3-1	
		645.5101	2.0 SF	2.0 SF	TO 24" X 12"	M4-5	
		645.5101	4.0 SF	4.0 SF	27 24" X 24"	NYM3-1	
		645.81	1 EA	1 EA			
32	59 [1]	645.5102	65.0 SF	65.0 SF	WEST 94 NUGENT DRIVE; WEST 94 NUGENT DRIVE; SOUTH 63 LAKE AVE; PECONIC AVE; LEFT LANE; RIGHT LANE 6.5' X 10'		GR.MTD.
		645.81	2 EA	2 EA			
33	60 [1]	645.5102	96.0 SF	96.0 SF	WEST 94 NUGENT DRIVE; WEST 94 NUGENT DRIVE; SOUTH 63 LAKE AVE; PECONIC AVE; LEFT LANE; RIGHT LANE 12' X 8'		TOP.MTD.
		644.41000010	1 EA	1 EA			
34	68 [1]	645.5202	EXISTING	EXISTING	NEW YORK COUNTY CENTER ALL COURTS 72" X 48"	D1-3A	GR.MTD.
		645.81	2 EA	2 EA			
35	69 [1]	645.5201	2.0 SF	2.0 SF	TO 24" X 12"	M4-5	GR.MTD.
		645.5201	4.0 SF	4.0 SF	25 24" X 24"	NYM3-1	
		645.5201	2.2 SF	2.2 SF	 21" X 15"	M6-2	
		645.81	1 EA	1 EA			
36	72 [1]	645.5101	2.0 SF	2.0 SF	TO 24" X 12"	M4-5	GR.MTD.
		645.5101	4.0 SF	4.0 SF	25 24" X 24"	NYM3-1	
		645.5101	2.0 SF	2.0 SF	SUFFOLK 25 24" X 12"	M1-8A	
		645.5101	2.2 SF	2.2 SF	 21" X 15"	M6-3	
		645.81	1 EA	1 EA			
37	75 [1]	645.5201	2.0 SF	2.0 SF	SOUTH 24" X 12"	M3-3	GR.MTD.
		645.5201	5.0 SF	5.0 SF	SUFFOLK 104 COUNTY 30" X 24"	M1-6	
		645.5201	2.2 SF	2.2 SF	 21" X 15"	M6-2	
		645.81	1 EA	1 EA			
38	77 [1]	645.5201	2 SF	2 SF	WALK YOUR BIKE 24" X 12"		GR.MTD.
		645.81	1 EA	1 EA			

NOTES:

1. SIGN LOCATIONS AS SHOWN ON PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL REMOVE EXISTING SIGNS AND INSTALL NEW SIGNS IN ACCORDANCE WITH THE NATIONAL MUTCD AND NYS SUPPLEMENT. THE EIC SHALL CONTACT SCDPW – TRAFFIC ENGINEERING TO DISCUSS PROBLEM AREAS.
2. THE PAYMENT FACTORS FOR SIGNS ARE FROM THE APPLICABLE N.Y.S.D.O.T. STANDARD SHEETS OR SIGN FACE LAYOUTS.
3. THE PAYMENT FACTOR FOR POSTS IS THE NUMBER OF POSTS PROVIDED PER INSTALLATION.
4. THE TOTAL PAYMENT QUANTITY IS OBTAINED BY MULTIPLYING THE NUMBER OF LOCATIONS (SHOWN IN THE LOWER RIGHT CORNER OF THE LOCATIONS BLOCK) BY THE PAYMENT FACTOR.
5. SIGN LOCATION Nos. 1 THROUGH 17 ARE LOCATED ON COUNTY ROAD 13 AND WILL BE REQUIRED ONLY IF BID ALTERNATE Nos. 2 OR 4 ARE PROGRESSED.

* INDICATES SIGN TO BE FABRICATED WITH "HIGH VISIBILITY SHEETING" TYPE IX (CLASS E) PER NYSDOT SPEC. 645.

** INDICATES SIGN TO BE FABRICATED WITH "HIGH VISIBILITY FLUORESCENT YELLOW-GREEN SHEETING" TYPE IX (CLASS E) FOR THE YELLOW PORTION OF THE SIGN FACE.

PROGRESS PRINT

NELSON & POPE
ENGINEERS • SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
(631) 427-5665 FAX (631) 427-5620
WWW.NELSONPOPE.COM

SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

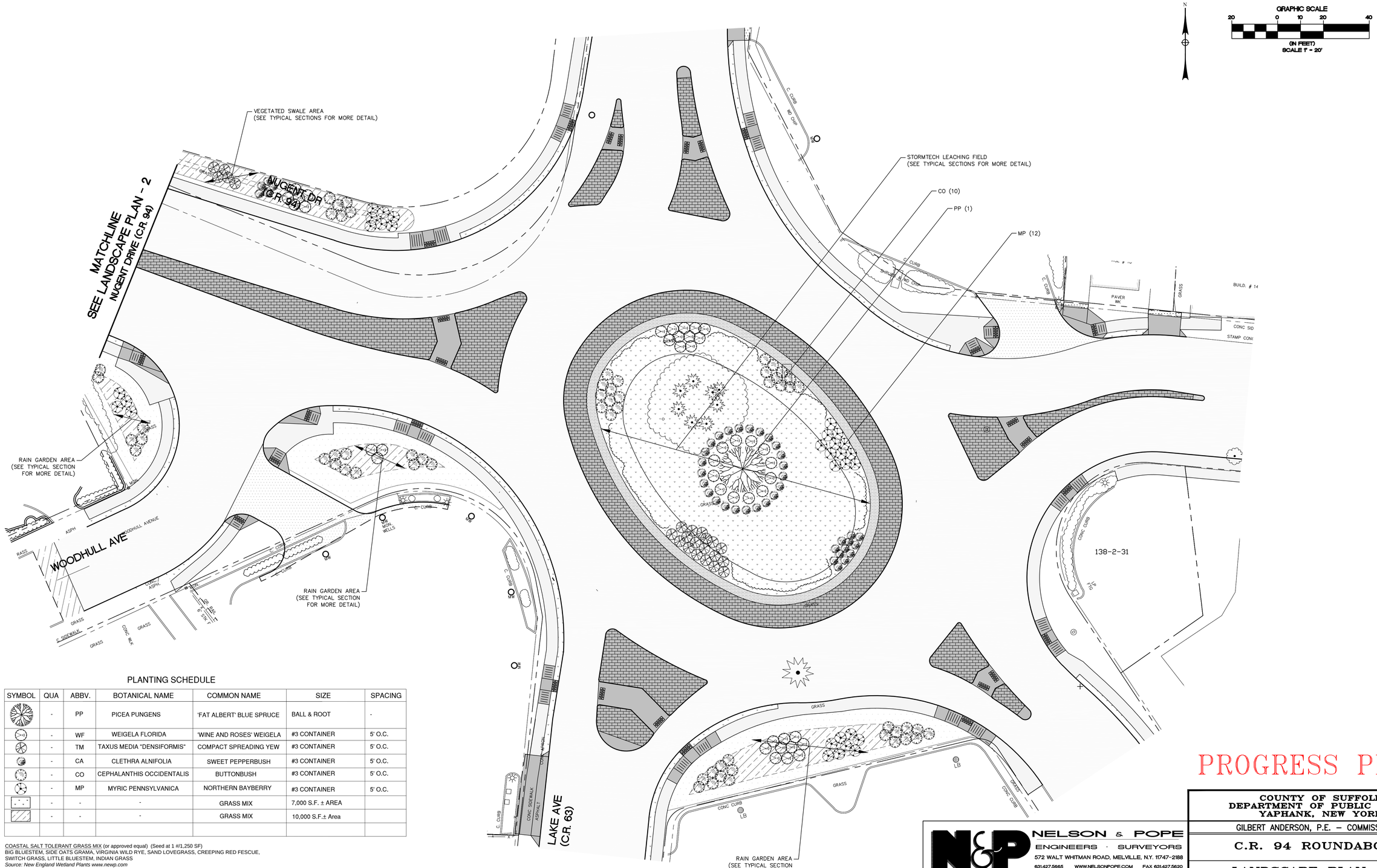
COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

SIGNING TEXT DATA SHEET – 2

PROJECT NO.	DATE	SHEET NO. X OF X
XXXX	SEPT 2015	



PLANTING SCHEDULE

SYMBOL	QUA	ABBV.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
	-	PP	PICEA PUNGENS	'FAT ALBERT' BLUE SPRUCE	BALL & ROOT	-
	-	WF	WEIGELA FLORIDA	'WINE AND ROSES' WEIGELA	#3 CONTAINER	5' O.C.
	-	TM	TAXUS MEDIA "DENSIFORMIS"	COMPACT SPREADING YEW	#3 CONTAINER	5' O.C.
	-	CA	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	#3 CONTAINER	5' O.C.
	-	CO	CEPHALANTHIS OCCIDENTALIS	BUTTONBUSH	#3 CONTAINER	5' O.C.
	-	MP	MYRIC PENNSYLVANICA	NORTHERN BAYBERRY	#3 CONTAINER	5' O.C.
	-	-	-	GRASS MIX	7,000 S.F. ± AREA	
	-	-	-	GRASS MIX	10,000 S.F.± Area	

COASTAL SALT TOLERANT GRASS MIX (or approved equal) (Seed at 1 #/1,250 SF)
BIG BLUESTEM, SIDE OATS GRAMA, VIRGINIA WILD RYE, SAND LOVEGRASS, CREEPING RED FESCUE,
SWITCH GRASS, LITTLE BLUESTEM, INDIAN GRASS
Source: New England Wetland Plants www.newp.com

PLANTING/MAINTENANCE NOTES:
1. LIGHTLY RAKE OR ROLL SEEDED AREAS TO ENSURE PROPER SOIL-SEED CONTACT.
2. IF PLANTED IN LATE SPRING OR SUMMER, APPLY A LIGHT MULCH OF WEED-FREE STRAW TO CONSERVE MOISTURE.
3. IRRIGATE NEWLY SEEDED AND PLANTED AREAS AS NEEDED UNTIL ESTABLISHED.

PROGRESS PRINT

NELSON & POPE
ENGINEERS · SURVEYORS
572 WALT WHITMAN ROAD, MELVILLE, N.Y. 11747-2188
631.427.5665 WWW.NELSONPOPE.COM FAX 631.427.5620

SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

LANDSCAPE PLAN – 1
OVERALL ROUNDABOUT

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

PLANTING SCHEDULE

SYMBOL	QUA	ABBV.	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
	-	WF	WEIGELA FLORIDA	'WINE AND ROSES' WEIGELA	#3 CONTAINER	5' O.C.
	-	TM	TAXUS MEDIA "DENSIFORMIS"	COMPACT SPREADING YEW	#3 CONTAINER	5' O.C.
	-	CA	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	#3 CONTAINER	5' O.C.
	-	CO	CEPHALANTHIS OCCIDENTALIS	BUTTONBUSH	#3 CONTAINER	5' O.C.
	-	MP	MYRIC PENNSYLVANICA	NORTHERN BAYBERRY	#3 CONTAINER	5' O.C.
	-	-	-	GRASS MIX	7,000 S.F. ± AREA	
	-	-	-	GRASS MIX	10,000 S.F.± Area	

COASTAL SALT TOLERANT GRASS MIX (or approved equal) (Seed at 1 #/1,250 SF)
BIG BLUESTEM, SIDE OATS GRAMA, VIRGINIA WILD RYE, SAND LOVEGRASS, CREEPING RED FESCUE, SWITCH GRASS, LITTLE BLUESTEM, INDIAN GRASS
Source: New England Wetland Plants www.newp.com

PLANTING/MAINTENANCE NOTES:
1. LIGHTLY RAKE OR ROLL SEEDED AREAS TO ENSURE PROPER SOIL-SEED CONTACT.
2. IF PLANTED IN LATE SPRING OR SUMMER, APPLY A LIGHT MULCH OF WEED-FREE STRAW TO CONSERVE MOISTURE.
3. IRRIGATE NEWLY SEEDED AND PLANTED AREAS AS NEEDED UNTIL ESTABLISHED.

PROGRESS PRINT

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631.427.5665 WWW.NELSONPOPE.COM FAX 631.427.5620

SYMBOL	DESCRIPTION	APPROVED	DATE
	REVISIONS		

COUNTY OF SUFFOLK
DEPARTMENT OF PUBLIC WORKS
YAPHANK, NEW YORK

GILBERT ANDERSON, P.E. – COMMISSIONER

C.R. 94 ROUNDABOUT

LANDSCAPE PLAN – 2
NUGENT DRIVE (C.R. 94)

PROJECT NO.	DATE	SHEET NO. X OF X
5557.110 & 3301.124/127	SEPT 2015	

COUNTY ROAD 94 ROUNDABOUT

TOWN OF RIVERHEAD, SUFFOLK COUNTY

CAPITAL PROJECT NO. 5557.110
&
CAPITAL PROJECT NO. 301.124/127

SUBMISSION TO
SUFFOLK COUNTY
COUNCIL ON ENVIRONMENTAL QUALITY

Prepared By:
Nelson & Pope, Engineers & Surveyors

NELSON & POPE

October 2015

CR 94 Roundabout Improvement Project

TABLE OF CONTENTS

Full Environmental Assessment Form – Part I

List of Figures & Attachments:

Design Plans:

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Sponsor Information.

Name of Action or Project: Improvements to County Road 94 Roundabout, Riverhead		
Project Location (describe, and attach a general location map): 3.2+/- Acres in the Town of Riverhead, Suffolk County, NY (see attached location map)		
Brief Description of Proposed Action (include purpose or need): Suffolk County is proposing to reconstruct the existing single-lane traffic circle in the Town of Southampton where Nugent Drive (CR 94), Lake Avenue (CR 63), Riverleigh Avenue (CR 104), Flanders Road (NYS 24), and Peconic Avenue converge. The County proposes to convert the existing single-lane traffic circle to a two-lane modern roundabout. The reconfigured roundabout will mitigate current excessive vehicular delays experienced by motorists during the morning and evening rush hours. Water quality improvements will be provided via a new stormwater system comprised of underground retention structures, pipe, catch basins, and a stormwater treatment unit. The treatment unit will be sized to treat flows and volume associated with the 90% storm, or 1.3 inches, while safely bypassing flows associated with larger storms.		
Name of Applicant/Sponsor: Suffolk County Department of Public Works	Telephone: 631-852-4010 E-Mail: Public.Works@suffolkcountyny.gov	
Address: 335 Yaphank Avenue		
City/PO: Yaphank	State: New York	Zip Code: 11980
Project Contact (if not same as sponsor; give name and title/role): Jeffrey Dawson, P.E.	Telephone: 631-852-5325 E-Mail: Jeffrey.Dawson@suffolkcountyny.gov	
Address: 335 Yaphank Avenue		
City/PO: Yaphank	State: New York	Zip Code: 11980
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

RESET FORM

B. Government Approvals

B. Government Approvals Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Council, Town Board, or Village Board of Trustees ☐Yes ☑No		
b. City, Town or Village Planning Board or Commission ☐Yes ☑No		
c. City Council, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☐Yes ☑No		
e. County agencies ☑Yes ☐No	Suffolk County Department of Public Works, Suffolk County Council on Environmental Quality	Pending
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC Article 24, 25 & WSRR Permit, NYSDOS Coastal Consistency Concurrence	Pending
h. Federal agencies ☑Yes ☐No	USACE Nationwide Permit 3a, 7, 13, 14	Pending

i. Coastal Resources.
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes ☐No
If Yes,
ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No
iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No
If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes ☐No
If Yes, identify the plan(s):
Included in the Riverside Brownfield Opportunity Area (in progress)

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No
If Yes, identify the plan(s):

RESET FORM

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☐ Yes ☑ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
N\A - The proposed project is located entirely within the road right-of-way

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☑ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Riverhead Central School District

b. What police or other public protection forces serve the project site?
Town of Southampton Police Department, Riverhead Police Department

c. Which fire protection and emergency medical services serve the project site?
Riverhead Fire District, Flanders EMS

d. What parks serve the project site?
N/A - The project includes a roadway improvement only

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Transportation Improvements

b. a. Total acreage of the site of the proposed action? 3.35 acres
b. Total acreage to be physically disturbed? 3.35 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 3.35 acres

c. Is the proposed action an expansion of an existing project or use? ☑ Yes ☐ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % 8 Units: 0.2 acres of roadway

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☑ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 12 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

RESET FORM

f. Does the project include new residential uses? ☐ Yes ☑ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☐ Yes ☑ No

If Yes,

i. Total number of structures _____

ii. Dimensions (in feet) of largest proposed structure: _____height; _____width; and _____ length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☑ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

i*v.* Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☑ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

_____

RESET FORM

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No

If Yes, describe: _____

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No

If Yes:

- acres of aquatic vegetation proposed to be removed _____
- expected acreage of aquatic vegetation proposed to be removed _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):

  _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☐ Yes ☑ No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☐ No

If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

  _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐ Yes ☑ No

If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

_____

_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☑ No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

RESET FORM

- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

N/A - Proposed project involves roadway improvements only

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

N/A - Proposed project involves roadway improvements only

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 2.80 acres (impervious surface)

_____ Square feet or 3.55 acres (parcel size)

ii. Describe types of new point sources. A new stormwater outfall is proposed that will replace a currently undersized outfall.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

The stormwater runoff will be collected by drainage structures and directed into underground storm water chambers and bio-retention areas prior to discharge into surface waters.

- If to surface waters, identify receiving water bodies or wetlands: Peconic River
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Standard highway construction equipment

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

RESET FORM

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

_____

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7:30 AM to 3:30 PM
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: N/A
- Saturday: N/A
- Sunday: N/A
- Holidays: N/A

RESET FORM

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

During construction heavy vehicles will be operating from approximately 7 AM to 3:30 PM Monday-Friday.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n.. Will the proposed action have outdoor lighting? ☐ Yes ☑ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☐ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products (185 gallons in above ground storage or an amount in underground storage)? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally describe proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

RESET FORM

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☑ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☑ Aquatic ☑ Other (specify): Parkland

ii. If mix of uses, generally describe:

See Land Use Map, Figure 1

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	2.6	2.8	0.2
• Forested			
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)			
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)			
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: Landscaped	0.6	0.4	0.2

RESET FORM

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No

If Yes,

i. Identify Facilities:

_____

_____

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

_____

_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____

_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☐ Yes – Spills Incidents database Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____

_____

_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No

If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____

_____

RESET FORM

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? +1,200 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:
Ur - Urban Land 100 %
_____ %
_____ %

d. What is the average depth to the water table on the project site? Average: 4 feet See USGS Well Map, Figure 2

e. Drainage status of project site soils:
☑ Well Drained: 100 % of site
☐ Moderately Well Drained: _____% of site
☐ Poorly Drained _____% of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 100 % of site
☐ 10-15%: _____% of site
☐ 15% or greater: _____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No
See Wetland Map Figure 3

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name Peconic River, Lower and Middle Classification C, SC
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) R-5

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☑ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired: See Figure 4 and attached listing justification
Lower - Dissolved Oxygen (DO), nutrients and pathogens from stormwater runoff. Middle - Algal/weed growth and DO from stormwater runoff san. disch.

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100 year Floodplain? ☑ Yes ☐ No

k. Is the project site in the 500 year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☑ Yes ☐ No
If Yes:

i. Name of aquifer: ***Sole Source Aquifer Names: Nassau-Suffolk SSA***

RESET FORM

m. Identify the predominant wildlife species that occupy or use the project site: _____

N/A - Project Area is a roadway _____ _____ _____

N/A - Project Area is a roadway _____ _____ _____

N/A - Project Area is a roadway

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

_____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No

See attachment for Potential Rare and Threatened or Endangered Species in vicinity of CR 94

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No

If yes, give a brief description of how the proposed action may affect that use: _____

_____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

_____

_____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☑ Yes ☐ No

If Yes: See Figures 5 and 6

i. CEA name: ***Central Suffolk Pine Barren, Aquifer Overlay, District, Peconic Bay and Environs, SGPA***

ii. Basis for designation: ***Benefite to human health & protect drinking water, Preserve pure water quality, protect public health***

iii. Designating agency and date: ***2-10-88,6-20-84,7-12-88,3-19-93; Agency: Suffolk County***

RESET FORM

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☑ Historic Building or District

ii. Name: ***Riverhead Main Street Historic District, Vail-Leavitt Music Hall***

iii. Brief description of attributes on which listing is based:

Architecture & commerce history

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: ***Peconic River***

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): ***Scenic river***

iii. Distance between project and resource: ***0*** miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☑ Yes ☐ No

If Yes:

i. Identify the name of the river and its designation: ***Peconic River***

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☑ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name _____ Date_____

Signature_____ Title_____

PRINT FORM

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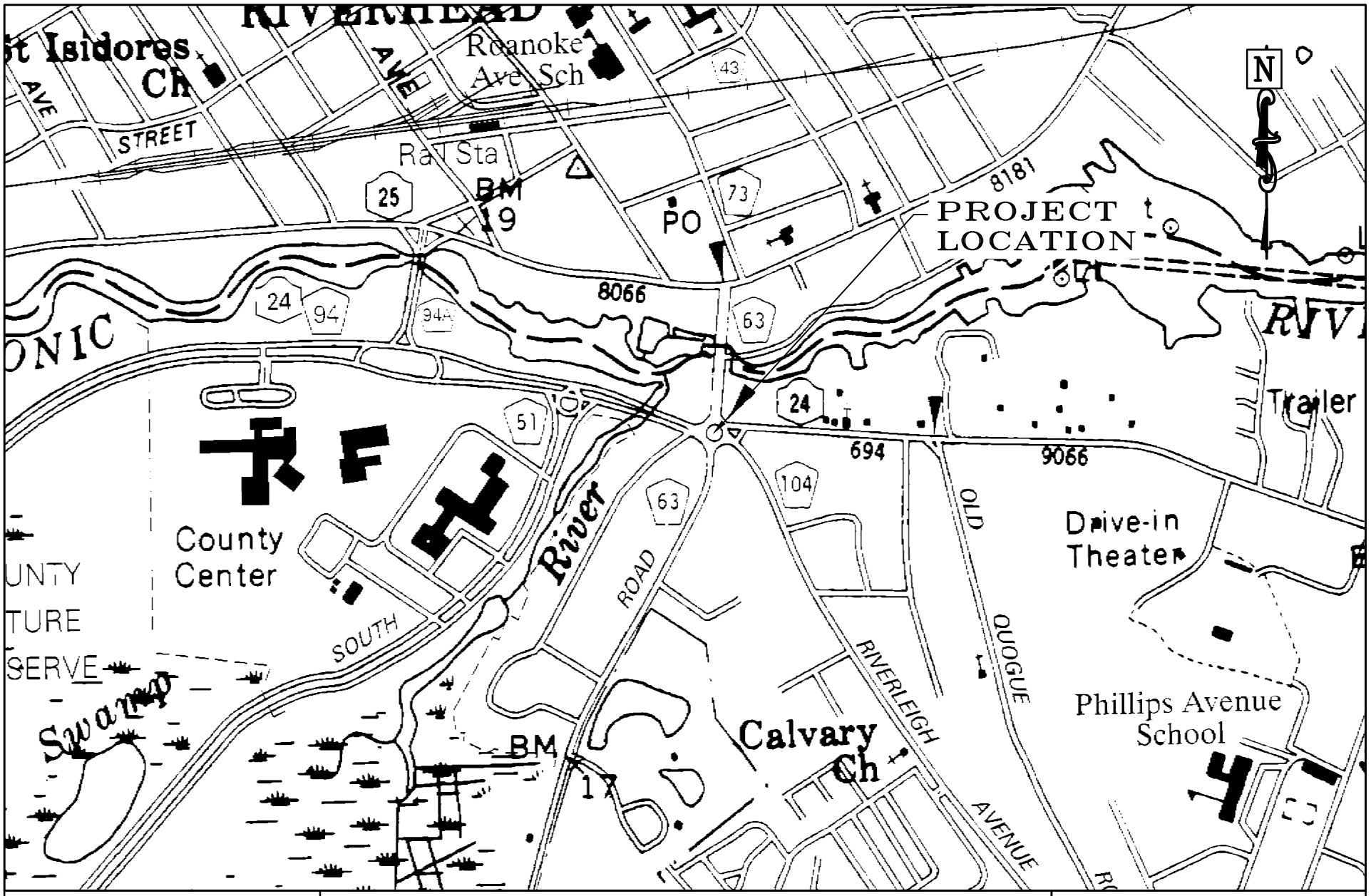


LOCATION MAP

Scale: N.T.S.

NORTH

COUNTY ROAD CR 94 ROUNDABOUT

FEAF

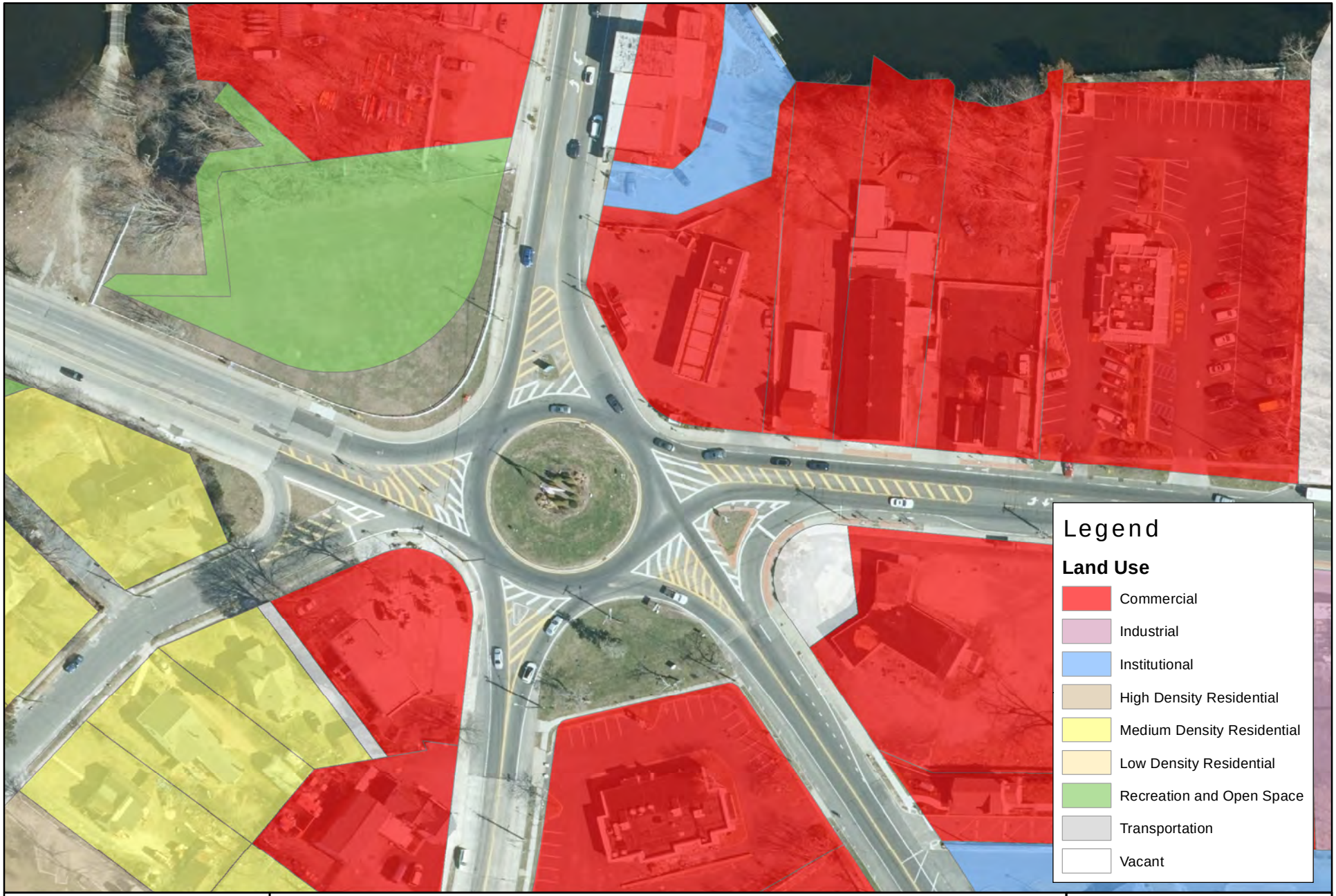


FIGURE 1
LAND USE MAP

Source: NYSGIS Orthoimagery Program 2013, Town of Southampton

Scale: 1 inch = 100 feet

N

County Road 94
Roundabout

FEAF

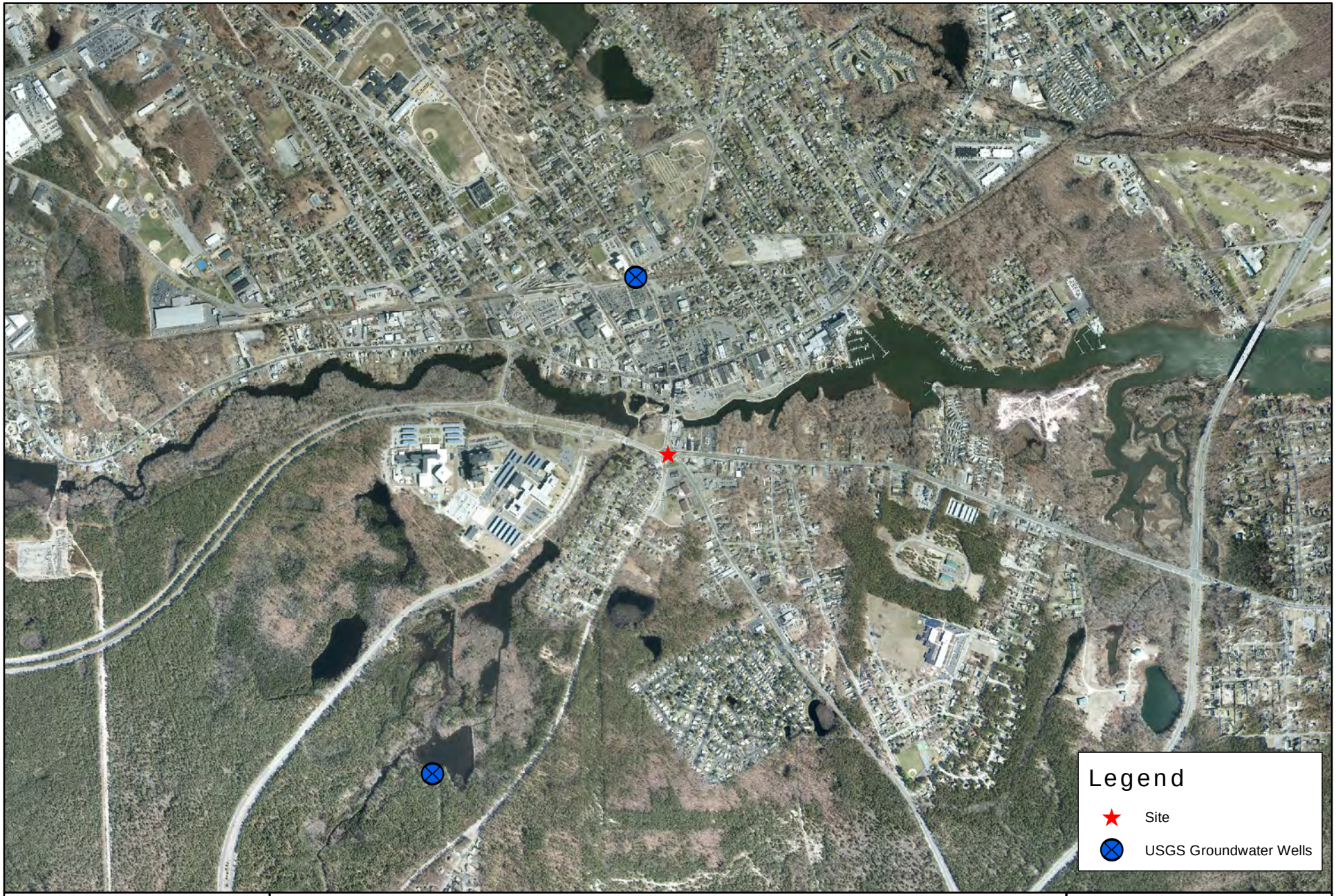


FIGURE 2
USGS GROUNDWATER WELLS

Source: NYSGIS Orthoimagery Program, USGS
Scale: 1 inch = 1,500 feet

N

County Road 94
Roundabout

FEAF

FIGURE 3
WETLANDS MAP

Source: NYSGIS Orthoimagery Program, 2013; NYS Department of Environmental Conservation
Scale: 1 inch = 100 feet

N

County Road 94
Roundabout

FEAF

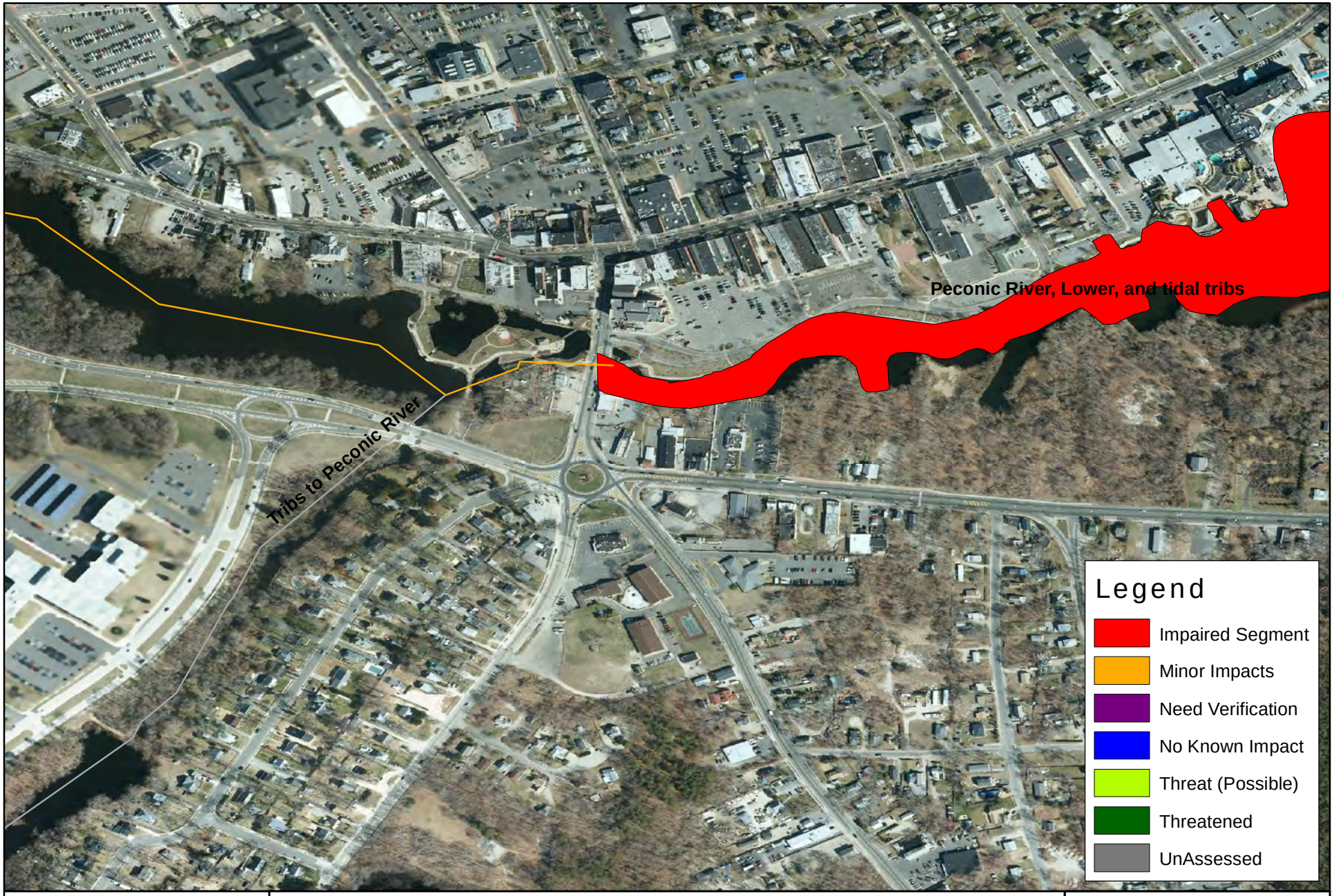


FIGURE 4
IMPAIRED WATERS

Source: NYSGIS Orthoimagery Program, 2013; NYS Department of Environmental Conservation
Scale: 1 inch = 500 feet

N

County Road 94
Roundabout

FEAF

Peconic River, Lower, and tidal tribs (1701-0259) Impaired Seg

Waterbody Location Information

Revised: 11/02/2010

Water Index No: (MW6.2) GB..FB-112 (portion 1)
Drain Basin: Atlantic-Long Island Sound
Hydro Unit Code: 02030202/150 **Str Class:** SC
Southern Long Island
Waterbody Type: Estuary
Reg/County: 1/Suffolk Co. (52)
Waterbody Size: 146.1 Acres
Quad Map: RIVERHEAD (R-30-1) ...
Seg Description: reach and tribs from mouth to Peconic Ave Dam (tidal)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
AQUATIC LIFE	Impaired	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: D.O./OXYGEN DEMAND, NUTRIENTS (nitrogen), Pathogens
Suspected: Algal/Weed Growth (algal blooms)
Possible: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Municipal (Riverhead STP), Private/Comm/Inst
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/PEP **Resolution Potential:** Medium
TMDL/303d Status: 4a (TMDL Complete, Being Implemented, Not Listed)

Further Details

Overview

Aquatic life support in this portion of the Lower Peconic River is impaired due to low dissolved oxygen and nitrogen from stormwater and other nonpoint urban runoff, municipal and commercial discharges. Various recreational uses also experience impacts due to nutrients and pathogens in the stream. Boat pollution is also a concern, although a vessel waste no discharge zone has been established for Peconic Bay waters.

Water Quality Sampling

The data collected by the Peconic Estuary Program (PEP) reveal periods of low dissolved oxygen levels during the warm weather months These low levels of dissolved oxygen are linked to areas of limited flushing and high nutrient loadings. Sediment oxygen demand also results in the recycling of nutrients, including nitrogen, back into the water column which can further exacerbate water quality problems. While generally good water quality exists in portions of the Peconic Estuary overall, eelgrass and scallop populations in particular have been reduced significantly from former abundance. (TMDL for Nitrogen in the Peconic Estuary, PEP, et al. September 2007)

A biological (macroinvertebrate) assessment of the Peconic River at multiple sites in Riverhead and Calverton was conducted in 1998 and 1999. Sampling results indicated moderately impacted water quality conditions. The Calverton site was assessed as only slightly impacted in 1999. Dissolved oxygen was very low (2.8 ppm) at the Calverton site in 1998, and the invertebrate fauna was dominated by midges and scuds. Dissolved oxygen was higher (6.0 ppm) at the Riverhead site, but the fauna was still dominated by tolerant organisms, mostly scuds, worms, and midges. The cause of impact was not determined. Water quality at the Calverton site appeared improved in 1999, a low-flow year, and the fauna was dominated by clean-water mayflies. (DEC/DOW, BWAR/SBU, January 2000)

Shellfishing Use

Shellfish harvesting for consumption purposes in these creeks is restricted due to the designation of the entire area (a portion within Shellfish Growing Area #29) as uncertified for the taking of shellfish for use as food due to pathogens. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Because these are Class SC waters, they are not assessed for support of shellfishing use. However, based on the shellfishing restrictions, other recreational uses are considered to be stressed. (DEC/FWMR, Region 1, August 2010)

Bathing Beach Assessment

Recreational use is considered to be stressed based on monitoring at beaches in the segment and the shellfish advisory indicating uncertified shellfishing waters. There are no monitored beaches in this segment, but pathogen data collected through the shellfish monitoring program suggest recreational uses may experience impacts. (DEC/DOW, BWAM/WQAS, August 2010)

Water Quality Management

The Town of Riverhead is moving ahead with WWTP enhancements to meet the Total Maximum Daily Load (TMDL) for Nitrogen in the Peconic Estuary. The enhancements include an upgrade to the plant as well as an golf course irrigation project using treated wastewater. Pathogen requirements to meet the TMDL and corresponding compliance dates are also included in the MS4 permit. The town, county and Peconic Estuary Program are collaborating on the implementation of stormwater control measures. (DEC/DOW, Region 1, August 2010)

The Peconic Estuary Program

This segment is included within the Peconic Estuary Program (PEP) study area, situated between the North and South Forks of eastern Long Island and consisting of more than 100 distinct bays, harbors, embayments, and tributaries, covering more than 128,000 acres of land and 121,000 acres of surface water. As part of the National Estuary Program (NEP), the Peconics were charged with developing and implementing a watershed-based comprehensive management plan. To accomplish this goal the PEP established an innovative partnership of local, state, and federal governments, citizen and environmental groups, businesses and industries, and academic institutions. The PEP Comprehensive Conservation and Management Plan (CCMP) was formally approved by USEPA in 2001. There are over 300 specific management tasks included in the CCMP, with priority topics focusing on Brown Tide, nutrients, habitat and living resources, pathogens, toxic pollutants, and critical lands protection. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2002 to address impacts from boat pollution. (PEP, August 2010)

The Peconic Estuary Program (PEP) has classified these waters as a "mitigation priority" because nitrogen levels need to be reduced to optimize dissolved oxygen conditions. PEP reports substantial violations of the their proposed total nitrogen guideline for mean summer conditions, and frequent and occasionally "serious" (i.e. below 3.5 and 2.0 mg/l) violations of current dissolved oxygen standards. (Suffolk County/PEP, May 2001)

Segment Description
This segment includes the Class SC tidal portion of the lower Peconic River.

Peconic River, Middle, and tribs (1701-0260) MinorImpacts

Waterbody Location Information

Revised: 05/20/2011

Water Index No: (MW6.2) GB..FB-112 (portion 2) **Drain Basin:** Atlantic-Long Island Sound
Hydro Unit Code: 02030202/150 **Str Class:** C Southern Long Island
Waterbody Type: River **Reg/County:** 1/Suffolk Co. (52)
Waterbody Size: 3.0 Miles **Quad Map:** RIVERHEAD (R-30-1) ...
Seg Description: stream and tribs from Peconic Ave to Peconic L (fresh)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH (algal blooms, vegetation)
Suspected: D.O./OXYGEN DEMAND, Nutrients, Pathogens
Possible: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: OTHER SANITARY DISCH, Other Source (boat pollution)
Possible: Municipal (Calverton STP), Private/Comm/Inst

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/PEP **Resolution Potential:** Medium
TMDL/303d Status: n/a

Further Details

Overview

Aquatic life support and various other recreational uses of this portion of the Lower Peconic River are impacted by excessive aquatic weed growth and occasional algal blooms. Low dissolved oxygen levels have been reported at times, most likely related to plant growth and summer temperatures. Pathogens and various other pollutants from stormwater and nonpoint urban runoff and discharges are also a concern. Boat pollution has also been noted as potential problem. (DEC/DOW, Region 2, October 2000)

Water Quality Sampling

NYSDEC Rotating Integrated Basin Studies (RIBS) monitoring of the Peconic River was conducted in 2003 and 2004. Iron and lead were measured in the water column in concentrations indicating parameters of concern. Based on macroinvertebrate sampling in both 2003 and 2004, water quality was assessed as slightly impacted, as it was in 1998 and 1999. Impact Source Determination for 2003 identified several possible stressors, including toxic/industrial and organic inputs and impoundment conditions as possible sources of water quality impact. The Nutrient Biotic Index indicated eutrophic conditions for both phosphorus and nitrogen. Mollusks collected for metal and PAH tissue

analysis showed elevated levels of mercury, phenanthrene and pyrene. Chronic toxicity testing using water from this location detected no significant reproductive or mortality effects on test organisms. Three PAHs (fluoranthene, phenanthrene and pyrene) were measured in the sediment at concentrations exceeding the probable effects concentration, but overall sediment quality is not likely to cause chronic toxicity to sediment-dwelling organisms. Based on the consensus of these established assessment methods, overall water quality at this site shows some impacts, but supports its uses. (DEC/DOW, BWAM/RIBS, May 2011)

NYSDEC RIBS Intensive Network monitoring in Calverton was also conducted in 1999. Fecal coliform values were found to be high. Chemical monitoring revealed no other particular water quality issues. (DEC/DOW, BWAR/SWAS, January 2001)

A biological (macroinvertebrate) assessment of the Peconic River at multiple sites below (in Riverhead) and above (in Calverton) this segment was conducted in 1998 and 1999. Sampling results indicated moderately impacted water quality conditions. The Calverton site was assessed as only slightly impacted in 1999. Dissolved oxygen was very low (2.8 ppm) at the Calverton site in 1998, and the invertebrate fauna was dominated by midges and scuds. Dissolved oxygen was higher (6.0 ppm) at the Riverhead site, but the fauna was still dominated by tolerant organisms, mostly scuds, worms, and midges. The cause of impact was not determined but regional staff suspects the problem is driven by summer algal blooms and excessive aquatic vegetation in this slow-moving stream. Water quality at the Calverton site appeared improved in 1999, a low-flow year, and the fauna was dominated by clean-water mayflies. (DEC/DOW, BWAR/SBU, January 2000)

Although these sampling locations lie just outside the segment, they are considered to be representative of water quality in the subject reach.

Shellfishing Use

Year-round shellfishing restrictions apply to this Class C portion of the river. Because of its stream classification, the river is not assessed for support of shellfishing use. (DEC/FWMR, Region 1, October 2000)

The Peconic Estuary Program

This segment is included within the Peconic Estuary Program (PEP) study area, situated between the North and South Forks of eastern Long Island and consisting of more than 100 distinct bays, harbors, embayments, and tributaries, covering more than 128,000 acres of land and 121,000 acres of surface water. As part of the National Estuary Program (NEP), the Peconics were charged with developing and implementing a watershed-based comprehensive management plan. To accomplish this goal the PEP established an innovative partnership of local, state, and federal governments, citizen and environmental groups, businesses and industries, and academic institutions. The PEP Comprehensive Conservation and Management Plan (CCMP) was formally approved by USEPA in 2001. There are over 300 specific management tasks included in the CCMP, with priority topics focusing on Brown Tide, nutrients, habitat and living resources, pathogens, toxic pollutants, and critical lands protection. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2002 to address impacts from boat pollution. (PEP, August 2010)

The Peconic Estuary Program (PEP) has classified these waters as a "mitigation priority" because nitrogen levels need to be reduced to optimize dissolved oxygen conditions. PEP reports substantial violations of the their proposed total nitrogen guideline for mean summer conditions, and frequent and occasionally "serious" (i.e. below 3.5 and 2.0 mg/l) violations of current dissolved oxygen standards. (Suffolk County/PEP, May 2001)

Segment Description

This segment includes the Class C fresh water portion of the lower Peconic River from Peconic Avenue in Riverhead to Peconic Lake.

Peconic River, Middle, and tribs (1701-0261) MinorImpacts

Waterbody Location Information

Revised: 03/05/2012

Water Index No: (MW6.2) GB..FB-112 (portion 3)
Drain Basin: Atlantic-Long Island Sound
Hydro Unit Code: 02030202/150 **Str Class:** C
Southern Long Island
Waterbody Type: River
Reg/County: 1/Suffolk Co. (52)
Waterbody Size: 2.8 Miles
Quad Map: RIVERHEAD (R-30-1) ...
Seg Description: stream and tribs from Peconic Lake to P565a (fresh)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH (algal blooms, vegetation)
Suspected: D.O./Oxygen Demand, Nutrients, Pathogens
Possible: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Private/Comm/Inst
Possible: Municipal (Calverton STP)

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/PEP **Resolution Potential:** Medium
TMDL/303d Status: n/a

Further Details

Overview

Aquatic life support and various other recreational uses of this portion of the Lower Peconic River are impacted by excessive aquatic weed growth and occasional algal blooms. Low dissolved oxygen levels have been reported at times, most likely related to plant growth and summer temperatures. Pathogens and various other pollutants from stormwater and nonpoint urban runoff and discharges are also a concern. Boat pollution has also been noted as potential problem. (DEC/DOW, Region 2, October 2000)

Water Quality Sampling

NYSDEC Rotating Integrated Basin Studies (RIBS) monitoring of the Peconic River was conducted in 2003 and 2004. Iron and lead were measured in the water column in concentrations indicating parameters of concern. Based on macroinvertebrate sampling in both 2003 and 2004, water quality was assessed as slightly impacted, as it was in 1998 and 1999. Impact Source Determination for 2003 identified several possible stressors, including toxic/industrial and organic inputs and impoundment conditions as possible sources of water quality impact. The Nutrient Biotic Index indicated eutrophic conditions for both phosphorus and nitrogen. Mollusks collected for metal and PAH tissue analysis showed elevated levels of mercury, phenanthrene and pyrene. Chronic toxicity testing using water from this

location detected no significant reproductive or mortality effects on test organisms. Three PAHs (fluoranthene, phenanthrene and pyrene) were measured in the sediment at concentrations exceeding the probable effects concentration, but overall sediment quality is not likely to cause chronic toxicity to sediment-dwelling organisms. Based on the consensus of these established assessment methods, overall water quality at this site shows some impacts, but supports its uses. (DEC/DOW, BWAM/RIBS, May 2011)

NYSDEC RIBS Intensive Network monitoring in Calverton was also conducted in 1999. Fecal coliform values were found to be high. Chemical monitoring revealed no other particular water quality issues. (DEC/DOW, BWAR/SWAS, January 2001)

A biological (macroinvertebrate) assessment of the Peconic River at multiple sites below (in Riverhead) and above (in Calverton) this segment was conducted in 1998 and 1999. Sampling results indicated moderately impacted water quality conditions. The Calverton site was assessed as only slightly impacted in 1999. Dissolved oxygen was very low (2.8 ppm) at the Calverton site in 1998, and the invertebrate fauna was dominated by midges and scuds. Dissolved oxygen was higher (6.0 ppm) at the Riverhead site, but the fauna was still dominated by tolerant organisms, mostly scuds, worms, and midges. The cause of impact was not determined but regional staff suspects the problem is driven by summer algal blooms and excessive aquatic vegetation in this slow-moving stream. Water quality at the Calverton site appeared improved in 1999, a low-flow year, and the fauna was dominated by clean-water mayflies. (DEC/DOW, BWAR/SBU, January 2000)

Although these sampling locations lie just outside the segment, they are considered to be representative of water quality in the subject reach.

Source Assessment and Remediation

Groundwater contamination (volatile organic compounds) from a nearby Superfund Site (US Navy/Calverton) has been raised as a concern. The Navy is initiating pump and treat at their property line, and are continuing to evaluate the nature, extent, and appropriate remedies for the off-site VOC plume. (DEC/DER, February 2012)

The Peconic Estuary Program

This segment is included within the Peconic Estuary Program (PEP) study area, situated between the North and South Forks of eastern Long Island and consisting of more than 100 distinct bays, harbors, embayments, and tributaries, covering more than 128,000 acres of land and 121,000 acres of surface water. As part of the National Estuary Program (NEP), the Peconics were charged with developing and implementing a watershed-based comprehensive management plan. To accomplish this goal the PEP established an innovative partnership of local, state, and federal governments, citizen and environmental groups, businesses and industries, and academic institutions. The PEP Comprehensive Conservation and Management Plan (CCMP) was formally approved by USEPA in 2001. There are over 300 specific management tasks included in the CCMP, with priority topics focusing on Brown Tide, nutrients, habitat and living resources, pathogens, toxic pollutants, and critical lands protection. A vessel waste no discharge zone was established for the entire Peconic Estuary in 2002 to address impacts from boat pollution. (PEP, August 2010)

The Peconic Estuary Program (PEP) has classified these waters as a "mitigation priority" because nitrogen levels need to be reduced to optimize dissolved oxygen conditions. PEP reports substantial violations of the proposed total nitrogen guideline for mean summer conditions, and frequent and occasionally "serious" (i.e. below 3.5 and 2.0 mg/l) violations of current dissolved oxygen standards. (Suffolk County/PEP, May 2001)

Segment Description

This segment includes the Class C fresh water portion of the Peconic River from Peconic Lake to unnamed pond (P565a) above Calverton.

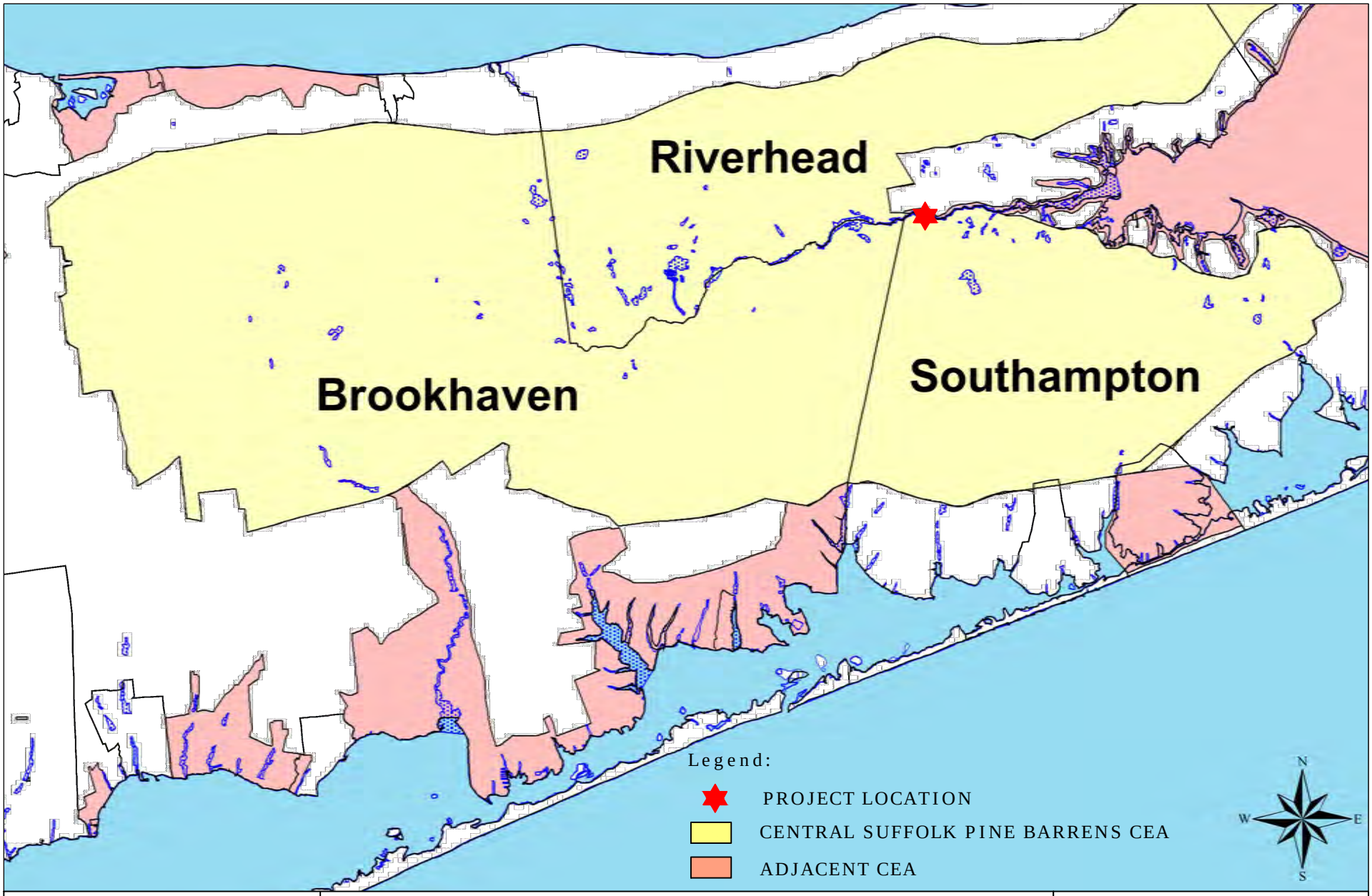


FIGURE 5
Critical Environmental Area (CEA)

Source: NYSDEC
Scale: N.T.S.

NORTH

COUNTY ROAD CR 94
ROUNDABOUT

FEAF

FIGURE 6
CENTRAL PINE BARRENS COMPREHENSIVE LAND USE PLAN

Source: NYSGIS Orthoimagery Program 2013, NYS Department of Environmental Conservation
Scale: 1 inch = 100 feet

N

County Road 94
Roundabout

FEAF

The Coordinates of the point you clicked on are:

NYTM	E : 696819	Longitude/Latitude	W : 72.662
	N : 4531901		N : 40.914

State-Regulated Freshwater Wetlands

Wetland ID	Wetland Class	Wetland Size (Acres)
	0	

Rare Plants and Rare Animals

This location is in the vicinity of one or more :
Rare Animals and/or Rare Plants

Natural Communities Near This Location:

Natural Community Name	Location	Ecological System
Coastal plain pond shore	Cranberry Bog	Freshwater Nontidal Wetlands
Pitch pine-oak forest	Dwarf Pine Barrens Macrosite	Uplands
Red maple-blackgum swamp	Lower Peconic River	Freshwater Nontidal Wetlands

Old or Potential Records (these records are not displayed on the map)

Common Name	Scientific Name	Date Last Documented	Location	Habitat Where Last Seen	Animal, Plant, or other	NYS Protected Status
Pale Duckweed	Lemna valdiviana	1873-08-26	Peconic River		Rare Plant	Endangered
Fibrous Bladderwort	Utricularia striata	1968-08-16	Sweezy Pond	Sedge bog.	Rare Plant	Threatened
Fibrous Bladderwort	Utricularia striata	1972-08-15	Riverhead	Warm pond edge. Wet mud.	Rare Plant	Threatened
Short-fruit Rush	Juncus brachycarpus	1943-07-06	Riverhead		Rare Plant	Endangered
Dwarf Huckleberry	Gaylussacia dumosa	1877-08-20	Riverhead		Rare Plant	Endangered
Stargrass	Aletris farinosa	1949-09-01	Riverhead	Specimen label: 1920: Wet sandy shore. 1949: Dry sandy open ground.	Rare Plant	Threatened
Spotted Pondweed	Potamogeton pulcher	1952-09-05	Riverhead	1952: in dense [?] stream.	Rare Plant	Threatened
Heart Sorrel	Rumex hastatulus	1878-07-05	Riverhead		Rare Plant	Endangered
Virginia False Gromwell	Onosmodium virginianum	1927-07-15	Riverhead		Rare Plant	Endangered
Golden Aster Flower Moth	Schinia tuberculum	1942-08-16	Riverhead		Rare Animal	Not Listed
Marsh Straw Sedge	Carex hormathodes	1916-06-19	Peconic River	In open gravel flat. Boggy opening in oak and pine woods with skunk cabbage.	Rare Plant	Threatened
Oakes' Evening-primrose	Oenothera oakesiana	1952-08-14	Southwest Of Riverhead	Sandy soil.	Rare Plant	Threatened
Northern Blazing-star	Liatris scariosa var. novae-angliae	1919-09	Riverhead	Dry shrub oak grounds.	Rare Plant	Threatened
Few-flowered Nutrush	Scleria pauciflora var. caroliniana	1950-09-12	Riverhead	Dry sandy clearing.	Rare Plant	Endangered
Doll's Merolonche	Merolonche dolli	1931-07-07	Riverhead Pine Barrens		Rare Animal	Not Listed
Sea-pink	Sabatia stellaris	1979-07-30	Peconic River	Specimen label: Edge of road in moist sand just above Juncus zone. Sandy margin of salt marsh.	Rare Plant	Threatened
Marsh Fimbry	Fimbristylis castanea	1878-08-26	Riverhead		Rare Plant	Threatened
Weak Rush	Juncus debilis	1894-07-03	Riverhead		Rare Plant	Endangered
Large Grass-leaved Rush	Juncus biflorus	1962-08-01	Riverhead	Wet soil.	Rare Plant	Endangered
New Jersey Pine Barrens Tiger Beetle	Cicindela patruela consentanea	1950-10-20	Riverhead		Rare Animal	Not Listed
Large Grass-leaved Rush	Juncus biflorus	1963-08-16	Sweezy Pond		Rare Plant	Endangered
Dragon's Mouth Orchid	Arethusa bulbosa	1925-06-02	Riverhead	Bog. Sphagnous swamp.	Rare Plant	Threatened
Possum-haw	Viburnum nudum var. nudum	1938-08-24	Little Peconic Reservoir	Outlet of pond.	Rare Plant	Endangered
A Tiger Beetle	Cicindela abdominalis	1917-08-01	Riverhead		Rare Animal	Not Listed
Southern Arrowwood	Viburnum dentatum var. venosum	1940-09-15	Riverhead		Rare Plant	Threatened
Hop Sedge	Cyperus lupulinus ssp. lupulinus	1959-08-04	Sweezy Pond	Borders of pond.	Rare Plant	Threatened
American Ipecac	Euphorbia ipecacuanhae	1918-08-09	Riverhead		Rare Plant	Endangered
Small White	Ageratina		Riverhead		Rare	

Snakeroot	aromatica var. aromatica	1952-09-05	Pine Barrens	Specimen label: Dry woods.	Plant	Endangered
Coastal Goldenrod	Solidago latissimifolia	1877-09-10	Riverhead		Rare Plant	Endangered
Heart Sorrel	Rumex hastatulus	1873-06-28	Peconic River	Sandy shores.	Rare Plant	Endangered
Swamp Smartweed	Persicaria setacea	1950-09-12	Peconic River Riverhead	Along shore.	Rare Plant	Endangered
Hop Sedge	Cyperus lupulinus ssp. lupulinus	1950-09-10	Riverhead	Sandy roadsides.	Rare Plant	Threatened
Swamp Sunflower	Helianthus angustifolius	1877-09-12	Riverhead		Rare Plant	Threatened

USGS Quadrangle

USGS Quadrangle Name
RIVERHEAD

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

Disclaimer:If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.

SUFFOLK COUNTY
FULL ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 2 – Identification of Potential Project Impacts

Instructions: Part 2 is to be completed by the lead agency. It is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

Tips for completing Part 2:

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer "**YES**" to a numbered question, please complete all the questions that follow in that section.
- If you answer "**NO**" to a numbered question, move on to the next numbered section.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "**Moderate to large impact may occur**."
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the "whole action."
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

1. Impact on Land
The proposed action may involve construction on, or physical alteration of the land surface of the proposed site. (See Part 1.D.1) YES ☒ NO ☐
If "YES", answer questions a-h. If "NO", move on to Section 2.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E.2.d	☒	☐
b. The proposed actin may involve construction on slopes of 15% or greater.	E.2.f	☒	☐
c. The proposed actin may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E.2.a	☒	☐
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D.2.a	☒	☐
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D.1.g	☒	☐
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D.2.e D.2.q	☒	☐
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B.*ix*	☒	☐

h. Other impacts:		☐	☐

2. Impact on Geological Features
The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1.E.2.g)
YES ☐ NO ☒
If "YES", answer questions a-c. If "NO", move on to Section 3.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s):	E.2.g	☐	☐
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature:	E.3.c	☐	☐
c. Other impacts:		☐	☐

3. Impact on Surface Water
The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1.D.2 & E.2.h)
YES ☒ NO ☐
If "YES", answer questions a-l. If "NO", move on to Section 4.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body	D.1.j D.2.b	☒	☐
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D.2.b	☒	☐
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D.2.a	☒	☐
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E.2.h E.2.i	☒	☐
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D.2.a D.2.h	☒	☐
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D.2.c	☒	☐
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D.2.d	☒	☐
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D.2.e	☒	☐
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E.2.h – E.2.l	☒	☐
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D.2.q E.2.h – E.2.l	☒	☐
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D.1.a D.2.d	☒	☐

l. Other impacts:		☐	☐

4. Impact on Groundwater The proposed action may result in new or additional use of groundwater, or may have the potential to introduce contaminants to groundwater or an aquifer. (See Part 1.D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t) *If "YES", answer questions a-h. If "NO", move on to Section 5.*		YES ☐ NO ☒	
	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D.2.c	☐	☐
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source:	D.2.c	☐	☐
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D.1.a D.2.c – D.2.d	☐	☐
d. The proposed action may include or require wastewater discharged to groundwater.	D.2.d E.2.p	☐	☐
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D.2.c E.1.f – E.1.h	☐	☐
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D.2.p E.2.p	☐	☐
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	D.2.q E.2.h – E.2.l E.2.p D.2.c	☐	☐
h. Other impacts:		☐	☐

5. Impact on Flooding The proposed action may result in development on lands subject to flooding. (See Part 1.E.2) *If "YES", answer questions a-g. If "NO", move on to Section 6.*		YES ☒ NO ☐	
	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may result in development in a designated floodway.	E.2.m	☒	☐
b. The proposed action may result in development within a 100 year floodplain.	E.2.n	☒	☐
c. The proposed action may result in development within a 500 year floodplain.	E.2.o	☒	☐
d. The proposed action may result in, or require, modification of existing drainage patterns.	D.2.b D.2.e	☒	☐
e. The proposed action may change flood water flows that contribute to flooding.	D.2.b E.2.m – E.2.o	☒	☐
f. If there is a dam located on the site of the proposed action, the dam has failed to meet one or more safety criteria on its most recent inspection.	E.1.e	☒	☐

g. Other impacts:		☐	☐

6. Impact on Air
The proposed action may include a state regulated air emission source. (See Part 1.D.2.f, D.2.h, D.2.g)
If "YES", answer questions a-f. If "NO", move on to Section 7.

YES ☐ NO ☒

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:			
i. More than 1000 tons/year of carbon dioxide (CO2)	D.2.g	☐	☐
ii. More than 3.5 tons/year of nitrous oxide (N20)	D.2.g	☐	☐
iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D.2.g	☐	☐
iv. More than .045 tons/year of sulfur hexafluoride (SF6)	D.2.g	☐	☐
v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflurocarbons (HCFCs) emissions	D.2.g	☐	☐
vi. 43 tons/year or more of methane	D.2.h	☐	☐
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D.2.g	☐	☐
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU=s per hour.	D.2.f D.3.g	☐	☐
d. The proposed action may reach 50% of any two or more of the thresholds in "a" through "c", above.	D.1.i D.2.k	☐	☐
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D.2.s	☐	☐
f. Other impacts:		☐	☐

7. Impact on Plants and Animals
The proposed action may result in a loss of flora or fauna. (See Part 1.E.2.q – E.2.u)
If "YES", answer questions a-j. If "NO", move on to Section 8.

YES ☐ NO ☒

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E.2.s	☐	☐
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E.2.s	☐	☐

c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E.2.t	☐	☐
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E.2.t	☐	☐
e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E.3.c	☐	☐
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source:	E.2.r	☐	☐
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E.2.q	☐	☐
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source:	E.1.b	☐	☐
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D.2.q	☐	☐
j. Other impacts:		☐	☐

8. Impact on Agricultural Resources
The proposed action may impact agricultural resources. (See Part 1.E.3.a & E.3.b)
YES ☐ NO ☒
If "YES", answer questions a-h. If "NO", move on to Section 9.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E.2.c E.3.b	☐	☐
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc.).	E.1.a E.1.b	☐	☐
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E.3.b	☐	☐
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District or more than 10 acres if not within an Agricultural District.	E.1.b E.3.a	☐	☐
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	E.1.a E.1.b	☐	☐
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C.2.c, C.3 D.2.c, D.2.d	☐	☐
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C.2.c	☐	☐
h. Other impacts:		☐	☐

9. Impact on Aesthetic Resources
The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (See Part 1.E.1.a, E.1.b, E.3.h)
If "YES", answer questions a-g and complete Appendix B - Visual EAF Addendum. If "NO", move on to Section 10.

YES ☐ NO ☒

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E.3.h	☐	☐
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	C.2.b E.3.h	☐	☐
c. The proposed action may be visible from publicly accessible vantage points:			
i. Seasonally (e.g., screened by summer foliage, but visible during other seasons)	E.3.h	☐	☐
ii. Year round	E.3.h	☐	☐
d. The situation or activity in which viewers are engaged while viewing the proposed action is:	E.3.h		
i. Routine travel by residents, including travel to and from work	E.2.u	☐	☐
ii. Recreational or tourism based activities	E.1.c	☐	☐
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E.3.h	☐	☐
f. There are similar projects visible within the following distance of the proposed project:	D.1.a		
0 – ½ mile	D.1.h	☐	☐
½ – 3 mile	D.1.i	☐	☐
3 – 5 mile	E.1.a	☐	☐
5+ mile		☐	☐
g. Other impacts:		☐	☐

10. Impact on Historic and Archeological Resources
The proposed action may occur in or adjacent to an historic or archaeological resource. (See Part 1.E.3.e, E.3.f, E.3.g)
If "YES", answer questions a-e. If "NO", move on to Section 11.

YES ☒ NO ☐

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on or has been nominated by the NYS Board of Historic Preservation for inclusion on the State or National Register of Historic Places.	E.3.e	☒	☐
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E.3.f	☒	☐

c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source:	E.3.g	☒	☐
d. Other impacts:		☐	☐
e. If any of the above (a-d) are answered "Yes", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E.3.e – E.3g	☐	☐
ii. The proposed action may result in the alteration of the property's setting or integrity.	E.1.a, E.1.b E.3.e – E.3.g	☐	☐
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	C2, C3 E.3.g, E.3.h	☐	☐

11. Impact on Open Space and Recreation

The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan. (See Part 1.C.2.c, E.1.c, E.2.u)

YES ☐ NO ☒

If "YES", answer questions a-e. If "NO", move on to Section 12.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, and wildlife habitat.	D.2.e, E.1.b E.2.h – E.2.l E.2.q – E.2.t	☐	☐
b. The proposed action may result in the loss of a current or future recreational resource.	C.2.a, C.2.c E.1.c, E.2.u	☐	☐
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C.2.a, C.2.c E.1.c, E.2.u	☐	☐
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C.2.c, E.1.c	☐	☐
e. Other impacts:		☐	☐

12. Impact on Critical Environmental Areas

The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1.E.3.d)

YES ☒ NO ☐

If "YES", answer questions a-c. If "NO", move on to Section 13.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E.3.d	☒	☐
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E.3.d	☒	☐
c. Other impacts:		☐	☐

13. Impact on Transportation
The proposed action may result in a change to existing transportation systems. (See Part 1.D.2.j) YES ☒ NO ☐
If "YES", answer questions a-f. If "NO", move on to Section 14.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D.2.j	☒	☐
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D.2.j	☒	☐
c. The proposed action will degrade existing transit access.	D.2.j	☒	☐
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D.2.j	☒	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D.2.j	☒	☐
f. Other impacts:		☐	☐

14. Impact on Energy
The proposed action may cause an increase in the use of any form of energy (See Part 1.D.2.k) YES ☐ NO ☒
If "YES", answer questions a-e. If "NO", move on to Section 15.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D.2.k	☐	☐
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D.1.h D.1.i D.2.k	☐	☐
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D.2.k	☐	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D.1.i	☐	☐
e. Other impacts:		☐	☐

15. Impact on Noise, Odor and Light
The proposed action may result in an increase in noise, odors or outdoor lighting (See Part 1.D.2.m, D.2.n, D.2.o) YES ☒ NO ☐
If "YES", answer questions a-f. If "NO", move on to Section 16.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D.2.m	☒	☐
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D.2.m E.1.d	☒	☐
c. The proposed action may result in routine odors for more than one hour per day.	D.2.o	☒	☐

d. The proposed action may result in light shining onto adjoining properties.	D.2.n	☒	☐
e. The proposed action may result in lighting that creates sky-glow brighter than existing-area conditions.	D.2.n E.1.a	☒	☐
f. Other impacts:		☐	☐

16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants (See Part 1.D.2.q, E.1.d, E.1.f, E.1.g, E.1.h)

YES ☐ NO ☒

If "YES", answer questions a-m. If "NO", move on to Section 17.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E.1.d	☐	☐
b. The site of the proposed action is currently undergoing remediation.	E.1.g, E.1.h	☐	☐
c. There is a completed emergency spill remediation or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E.1.g E.1.h	☐	☐
d. The site of the action is subject to an institutional control limiting the use of the property (e.g. easement, deed restriction)	E.1.g E.1.h	☐	☐
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E.1.g E.1.h	☐	☐
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D.2.t	☐	☐
g. The proposed action involves construction or modification of a solid waste management facility.	D.2.q E.1.f	☐	☐
h. The proposed action may result in the unearthing of solid or hazardous waste.	D.2.q E.1.f	☐	☐
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D.2.r D.2.s	☐	☐
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E.1.f – E.1.h	☐	☐
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E.1.f E.1.g	☐	☐
l. The proposed action may result in the release of contaminated leachate from the project site.	D.2.r, D.2.s E.1.f	☐	☐
m. Other impacts:		☐	☐

17. Consistency with Community Plans

The proposed action is not consistent with adopted land use plans. (See Part 1.C.1, C.2, C.3)

YES ☐ NO ☒

If "YES", answer questions a-h. If "NO", move on to Section 18.

	Relevant Part 1 Question(s)	No, or small impact may occur	Moderate to large impact may occur

a. The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C.2, C.3, D.1.a, E.1.a, E.1.b	☐	☐
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C.2	☐	☐
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C.2, C.3	☐	☐
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C.2	☐	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C.3 D.1.e, D.1.f, D.1.h, E.1.b	☐	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C.4, D.2.c, D.2.d, D.2.j	☐	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C.2.a	☐	☐
h. Other impacts:		☐	☐

18. Consistency with Community Character

The proposed action is inconsistent with the existing community character (See Part 1.C.2, C.3, D.2, E.3) YES ☐ NO ☒

If "YES", answer questions a-g. If "NO", move on to Part 3.

	Relevant Part 1 Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E.3.e, E.3.f, E.3.g	☐	☐
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C.4	☐	☐
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C.2, C.3,D.1.h, D.1.i, E.1.a	☐	☐
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C.2, E.3	☐	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C.2, C.3	☐	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C.2, C.3, E.1.a, E.1.b, E.2.g – E.2.l	☐	☐
g. Other impacts:		☐	☐

SUFFOLK COUNTY
FULL ENVIRONMENTAL ASSESSMENT FORM
6 NYCRR Part 617
State Environmental Quality Review

Part 3 – Evaluation of the Magnitude and Importance of Project Impacts and Determination of Significance

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

Reasons Supporting This Determination:
To complete this section:

* Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
* Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
* The assessment should take into consideration any design element or project changes.
* Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
* Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact
* For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
* Attach additional sheets, as needed.

Determination of Significance
Type 1 and Unlisted Actions

SEQR Status: Type I ☐ Unlisted ☒

Identify portions of EAF completed for this project: Part 1 ☒ Part 2 ☒ Part 3 ☐

Upon review of the information recorded on this EAF, as noted, plus this additional support information

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of Suffolk County as lead agency that:

☐ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☐ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action: Improvements to County Road 94 Roundabout

Name of Lead Agency: Suffolk County

Name of Responsible Officer in Lead Agency:

Title of Responsible Officer in Lead Agency:

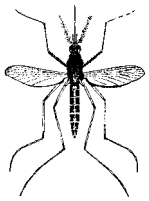
Signature of Responsible Officer in Lead Agency: Date:

Signature of Preparer (if different from Responsible Officer) Date:

For Further Information:
Contact Person: John Corral
Address: H. Lee Dennison Bldg.- 4th Floor
100 Vets. Hwy.
PO Box 6100
Hauppauge, NY 11788
Telephone Number: 631-853-5191
Email: john.corral@suffolkcountyny.gov

For Type 1 Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:
Chief Executive Officer of the political subdivision in which the action will be principally located (Town/City/Village)
Other involved agencies (if any)
Applicant (if any)
Environmental Notice Bulletin: http://www.dec.ny.gov/enb/enb.html

Suffolk County Department of Public Works



Division of Vector Control

Steve Bellone
Suffolk County Executive

Gilbert Anderson, P.E.
Commissioner of Public Works

Dominick V. Ninivaggi
Superintendent

To: Gloria Russo, Suffolk County Council on Environmental Quality

From: Dominick V. Ninivaggi

Date: September 29, 2015

Subject: 2016 Annual Plan of Work

I have enclosed my annual Plan of Work for 2016. As you know, Article VIII, Section C8-4B(2) of the Suffolk County Charter requires the Division of Vector Control to file a work plan for the following year with the County Legislature, and review of the plan by CEQ is part of the SEQRA process. I have prepared a short form EAF for SEQRA compliance. This Annual Plan is consistent with the Findings of the Vector Control and Wetlands Management Long Term Plan and GEIS as approved by the Legislature in Resolution 285-2007. It includes the adulticide prallethrin as a result of Legislative Resolution 34-2014 modifying the Long Term Plan to add this active ingredient. Use of this material will be consistent with the conditions of the CEQ resolution regarding application in marine areas. Now that the Wetlands Stewardship Strategy has been approved we will step up Integrated Marsh Management (IMM) activities, particularly grant-funded projects. The adulticiding section on pages 6-10 has modified to make it clearer when adulticiding in response to virus is and is not required. The net effect will be an overall reduction in adulticide use. It is my understanding that no further compliance under SEQRA is required. I have also included a section on ticks as required by Resolution 797-2013, but no activities that require SEQRA review are planned. These documents are available in electronic format for ease of transmission to the Council and Legislature. Total larvicide treatments in 2015 amounted to 12166 acres, down 29% from 2014. Total adulticide acreage was 13184 acres, up 54% from 2014. These yearly numbers will continue to fluctuate based on weather, tidal conditions and the level of virus activity in any given year.

Cc: John Corral
Gilbert Anderson

Project ID:

SUFFOLK COUNTY
SHORT ENVIRONMENTAL ASSESSMENT FORM

For UNLISTED ACTIONS Only
6 NYCRR Part 617.20
STATE ENVIRONMENTAL QUALITY REVIEW

Part I-PROJECT INFORMATION (to be completed by Applicant or Project Sponsor)

1. APPLICANT /SPONSOR	2. PROJECT NAME
Suffolk County DPW, Division of Vector Control	**Vector Control 2016 Annual Plan of Work**

3. PROJECT LOCATION
Municipality **Throughout the County** County **Suffolk**

4. PRECISE LOCATION (Street address and road intersections, prominent landmarks, etc., or provide map)
Mosquito larval habitats and residential areas, as determined by surveillance. Maps and other information are on file at the Vector office in Yaphank.

5. IS PROPOSED ACTION:
☐ New ☐ Expansion ☐ Modification /alteration **The project is the annual plan for the County's ongoing mosquito control program, to be conducted pursuant to the Vector Control and Wetlands Management Long Term Plan and GEIS (the Long Term Plan).**

6. DESCRIBE PROJECT BRIEFLY:
The project is an integrated mosquito control program as described in the Long Term Plan.

7. AMOUNT OF LAND AFFECTED:
Initially _____ acres Ultimately _____ acres **Acres treated varies according to results of surveillance.**

8. WILL PROPOSED ACTION COMPLY WITH EXISTING ZONING OR OTHER LAND USE RESTRICTIONS?
X☐ Yes ☐ No If No, describe briefly

9. WHAT IS PRESENT LAND US IN VICINITY OF PROJECT?
☐ Residential ☐ Industrial ☐ Commercial ☐ Agriculture ☐ Park/Forest/Open Space ☐ Other
Describe: **Mosquito control takes place in all types of areas.**

10. DOES ACTION INVOLVE A PERMIT APPROVAL, OR FUNDING, NOW OR ULTIMATELY FROM ANY OTHER GOVERNMENTAL AGENCY (FEDERAL, STATE OR LOCAL)?
X☐ Yes ☐ No If yes, list agency(s) and permit/approvals **Use of larvicides requires a variety of NYDEC permits, including Article 15 (Aquatic Pesticides), Article 24 (Freshwater Wetlands) and Temporary Revocable Permits of NYDEC lands. Use of adulticides in or adjacent to freshwater wetlands requires an Article 24 permit or Emergency Authorization. Use of pesticides in and near water requires permits under the Clean Water Act. Water management may require NYDEC Article 24 or Article 25 (Tidal Wetlands) permits, and also may require Army Corps of Engineers permits.**

11. DOES ANY ASPECT OF THE ACTION HAVE A CURRENTLY VALID PERMIT OR APPROVAL?
y☐ Yes ☐ No If yes, list agency name and permit/approval **Article 24 permits are in place for pesticides in 2015. A Notice of Intent has been filed as required under the Clean Water Act. The proposed activities are also being conducted under the approved Long Term Plan.**

12. AS A RESULT OF PROPOSED ACTION WILL EXISTING PERMIT/APPROVAL REQUIRE MODIFICATION?
☐ Yes X☐ No

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor Name: **Dominick V. Ninivaggi, Superintendent** Date: **September 28, 2015**

Signature: _____

If the action is in the Coastal Area, and you are a state agency, complete the Coastal Assessment Form before proceeding with this assessment

Continue to Part II

PART II - ENVIRONMENTAL ASSESSMENT (To be completed by Agency)

A. DOES ACTION EXCEED ANY TYPE I THRESHOLD IN 6 NYCRR, PART 617.4? If yes, coordinate the review process and use the FULL EAF.

X☐ yes ☐ No Comment: **Coordinated review has already been conducted for the Vector Control and Wetlands Management Long Term Plan, a full EAF and a full GEIS have been prepared and approved for that Plan. This Annual Plan is fully consistent with the March 22, 2007 Findings for the GEIS and as such, no further SEQRA review is required.**

B. WILL ACTION RECEIVE COORDINATED REVIEW AS PROVIDED FOR UNLISTED ACTIONS IN 6 NYCRR, PART 617.6? If No, a negative declaration may be superseded by another involved agency.

X☐ yes ☐ No **Coordinated review and GEIS have already been conducted, and this Annual Plan is fully consistent with the March 22, 2007 Findings for the GEIS. As such, no further SEQRA review is necessary.**

C. COULD ACTION RESULT IN ANY ADVERSE EFFECTS ASSOCIATED WITH THE FOLLOWING: (Answers may be handwritten, if legible}

C1. Existing air quality, surface or groundwater quality or quantity, noise levels, existing traffic patterns, solid waste production or disposal, potential or erosion, drainage or flooding problems?
Explain briefly: **no**

C2. Aesthetic, agricultural, archaeological, historic, or other natural or cultural resources; or community or neighborhood character?
Explain briefly: **no**

C3. Vegetation or fauna, fish, shellfish or wildlife species, significant habitats, or threatened or endangered species?
Explain briefly: **no**

C4. A community's existing plans or goals as officially adopted, or a change in use or intensity of use of land or other natural resources?
Explain briefly: **no**

C5. Growth, subsequent development, or related activities likely to be induced by the proposed action?
Explain briefly: **no**

C6. Long term, short term, cumulative, or other effects not identified in C1-C5?
Explain briefly: **no**

C7. Other impacts (including changes in use of either quantity or type of energy)?
Explain briefly: **no**

D. WILL THE PROJECT HAVE AN IMPACT ON THE ENVIRONMENTAL CHARACTERISTICS THAT CAUSED THE ESTABLISHMENT OF A CEA?

☐ yes X☐ No If Yes, explain briefly:

E. IS THERE, OR IS THERE LIKELY TO BE, CONTROVERSY RELATED TO POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS?

X☐ yes ☐ No If Yes, explain briefly: **Full EIS was prepared with extensive public input and review, with approval by the County Legislature after extensive hearings.**

PART III - DETERMINATION OF SIGNIFICANCE (To be completed by Agency)

INSTRUCTIONS: For each adverse effect identified above, determine whether it is substantial, large, important or otherwise significant. Each effect should be assessed in connection with its (a) setting (i.e. urban or rural); (b) probability of occurring; (c) duration; (d) irreversibility; (e) geographic scope; and (f) magnitude. If necessary, add attachments or reference supporting materials. Ensure that explanations contain sufficient detail to show that all relevant adverse impacts have been identified and adequately addressed.

X Check this box if you have identified one or more potentially large or significant adverse impacts which **MAY** occur.

☐ Then proceed directly to the **FULL EAF** and/or prepare a positive declaration. **A full EAF and GEIS have already been prepared**

☐ Check this box if you have determined, based on the information and analysis above and any supporting documentation, that the proposed action **WILL NOT** result in any significant adverse environmental impacts **AND** provide on attachments as necessary, the reasons supporting this determination:

Suffolk County Department of Public Works, Division of Vector Control

Name of Lead Agency

Dominick V. Ninivaggi
Print or Type Name of Responsible Officer in Lead Agency

Superintendent
Title of Responsible Officer

Signature of Responsible Officer in Lead Agency

Signature of Preparer (If different from responsible officer)

September 28, 2015

SUFFOLK COUNTY DEPARTMENT OF PUBLIC WORKS
DIVISION OF VECTOR CONTROL

2016 ANNUAL PLAN OF WORK

The Suffolk County Department of Public Works, Division of Vector Control, is responsible under the County Charter for controlling mosquito infestations that are of public health importance. The Division's responsibility is to control mosquito infestations that significantly threaten public health, or create social or economic problems for the communities in which they occur. The Division meets its responsibilities in consultation with the Suffolk County Department of Health Services (SCDHS) and the appropriate federal, state and local agencies. This Plan of Work has been prepared pursuant to and in compliance with the Vector Control and Wetlands Management Long Term Plan and Generic Environmental Impact Statement (the Long Term Plan). The Long Term Plan was approved by the County Legislature as Resolution 285-2007 on March 20, 2007 and signed by the County Executive on March 22, 2007. The 2016 Annual Plan of Work is therefore governed by State Environmental Quality Review Act (SEQRA) Regulation 617.10(d)(1) which provides the following: "When a final generic EIS has been filed under this part (1) no further SEQR compliance is required if a subsequent proposed action will be carried out in conformance with the conditions and thresholds established for such actions in the generic EIS or its findings statement." This issue is also discussed in the Findings, appended hereto, pages 7 and 58. The 2015 Plan of Work added the use of a new active ingredient, prallethrin, which required a modification of the Long Term Plan. In accordance with the Findings, a SEQR review of prallethrin was conducted in order to allow the use of the new active ingredient. This review was completed with the issuance of a Negative Declaration as CEQ Resolution 34-2014 and the modification of the Long Term Plan approved by the Legislature as Resolution 706-2014. This Annual Plan complies with the reporting requirements in Executive Order 15-2007 (Suffolk County Vector Control Pesticide Management Committee) and Resolution 285-2007 (which adopts the Findings Statement for the Long-Term Plan). The reporting requirements of Resolution 285-2007 are satisfied within this Annual Plan, and the Pesticide Management Committee will submit a report to CEQ independently to satisfy Executive Order 15-2007.

On October 17, 2013, the County approved Resolution 797-2013 requiring this Plan of Work to include a section on the "steps being taken to reduce the incidence of tick-borne diseases in Suffolk County". Accordingly, the 2016 Plan of Work will include a section on ticks. For 2016, these steps will be limited to planning and information gathering and as such will be Type II actions under SEQRA Section 617.5 (c) (20), (21) and (27).

2016 SUMMARY

1. Water Management: Water Management activities will conform to the guidelines outlined in the Long Term Plan and GEIS Finding statement's Wetlands Best Management Practices (BMP's). The Wetlands Stewardship Program finalized the Wetlands Stewardship Strategy in 2015. Maintenance of existing structures will be conducted as described in BMP's 2, 3 and 4 in the Findings Statement and Long Term Plan. Water management work beyond those

measures specified in BMP's 2, 3, and 4 will have to undergo review under SEQRA, and would be subject to Suffolk County's Council of Environmental Quality (CEQ) review, as well. Now that the Wetlands Stewardship Strategy is finalized, the County will undertake Integrated Marsh Management (IMM) projects as called for under that Strategy. The County has received $1.3M in Sandy funding from the National Fish and Wildlife Foundation Coastal Resiliency grant for IMM work to be done in cooperation with the Towns of Babylon, Islip and Brookhaven and the State. These projects will be planned in late 2015 and early 2016 and construction will commence in late 2016. The County has also received $560,000 from a Federal Hazard Mitigation Grant Program for IMM work at Smith Point Marsh in Shirley for costal resiliency. Planning is underway for that project with construction targeted for late 2017.

2. Larval Control: Perform approximately 15,000 inspections of larval sites. Treat approximately 20,000 acres with Bacillus thuringiensis israelensis (Bti), Bacillus sphaericus or methoprene.

3. Adult Control: Conduct adult control when infestations are severe and widespread and/or necessary to respond to the presence of pathogens.

4. Research and Surveillance: The Vector Control Laboratory will collect and process 10,000-12,000 larval and adult mosquito samples, depending on mosquito populations and viral activity. The Department of Health Services Arthropod-Borne Disease Laboratory (ABDL) will collect and process approximately 50,000 mosquitoes for arbovirus surveillance. The Vector Lab will evaluate the effectiveness of treatments in cooperation with the ABDL The Vector Lab will perform special studies of problem areas, such as checking for pesticide resistance, identifying the sources of unusual infestations or finding larval habitats of problem species.

Technical and Institutional Framework for Vector Control

To achieve this goal, the Division employs an integrated control program. Control measures are employed in a hierarchical manner that emphasizes prevention, and are guided by a surveillance program to ensure that control measures are only directed to address a clear need. Control proceeds from the long-lasting, more "environmentally friendly" measures such as water management and biological control to highly specific larvicides, and uses chemical control such as adulticiding only after other measures prove to be either insufficient or not feasible. This integrated approach is recognized as the most effective and environmentally sound manner in which to conduct a mosquito control program.

Because mosquitoes are of high public health importance, the Division works closely with SCDHS. SCDHS operates the ABDL, with some operational support provided by the Division. The ABDL concentrates its efforts on surveillance for mosquito-borne pathogens, primarily the arboviruses West Nile Virus (WNV) and Eastern Equine Encephalitis (EEE). The Division conducts laboratory work that concentrates on estimating populations of mosquito adults and larvae. The Division also conducts laboratory work related to special projects designed to improve the control program and to evaluate the impacts of wetlands management. The results

of this surveillance are used to guide and evaluate the Division's control work. During times of a declared public health emergency, the Division comes under the operational control of SCDHS. However, these declarations are rare and must be issued by the New York State Health Commissioner. The State has determined that such declarations are not normally needed for West Nile Virus, since the virus is now established here and its control is not considered a General Public Health activity. Under most circumstances, the Division takes the lead role on control efforts but works in close consultation with SCDHS when there is active virus activity. Under the County's NY State Freshwater Wetlands permit, the Commissioner of Health Services must determine that application of adulticides is required in response to mosquito-borne pathogens before they can be applied to most freshwater wetlands. SCDHS is also responsible for other activities related to mosquitoes and the public health, such as medical surveillance, sanitation, environmental monitoring, community outreach and public education.

The New York State Department of Health (DOH) provides important support to the program by analyzing mosquito samples for pathogens, providing technical advice and guidelines and determining when a public health threat declaration is required. DOH also provides significant assistance with public education, as well as financial aid for vector surveillance and control. Because mosquito control involves work in environmentally sensitive areas and the use of pesticides, environmental compliance and protection are important components of the program. The Division is heavily regulated and subject to inspection under a series of New York State Department of Environmental Conservation (DEC) permits, as well as regulations pertaining to the use of pesticides and licensing of applicators. Close contact is maintained with DEC, United States Fish and Wildlife Services (USFWS) and other agencies throughout the year to ensure that all work is conducted to a high environmental standard.

2016 PROGRAM COMPONENTS

WATER MANAGEMENT: Field personnel conduct this component from January 1 to April 30, and October 1 to December 31 (approximate dates). Water management is a functional way to reduce the need for pesticide applications. The Division expects to conduct water management in each of the County's ten towns. The work will be performed on a priority, as needed basis. Highest priority is assigned to larval habitats where infestations have the greatest potential for negative impact. In particular, areas that showed unexpectedly high infestations in 2015 will have high priority over the coming winter. Water management activities will be carried out in such a manner so that the primary goal of the work will be to protect the health of the marsh, while also reducing mosquito numbers.

Water management minimizes mosquito production through maintaining or improving systems of tidal channels, ditches, culverts and other structures that drain off surface water and/or allow access to potential larval habitats by predatory fish. In some cases, the current ditch system has become an important component of the wetland as it exists today, and maintenance of the system is necessary to maintain tidal flow, fish habitat, or existing vegetative patterns. Much of this is maintenance work that may not require a permit, but is nonetheless conducted after consultation with the New York State Department of Environmental Conservation (DEC) to ensure consistency with conservation of the wetland. Sometimes, work to restore a system, even within its original configuration, requires a permit. In such cases, work is performed under permit and

in cooperation with the DEC. More extensive work to rehabilitate wetlands in a manner that restores and preserves resource values while also reducing mosquito production is now underway under the umbrella term Integrated Marsh Management (IMM). In accordance with the Long Term Plan, all water management activities will be conducted with appropriate notification to and oversight by the Wetlands Stewardship Committee (WSC) and Council for Environmental Quality (CEQ), as outlined in the Findings Statement of the Suffolk County Legislature that was adopted by Suffolk County Resolution 285-2007.

The Wetlands Stewardship Committee completed its work in establishing standards for wetlands Best Management Practices (BMP's) and a Wetlands Stewardship Strategy was issued by Executive Order 01-2015 on July 13, 2015. With that Strategy in place, water management in 2016 will not be limited to maintenance activities described in the BMP's. More extensive marsh projects using more intensive BMP's described in the Long Term Plan will be undertaken under the framework of IMM in consultation with CEQ, WSC and DEC. These will be projects that restore and enhance the natural resource values of the wetlands while also reducing or eliminating the need for pesticides to control mosquitoes. All work will be planned in partnership with the landowner and NYSDEC, USFWS and other natural resources agencies.

CONTROL OF MOSQUITO LARVAE: All field personnel conduct larval control during the active mosquito season. Most crews conduct ground larviciding, while a heavy equipment crew assists in helicopter larvicide applications. This component is conducted during the active mosquito season of May 1 to September 30 (approximate dates). Larval control is most often employed when water management has not been able to completely prevent mosquito production. It also is used when water management has not been conducted or is not appropriate. Larval control is the Division's second most important control method. Ground crews visit known larval habitats, check for the presence of larvae, obtain larval specimens for identification in the laboratory and apply larvicide if necessary. Field crews also eliminate larval habitats by unclogging pipes, removing containers or otherwise eliminating standing water. While the acreage of these sites is small, their proximity to residential areas makes them important. Ground crews also respond to complaints from the public. Over 90% of the larvicide used by the Division is applied in the major salt marshes and other wetlands, by helicopter. These marshes are surveyed at least weekly, or after flood tides. If larvae are discovered, a contract helicopter applies larvicide. For salt marshes and similar habitats, either liquid Bti (Bacillus thuringiensis israelensis) or liquid Altosid (methoprene) is applied, based on larval stage, temperature, and weather conditions. Larval control is used only if inspection of a site reveals or has the potential for significant larval production.

The larval control products to be used in 2016 and the conditions under which they are used are described as follows:

Altosid Liquid Larvicide concentrate (methoprene, EPA 2724-446) – Aerial application to tidal and freshwater marshes.

Altosid Liquid Larvicide (methoprene, EPA 2724-392) – Ground application to tidal and freshwater marshes, as well as other temporarily flooded areas.

Altosid Pellets (methoprene, EPA 2724-448) – Ground application to intermittently or permanently flooded areas such as freshwater swamps, catch basins, drainage areas and recharge basins, provided that they are not fish habitats.

Altosid XR-G (methoprene, EPA 2724-451) – Ground or aerial application to tidal wetlands; ground application to intermittently flooded freshwater areas; aerial application in freshwater areas in response to Eastern Equine Encephalitis (EEE) or West Nile Virus (WNV) with case-by-case approval by DEC.

Altosid XR Briquets (methoprene, EPA 2724-421) – Catch basins and other drainage or artificial structures that are not fish habitats. XR briquets will be used in May and June, with follow up treatments using Vectolex or Altosid pellets as necessary.

Aquabac 200G (Bti, EPA 62637) – Ground application to intermittently flooded freshwater and tidal areas.

Sphaeratax SPH (50G) (B. sphaericus, EPA 84268-2) - Aerial or ground application to freshwater and tidal areas that hold water for more than 7 days, such as ditches, impounded marshes, swamps, ponds; catch basins in July and August.

Valent BioSciences Vectobac 12 AS (Bti, EPA 73049-38) – Aerial application to tidal and freshwater marshes; ground application to intermittently flooded areas such as tidal and freshwater marshes.

Summit B.t.i. Briquets (Bti, EPA 6218-47) – Catch basins, ground depressions, artificial sites.

Fourstar Briquets 90 (Bti plus B. sphaericus, EPA 83362-3) – Catch basins, ground depressions, artificial sites.

The equipment to be used for larval control includes various trucks for crew transportation, samplers such as dippers and mosquito traps, truck-mounted hydraulic sprayers, backpack sprayers and granular blowers, plus specially-equipped helicopters for larvicide applications on areas too large or inaccessible for ground treatment. All pesticide applications will use DEC-registered materials and be conducted under appropriate DEC permits and in accordance with label directions and other relevant State and Federal law.

The Division has developed technical guidelines for larval surveillance and control that determine where and when larvicides are used and what materials are chosen for a particular situation. These guidelines emphasize the use of bacterial products when possible and reserve methoprene for those situations where bacterial products are unlikely to be effective. As per the Findings for the Long Term Plan and Executive order 15-2007, the Pesticide Management Committee has reported on the results of its review of literature on methoprene and potential impacts, as well as on research sponsored by the County. The Committee found no significant new concerns regarding the use of methoprene. The County is committed to implementing a Pesticide Reduction Action Plan, that will seek to further accelerate pesticide reduction. As part of this Pesticide Reduction Action Plan, the County will continue to work with technical experts to further refine protocols related to larval monitoring and larvicide usage, consistent with the Long-Term Plan and GEIS. The County is not aware of any new data, studies or reports which contravene research, reports and Findings of the Long Term Plan with respect to larval treatment guidelines or thresholds. Therefore, those Findings are still valid, and control this Annual Plan.

In accordance with the Division's priorities and goals, approximately 1,500 of the 2,077 major larval habitats known to the Division will be surveyed and controlled if necessary throughout the

active season. These known habitats consist primarily of freshwater wetlands and salt marshes, as well as roadside ditches, recharge areas and other non-wetland sites. The remaining major larval habitats and the 100,000+ artificial larval sites will be controlled on a complaint basis, as resources permit. Maps showing major larval habitats requiring control are on file at the Division's office in Yaphank.

CONTROL OF ADULT MOSQUITOES: This control method is conducted from approximately June 1 through September 15. It is done on an overtime basis; because the need for it is so highly variable it is not efficient to dedicate staff full time to it. This is a tertiary form of control, and the smallest component of the program. It is carried out only when adult infestations constitute an immediate threat of mosquito-borne disease or there is a severe and widespread infestation of vector species, as determined by surveys and/or public complaints. While the need for adult control can be reduced by the other program components, it is not possible to control all larval sites in Suffolk County for several reasons. Higher than normal rainfall can increase the need for adult control and some sites cannot be expeditiously treated due to independent permitting requirements, as is the case for larval habitats in the Wilderness portions of Fire Island. In addition, new or unexpected larval habitats always seem to occur, despite the best efforts of the program. It is not appropriate to treat for adult mosquitoes in every area where residents express a concern, nor is it appropriate to treat small areas or individual properties for adult mosquitoes. Adult control is conducted only when it is clear, based on complaints, Division surveillance and SCDHS consultation that a substantial portion of a community is infested with vector species or there is a threat of mosquito-borne disease. Then, the entire affected area is treated. This strategy treats relatively few areas, but those that are treated receive sufficient control to reduce the problem. The guidelines for adult control in this Plan are consistent with those described in the GEIS Findings Statement.

Adult control can be deemed to be necessary under two separate operational scenarios in the GEIS. One is defined as a “Vector Control” (public health nuisance) application, the other is defined as “Health Emergency” application. Vector Control adulticide applications are made to reduce excessive numbers of human biting mosquitoes that impact public health and quality of life by their biting activities. These high populations also represent potential vectors if a pathogen is present or appears in the area. Health Emergency applications are made when an unacceptably high risk of disease transmisson to humans is detected, based on the ongoing presence of pathogens in mosquitoes. In either case, pesticide use decisions are only made on the basis of scientifically-determined surveillance data.

The need for Health Emergency treatments is determined by the New York State Department of Health West Nile Virus Response Plan for mosquito-borne disease, adapted for local conditions by staff experts at Vector and Health Services. Because of the persistent presence of WNV in the County, the County perpetually begins each year in Risk Category 2. The New York State Department of Health has determined that there is an ongoing threat to the public health from West Nile Virus, and no longer declares health threats on a year-by-year basis for WNV. The determination of when this ongoing threat rises to the level that requires adulticiding is made by the County.

The need for adulticiding in response to WNV varies greatly from year to year. An analysis of Suffolk County's WNV history during the years 2000-2015 indicates that most years, (10 of 16) the number of human cases of WNV is low, 0-4 cases. Under such conditions, the WNV human transmisson risk level is low yet widespread throughout the County. In these low risk years, determining exactly where adulticiding would help is nearly impossible with current data. As a result, in low years, adulticiding is usually not warranted due to the difficulty in delinating an area or areas to target. Higher risk years are caused largely by environmental conditions favorable to virus amplification in birds and mosquitoes, such as warm spring weather and a high water table. These conditions manifest themselves in late July and early August through higher than normal numbers of positive mosquito samples and infection rates. WNV history also demonstrates that, in years when WNV activity is higher than normal, human cases are more likely to occur in some parts of the County than others. In years with early indicators of high risk, adulticiding targeted to these high risk areas can measurably reduce the risk of human transmission and is therefore warranted. When a high year can be identified, these applications should take place in late July or the first 2 weeks in August. Responding to early indications of high risk is important, because adulticiding should occur before human transmisson occurs, that is, in the first 2-3 weeks of August. Waiting to see if transmission results in actual human cases is not appropriate because by the time cases are detected, transmission has been going on for weeks and it may be to late to prevent further transmission. Use of adulticides after late August or early September is usually not indicated because most human transmission has alredy occurred.

As indicators of risk of transmisson to humans accumulate, Vector Control determines which control measures are best suited to the situation and which areas should be targeted for maximum benefit. The Commissioner of the SCDHS makes the final determination of the need for adult control in reponse to pathogens. By limiting the use of adulticides for virus response to only those years and those areas where a benefit is likely, the risks associated with adulticiding can be reduced while still providing a high level of public health protection. This strategy is consistent with the goal in the Findings to reduce the use of pesticides by a targeted approach.

To ensure adulticides are used only when there is a clear need and a likely benefit, the criteria for conducting an adulticide treatment will include:

1. Evidence of high numbers of mosquitoes biting residents and visitors (Vector Control):

- Service requests from public - mapped to determine extent of problem.
- Requests from community leaders, elected officials.
- New Jersey trap counts higher than generally found for area in question (at least 25 females of human-biting species per night).
- Centers for Disease Control (CDC) portable light trap counts of 100 or more. Landing rates of one per minute over a five minute period.
- Confirmatory crew reports from problem area or adjacent larval habitat

2. Higher than normal risk of human disease transmission that can be reduced by adulticiding (Health Emergency):

- Indications of a higher than normal year for WNV activity County-wide as determined by such measures as infection rates and/or the number or proportion of positive mosquito

samples, especially by late July or early August. In a year with normal or below normal levels of WNV activity, adulticiding is generally not indicated.

- In a high risk year, adulticiding may be warranted when there are indications of higher than normal levels of WNV risk (such as the number of positive mosquito samples, infection rates, vector species populations and history of human transmission) in particular areas. Adulticiding priority will be given to those parts of the County where WNV cases have occurred in multiple years and at high densities compared to the rest of the County.
- Adulticiding will be strongly considered if EEE is detected during July or August, when human transmission is most likely.
- Adulticiding in reponse to other pathogens (such as dengue, chikungunya,malaria or other emerging pathogens) will be considered on a case-by case basis based on the vector ecology of the pathogen involved.

3. Control is technically and environmentally feasible:

- A target area can be clearly defined based on geographic features and the distribution of vector species and other risk factors.
- Weather conditions are predicted to be suitable for ULV application when mosquitoes are active. Aerial applications in response to WNV are particularly dependent on weather conditions, and near-ideal conditions of low wind combined with high temperatures and humidity are needed for truly effective results.
- The road network is adequate and appropriate when truck applications are considered.
- Legal restrictions on the treatment of wetlands, open water buffers, and no-spray list members in the treatment zone will not create untreated areas that would prevent adequate coverage to ensure treatment efficacy.
- There are no issues regarding listed or special concern species in the treatment area.
- Meeting label restrictions for selected compounds will not compromise expected treatment efficacy.

4. Likely persistence or worsening of problem without intervention:

- Considerations regarding the history of the area, such as the identification of a chronic problem area for biting mosquitoes or a history of virus transmission.
- Seasonal cycles of pathogen activity, such as whether or not the treatment is in time to prevent WNV transmission or whether it is too late and most transmission has already occurred.
- Determination if the problem will spread beyond the currently affected area absent intervention, based on the life history and habits of the species involved.
- Crew reports from adjacent larval habitats suggest adults will soon move into populated areas.
- Life history factors of mosquitoes present – i.e., if a brooded species is involved, determining if the brood is young or is naturally declining.
- Weather factors, in that cool weather generally alleviates immediate problems, but warm weather and/or the onset of peak viral seasons exacerbate concerns.
- Determining, if the decision is delayed, if later conditions will prevent treatment at that time or not. Conversely, adverse weather conditions might remove most people from harm's way.

In essence, criteria 1and 2 are necessary thresholds which must be met, prior to a treatment being considered, while criteria 3 and 4 are countervailing factors that would indicate treatment is not

required despite the presence of an infestation or virus activity. With enhanced surveillance, there will be rigorous, numeric validation of mosquito infestations in or near a potentially affected population in all cases. Treatment will not occur unless criteria 1 or 2 are satisfied through a combination of surveillance indicators, although not all surveillance techniques may be feasible in every setting and situation. The County is not aware of any new data, studies or reports which contravene research, reports and Findings of the Long Term Plan with respect to adulticide treatment guidelines or thresholds. Therefore, those Findings are still valid, and control this Annual Plan.

Vector Control applications will normally be made by truck since that technique has been shown to be effective for the most common species involved, although aerial application remains an option for unusually widespread problems. Health Emergency applications will be done by aerial application due to the need to treat large areas to make a difference and due to the lack of evidence ground application significantly impacts WNV activity in our setting. Necessary public notices will be issued in a timely manner (normally, at least 24 hours pre-application), and appropriate precautions will be made to meet DEC restrictions on applications, and to avoid "No Spray" properties. If necessary to protect sensitive resources, buffer areas will be provided between the sensitive area and the application equipment. A 150-foot buffer from freshwater wetlands will be provided to avoid the need for DEC Article 24 (Freshwater Wetlands) permits unless a permit or other authorization from DEC has been received.

In 2009 and previous years, an Emergency Authorization were requested from DEC if freshwater wetlands were involved to eliminate the need for an Article 24 (Freshwater Wetlands) permit. In 2011, NYSDEC issued an Article 24 permit to allow adulticide applications in freshwater wetlands or adjacent areas if necessary to protect the public health and replace the use of Emergency Authorizations. This permit controls the use of adulticides in and adjacent to freshwater wetlands during the term of that permit, 2011-2020. The permit covers Health Emergency applications throughout the County and will also allow Vector Control applications in and adjacent to some freshwater wetlands in heavily developed areas of southern Brookhaven. Appropriate required public notices will be issued. Pre-application mosquito sampling will be conducted (for efficacy determinations). If an aerial application is required, a helicopter using the AG-NAV Flightmaster guidance system or equivalent GPS-based technology will be used to optimize the delivery of the pesticide.

Efficacy measurements will be made following as many adulticide applications as weather conditions and resources allow. The Long-Term Plan also calls for the establishment of resistance testing for the more commonly used compounds. Testing of mosquitoes against sumithrin (Anvil) in 2014 revealed no resistance to this material.

The Long-Term Plan proposed a general reliance on resmethrin, a synthetic pyrethroid, as the adulticide pesticide. However, the Federal and State registrations for resmethrin products end in 2015 and existing stocks were used up or disposed of. Sumithrin, a similar pyrethroid, was proposed by the Long Term Plan to be the primary back-up to resmethrin, and the primary pesticide for any hand-held applications. Sumithrin will now become the Division's primary adulticide material. Sumithirn, like resmethrin has been found to be an effective pesticide for mosquito control, can be used for ultra-low volume applications for truck and aerial delivery,

undergoes rapid decay in the environment, and, as discussed below, has few identified non-target effects when applied as proposed under the Long-Term Plan. The Division will also use a relatively new product, Duet, now that the Long Term Plan has been modified to include it and one of its active ingredients, prallethrin. Duet is similar to the Division's primary sumithrin product, Anvil, in that both products contain sumithrin and the synergist piperonyl butoxide (PBO). However, in addition to 5% sumithrin and 5% PBO, Duet also contains 1% prallethrin. This amount of prallethrin is not sufficient to control mosquitoes, but it does induce them to fly, a phenomenon known as "benign agitation". Benign agitation casues mosquitoes that are resting to fly so that they will encounter aerosol droplets and be exposed to a lethal dose of sumithrin. Duet has been shown to be particularly effective against mosquitoes that tend to rest during the optimal time of the day for aerosol treatment, that is, at night. The primary use for Duet will be against the Asian Tiger mosquito (ATM), *Aedes albopictus*. The ATM is an exotic species that inhabits containers and tend to bite during the daytime, making it a significant biting pest that is difficult to control because it is less active at night. The Long-Term Plan also identifies two other pyrethroids, permethrin and natural pyrethrins, as potential adulticide compounds. Neither is preferred; however, permethrin is a more widely available product that is manufactured by more than one company, and so may continue to be available under conditions when the patented, less-widely used pyrethroids may not be. Natural pyrethrins are identified as a potentially useful compound because its label allows for use over agricultural areas. In addition to the pyrethroids, malathion, an organophosphate pesticide, was identified as a potential adulticide. Malathion would be used under very specialized conditions, that are unlikely to happen, such if thermal fogging were needed, daylight applications were called for, or if resistance testing indicated pyrethroid applications would be ineffective in meeting the goals of the application. All of these pesticides would be applied at the maximum label rate, as that is the best way of achieving effective mosquito control and is helpful in avoiding the development of pesticide resistance. The adulticides included in this Annual Plan have been fully evaluated in the GEIS for the Long-Term Plan, and this Annnual Plan is fully consistent with the attached Findings. The County will continue to review available pesticides and alternatives.

PUBLIC EDUCATION: Mosquito problems resulting from larval habitats around homes and yards, containers, drains and the like, is generally brought to the Division's attention through residents' requests for service. Control of these "domestic" mosquitoes is promoted through education and appeal to individual property owners. Given the WNV threat posed by these mosquitoes, especially *Culex pipiens*, SCDHS has taken on a leading role in public education. Sanitarians are utilized to require property owners to clean up potential mosquito larval sites. Public education includes the distribution of pamphlets, telephone contact, site visits, media exposure and presentations to various citizens' groups and associations. In addition, the Division offers assistance to residents in eliminating sources of mosquitoes on their property, and leaves "door hangers" with educational information at properties they visit. Educational materials are also available on the County Web site. The appearance of the exotic, container-breeding species *Aedes japonicus* and *Aedes albopictus* means this component will take on increasing importance, since the public's cooperation will be needed to control these larval habitats.

PUBLIC NOTIFICATION AND THE "NO-SPRAY" REGISTRY: In 2000, the County passed new laws to improve required public notification for adult mosquito control. As a result, there is now an increased use of the media and extensive outreach to local officials. The Health Services

Web site is used to post spray maps. For each adulticide application, over 150 faxes are sent to various officials and other interested parties. Newsday and News12 post spray schedules and maps. It is important to recognize that adulticide applications are very sensitive to the weather, especially aerial pyrethroid applications. The need to inform the public will need to be balanced with the need to conduct operations promptly, within weather windows and before the problem spreads and more acreage needs treatment. It is usually not appropriate to provide more than 24 hours' notice in most cases, because beyond that time, weather forecasts are not very reliable. Attempts to provide more than 24-hour notice often result in many spray operations being announced and then cancelled. These cancellations are very confusing to the public. Despite these difficulties, the County provides 48-hour notice for aerial adulticide applications whenever possible.

In addition to the previous public notification procedures, the County has implemented the new County law, passed in 2010, requiring the use of its "Code Red" automated calling and messaging system to provide more thorough public notice for adulticiding. This system allows automated phone calls to be placed to all telephones in an area designated for treatment. These messages provide basic information about the operation, such as spray hours, and refer the recipient to additional sources of information. The system ensures that nearly everyone in the area knows about the operation. Use of the Code Red system has been very successful and provides a new level of public information for the program.

The Division maintains a "no-spray" registry of residences where adult mosquito control is not desired. During ground applications the application unit is shut off 150 feet prior to passing such a residence and not turned on until 150 feet after. For aerial control, a system has been devised for identifying and avoiding areas with a minimum radius of ¼ mile, more than 65% of the area is residential and where more than 35% of the residences are on the registry. This registry represents an effort to balance the desires of those residents who want control of adult mosquitoes with those who oppose the use of pesticides. At this writing, the "no-spray" registry lists several hundred properties, most of which are in areas where serious infestations are rare. When control is required to deal with a public health emergency, the Commissioner of SCDHS can override the list. Even then list members are telephoned prior to applications in their area through the Code Red system. In addition to this legally required registry, the Division maintains listings of beekeepers and organic farms. Beekeepers' properties are generally avoided or beekeepers are notified before treatments so that they can protect their hives.

Although not required to do so by law, the County also provides public notification for aerial larviciding. An e-mail notice of the marshes to be treated by helicopter is sent each week to Legislators, local governments and other interested parties. In addition, a list of marshes to be treated is posted each week on the County Web site.

SURVEILLANCE AND RESEARCH: All control operations are based on information obtained from surveillance and research. This a cooperative effort between Vector Control staff in the Department of Public Works and the Arthropod Borne Disease Laboratory in the Department of Health Services. Knowledge of mosquito populations, species composition and arbovirus activity is used to guide and evaluate control measures. Arbovirus surveillance allows the

Division, in cooperation with the County and State Health Departments, to gauge the potential for disease transmission and take appropriate action.

A) Mosquito population surveillance: Approximately 12,000 larval and adult mosquito surveys are analyzed each year. These surveys are necessary for locating infestations, directing control efforts and evaluating the effectiveness of those efforts. The mosquito species that breed in various locations are determined from larval samples. Numbers of adult mosquitoes in residential areas are estimated from a network of approximately 29 New Jersey light traps in fixed locations throughout the County. New Jersey traps provide a dead sample three to five times per week. Some 50,000 mosquitoes per year from these traps are identified and counted. This work is conducted by DPW staff. In addition, Vector DPW maintains an array of 5 specialized Mosquito Magnet traps to monitor seasonal cycles and long term trends in populations of the exotic, container-breeding species *Aedes japonicus* and *Aedes albopictus* (The Asian Tiger Mosquito).

B) Arbovirus surveillance in mosquitoes: Viral surveillance is conducted primarily by the ABDL and will be directed primarily at two pathogens, EEE and WNV. Surveillance will be conducted according to the latest CDC and State DOH guidelines, modified for Suffolk County's unique environment. To monitor virus activity, CDC light traps and gravid traps are placed on a weekly or rotating basis at various locations throughout the County. These sites are chosen based on their history of viral activity or the presence of viral indicators such as the finding of birds with WNV in the area. The ABDL and the Division collect and process approximately 50,000 live, adult mosquitoes annually for viral analysis. In 2016, the samples will be sorted by species, frozen, and sent to Albany for arbovirus analysis in the State DOH laboratory.

C) Bird and other surveillance: SCDHS, State DOH, DEC and CDC monitor other WNV indicators such as unusual bird deaths or the number of dead birds sighted in an area. The presence of WNV-positive birds is an indicator of virus activity in an area, although the usefulness of dead birds as an indicator has declined in recent years as birds adapt to the virus. The County picks up selected dead birds for WNV testing. The County conducts a rapid, field test (the RAMP test). There are also indications that the number of dead bird sightings in an area is a surrogate indicator of risk. There will also be SCDHS monitoring of hospitals and outreach to physicians to quickly detect any human cases.

D) Efficacy monitoring: While the Division has always monitored the effectiveness of the control program in a variety of ways, there will be an increased effort in this area, based on trial work to develop methods conducted in 2007. In particular, trapping of adult mosquitoes before and after adulticide events will be conducted using carbon dioxide baited CDC light traps. In addition, indicators of virus activity before and after treatment are followed to be sure the desired effect is achieved. While the number of adult mosquitoes in New Jersey traps and other traps is a key indicator of the overall success of the larval control program, additional effort will be directed toward before and after sampling of treated areas to confirm the efficacy of the treatment methods used. For methoprene applications, this requires bringing pupae from the treated areas back to the laboratory to determine if they emerge, something that is very labor intensive.

E) Special surveys and field investigations: Vector's Laboratory Director and other staff also conduct special surveys to determine the source of mosquito problems when these turn up in places where they are not expected. Special surveys of problems that appear early in a season can allow larval crews to prevent further trouble through the summer. Ongoing studies on mosquito production in catch basins are helping to define appropriate control measures for this important habitat for *Culex* mosquitoes that transmit WNV. In addition, we are developing new techniques to improve surveillance and control for the Asian tiger mosquito, *Ae. albopictus* a species which has become a major biting pest in large portions of the County the last four years. Given the somewhat unpredictable ways mosquitoes seem to find to cause problems for residents of and visitors to the County, it is important that the Division retain a flexible ability to investigate issues as they come up.

F) Support for Wetlands Stewardship activities: Vector Control continues to provide support for monitoring and other investigations related to Wetlands Stewardship activities. In particular, Division staff assists in the monitoring of the Integrated Marsh Management (IMM) project at Wertheim National Wildlife Refuge. In addition, the Division will assist the Wetlands Stewardship Program in identifying and evaluating prospective sites for future IMM projects, particularly those that will help meet Long Term Plan goals for pesticide use reduction. With the completion of the Wetlands Stewardship Strategy and the availability of grant funding, this component of the program will increase substantially in 2016.

Other provisions of the Work Plan notwithstanding, Vector Control may participate in limited research, monitoring, and demonstration projects in cooperation with other levels of government such as the State, Towns or federal agencies such as the US Fish and Wildlife Service or Army Corps of Engineers. These activities, which are not part of this Plan, will be subject to separate permitting and SEQRA compliance, and would be subject to CEQ and Wetlands Stewardship Committee review as well.

In 2013, the Division began work as required under Resolution 797-2013 to determine how the County might be able to reduce the impact of tick-borne diseases. It's important to remember that this subject was covered in some detail in the report of the Tick Management Task Force (TMTF) that was submitted to the Legislature in May of 2008 in response to Resolution 1123-2006. Most, if not all of these recommendations of this Task Force remain viable and should be strongly considered as County policy makers determine what steps the County might take to reduce the incidence of tick-borne diseases. In addition, Resolution 132-2014 created the Tick Control Advisory Committee (TCAC) to advise Vector on this important issue. Given the important and complex nature of this problem and the fact that the TCAC's input is vital, it would be premature to attempt to present a fully developed plan for tick control at this time. It is also clear that any serious effort to reduce the number of ticks on the landscape, such as those described by the TMTF, would have at least the potential for adverse impacts on the environment. This means that no large scale control efforts can be undertaken without an environmental review under SEQRA. The development of a control plan, therefore, is a major effort that has yet to be funded. It is expected that the TCAC will help the County develop a plan of action and identify the resources needed, but that work remains to be done.

In 2016, Vector Control will continue to work on the tick issue within the limited resources available and not conduct any control activities that would require environmental review under SEQRA. Given these limitations, there are still things Vector can do. In particular, Vector can help improve the technical basis for control efforts and provide that technical information to the various public and private entities currently undertaking tick control. These efforts can leverage the County's limited resources through partnership efforts:

1. The County created a new position and hired an Entomolologist for tick-related activities. Having a person devoting full time to ticks is a major step forward in dealing with this problem.
2. We will continue to work with the TCAC to explore alternatives that might be available to the County. Most importantly, the TCAC will allow for the kind of stakeholder input needed to gauge what options might be feasible and acceptable for implementation. This is a significant task, since all the available options have their benefits and drawbacks.
3. We will continue to search the literature on the subject in order to improve the Division's technical expertise in tick control and the environmental effects thereof.
4. We will continue our efforts to reach out to experts in the field for their advice and input. This process has already begun and has proven very helpful in gaining knowledge that may not be published but is highly valuable. For instance, the details of how surveillance is conducted are very important to ensure quality data, and to learn this, it's best to actually go into the field with experts who are doing this work.
5. We have identified sites and methods and begin baseline surveillance of tick populations. This effort will provide important information to help design control efforts, such as species composition, abundance, seasonal cycles, and pathogens present.
6. Vector staff has begun submitting tick samples collected during population surveys for pathogen testing by NYSDOH and academic researchers.
7. Vector staff will continue to provide technical advice to landowners and government agencies that are conducting tick control or are considering doing so. These contacts will also provide further opportunities to learn what techniques are useful and how the County might use them. A workshop is planned for the fall of 2015 and more will be considered.
8. Vector staff will investigate emerging wide-area tick control methods and conduct field trials as opportunities and resources allow.

The prevention of tick-borne diseases in the County is a difficult and complex issue. It is particularly difficult because the biology of these vectors and diseases dictate that the problem is inextricably linked to another difficult problem, deer overpopulation and management. In addition, tick control technology suitable for large scale application is clearly not as well developed as mosquito control technology is. There are emerging technologies that may improve this picture when they become available. Any effort that would seriously reduce the incidence of tick-borne diseases by controlling the vectors will require substantial resources at a time of fiscal scarcity. Even preparing a proper plan with concurrent SEQRA compliance would require resources beyond those currently available at Vector. However, tick-borne diseases and the adverse impacts ticks have on the ability of County residents to utilize the outdoors, even their own property, are important issues.

Pesticide Use in 2015

The Findings Statement for the Long Term Plan requires Vector Control to provide an annual report of pesticide use to the Legislature. The table below summarizes the use of pesticides by the Division in 2015. The acres treated are compiled by multiplying the total used by the standard dose. In a Duplex treatment, the acres treated with two products simultaneously are only counted once.

Suffolk County Pesticide Acreage Estimates for 2015

Product	Active ingredient	Amount used	Units	Air/Ground Application	2015 Acreage
Larvicides					
Altosid Liquid Larvicide (5%)	Methoprene	0	gal	Ground	0
Altosid Liquid Larvicide concentrate (20%)	Methoprene	35	gal	Aerial	
Altosid pellets	Methoprene	198	lbs	Ground	40
Altosid XR-G	Methoprene	40	lbs	Ground	8
Valent BioSciences Vectobac 12 AS	Bti	769.5	gal	Aerial	
Summit Bti briquets	Bti	0	ea	Ground	0
Fourstar 90 briquets	Bti/ *B. sphaericus*	2000	ea	Ground	5
Valent BioSciences Vectobac CG	Bti	0	lbs	Ground	0
Aquabac 200G	Bti	4640	lbs	Ground	464
Valent BioSciences Vectolex CG	*B. sphaericus*	0	lbs	Ground	0
Altosid XR briquets	Methoprene	22880	ea	Ground	53
Spheratax 50G	*B. sphaericus*	7840	lbs	Ground	397
Ground Larvicide Total					966
Aerial Larvicide:					
Vectobac 12AS applied alone	Bti	356.25	gal	Aerial	2850
Altosid 20% applied alone	Methoprene	18.36	gal		2350
Duplex Vect 12AS + Altosid 20%	methoprene+Bti tank mix	35 ALL + 844 12AS	gal	Aerial	6000
Total larvicide					12166
Adulticides					
Scourge 18+54	resmethrin	43	gal	Ground/Air	9173
Anvil 10+10 ULV	sumithrin	10	gal	Ground	2133
Duet	sumithrin+prallethrin	11	gal	Ground	1877
Adulticide acreage					13184

SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT

LONG - TERM PLAN

GENERIC ENVIRONMENTAL IMPACT STATEMENT
STATEMENT OF FINDINGS

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Suffolk County Executive

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Carrie Meek Gallagher
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Adopted March 22, 2007

SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT

LONG - TERM PLAN

GENERIC ENVIRONMENTAL IMPACT STATEMENT
STATEMENT OF FINDINGS

Table of Contents

List of Figures

List of Tables

STATEMENT OF FINDINGS
SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT
LONG-TERM PLAN

Preparation/Submission Date:	February 1, 2007
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SEQRA Classification:	Type 1
Lead Agency:	County of Suffolk Suffolk County Legislature William H. Rogers Building 725 Veterans Memorial Highway Smithtown, NY 11787
Contact Name:	Mr. James Bagg Chief Environmental Analyst Council on Environmental H. Lee Dennison Building 100 Veterans Memorial Highway Hauppauge, NY 11788 (631) 853-5203
Location:	Countywide, but excluding the Orient Point Mosquito Control District and Fire Island National Seashore

A. Introduction

The subject action is the Suffolk County Vector Control Wetlands Management and Long-Term Plan (herein the Long-Term Plan; October, 2006). This Statement of Environmental Findings has been prepared in accordance with the environmental review requirements of the State Environmental Quality Review Act (SEQRA), as set forth in 6 NYCRR Part 617 and Chapter 279 of the Suffolk County Charter. This statement of findings has been prepared to demonstrate that:

1. the procedural requirements of SEQRA have been met;
2. the proposed Long-Term Plan was selected from among the reasonable alternatives as the choice that minimized potential impacts; and
3. as required by 6 NYCRR Section 617.11(d), consistent with social, economic and other essential considerations from among the reasonable alternatives available, the action is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable. Adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions to this Statement of Findings those mitigative measures that were identified as practicable.

B. Overview

Purpose/Goals

Suffolk County has developed this Long-Term Plan to control mosquitoes (protect public health), reduce pesticide usage, and manage and protect wetlands. A major goal is to reduce larviciding by 75 percent, as measured in acres treated, over 12 years; currently, 4,000 acres of tidal wetlands are routinely larvicided. Another key goal is to continue to reduce adulticiding. In recent years, less than two percent of Suffolk County has received non-emergency adulticide treatments.

Description of Action

The Long-Term Plan enhances integrated pest management, including increased surveillance (including pre-adulticide, and post-adulticide efficacy), operational improvements (e.g., catch basin larviciding), and expanded public education/outreach. Strict numeric mosquito criteria will

be used to justify every non-Health Emergency adulticide treatment. The use of technology has also been optimized. For example, the Adapco Wingman spray technology is used to minimize pesticide usage, and geographic information systems have been improved.

Wetlands management will be critical in reducing larvicide usage. As part of the program, no new ditches will be created, and routine use of machine ditch maintenance has ceased. During the first three years, implementation of the Long-Term Plan will focus on low-impact water management without significant changes to the wetland ecology. Wetlands functions and values will be the paramount objective for all wetland management projects.

In the longer term, a Wetlands Stewardship Committee strategy will address the assessment and management needs of all 17,000 acres of tidal wetlands in Suffolk.

At a minimum, the Long-Term Plan will be updated on a triennial basis, with the first update due in 2010. The triennial report will contain detailed information on effectiveness of implementing a broad variety of recommendations related to public health, vector control, and water management (see Appendix 1 for format and examples of specific indicators). Any significant changes to the Plan may be subject to further environmental review (see section G).

Impact Analysis

A comprehensive environmental review was conducted for the potential impacts of the Long-Term Plan. As discussed in Section F, there is no data or analysis which documents that implementation of the Long-Term Plan will have any potentially significant adverse impacts (with the possible exception of adulticide impacts to non-target insects which are believed to be minor and can be mitigated, as well as Wetlands Best Management Practices 5 through 15, which would be subject to additional environmental review if proposed). Successful implementation of the Plan will, however, result in significant beneficial impacts (e.g., pesticide reduction).

Potential environmental impacts were reviewed for all aspects of the program, through exhaustive literature searches, local experiments (including collection of extensive monitoring data) and demonstration projects, and a comprehensive, quantitative risk analysis. Vector control and water management programs, and impacts, were evaluated for numerous jurisdictions.

The pesticides analysis results can be summarized as:

- Human health: negligible impacts (acute, chronic, or carcinogenic) from any larvicide or adulticide agent.
- Ecological impact: no significantly increased risks for impacts for mammalian, avian, or reptilian wildlife from any pesticide. Possible risks for aquatic impacts were associated only with the adulticides permethrin and, potentially more so, malathion. However, models indicate that the increased risk for invertebrate impacts does not propagate up the food chain, and a sophisticated ecosystem model showed recovery to be complete by the following spring.

Bees are the standard for understanding agricultural pesticide impacts to flying insects and, based on theoretical potential effects to bees, all adulticides posed a potential risk to non-target flying insects. However, vector control adulticides are generally not applied when bees are flying (day time). No study has attributed significant impacts to insect populations from vector control adulticides at the concentrations and methods in which they are applied. Also, the literature suggests that effects of transient stressors on insect populations are fleeting, with populations recovering within days. Mitigation measures contained in the Long-Term Plan are expected to minimize any potential impacts to non-target flying insects.

The water management impact assessment found that there should be no significant impacts from careful, site-specific application of the selected Best Management Practices. For the first three years of the Long-Term Plan (through early 2010), implementation of the Long-Term Plan will focus on low impact Best Management Practices (BMPs 1-4, including de minimis ditch maintenance and maintenance/repair of existing culverts). Any other BMPs (including BMPs 5-15) will automatically trigger additional environmental review.

The Long-Term Plan involves a new approach to the management of Suffolk County's coastal marshes, and there will be no new ditch construction, no routine ditch maintenance of the overall grid ditch system, and minimal, limited machine ditch maintenance (expected to be annually limited to 50,000 linear feet, affecting less than 50 acres of marsh) in conjunction with projects where it is necessary to preserve or enhance important ecological functions in tidally restricted areas.

Mitigation

Mitigation is discussed in detail in Section F. Mitigation is summarized as follows, in terms of integrated pest management, water management, and pesticide usage.

Integrated Pest Management

The Long-Term Plan mitigates potential impacts because it enhances many aspects of the current Integrated Pest Management approach, including:

- Public outreach will be bolstered. In particular, there will be targeted education efforts in areas that have a greater probability of receiving adulticide applications.
- Surveillance efforts (pre-spray and post-spray efficacy) will increase, including increasing the number of traps used and the number of set-outs made. New Jersey Light Traps will increase from 27 to 30, and CDC trap-nights are expected to increase from 80 to 105 trap nights per week, at peak). Surveillance results will be better communicated to the public as a means of justifying program decisions.
- Current efforts to reduce mosquito breeding in catch basins and other storm water systems will be increased. Catch basin monitoring will increase, with the goal of increasing from 10,000 to 40,000 inspections per year.
- Focus will be increased on reducing the number of tires that litter the County. These sites serve are key habitats for important disease vectors, and so these efforts clearly reduce the risks of disease transmission.
- Biocontrol use will be mitigated through the use of disease-free, native fish, whenever possible (although the use of disease-free fathead minnows is also a possibility), and through strict observance of restrictions to ensure fish do not escape to other water bodies and do not threaten endangered species or significant habitats.

Wetlands Management

Water management was the cause of many comments from interested parties. It is of prime importance that wetlands management be organizationally and functionally separated from vector control. To mitigate potential effects from any wetlands management project, the following measures will be instituted.

- For the first three years of the Long-Term Plan (through early 2010), implementation of the Long-Term Plan will focus on low impact Best Management Practices (BMPs 1-4, including de minimis ditch maintenance and maintenance/repair of existing culverts).
- Any other BMPs (including BMPs 5-15) will automatically trigger additional environmental review. While BMPs 1-4 will be generally classified as Type II Actions, they may be subject to further SEQRA review if deemed necessary by DEE and/or CEQ. BMPS 5-15 will be deemed Unlisted or Type 1 Actions to ensure appropriate SEQRA review.
- A Wetlands Stewardship Committee, chaired by the Suffolk County Department of Environment and Energy, will be a key part of the Long-Term Plan, and this Committee will provide recommendations on all projects using BMPs 10-15, and can review any other project its membership wishes to consider.
- In 2010, the first triennial report will include recommendations from the Wetlands Stewardship Committee strategy; at that point, any Long-Term Plan modifications may be subject to further environmental review (see section G).
- The Long-Term Plan now emphasizes marsh health and preservation in design, implementation, and assessment of all wetlands management projects.
- All necessary permits will be acquired, which will require a great deal of formal project reviews.

Pesticide usage

Pesticide impacts are mitigated in several ways, as follows.

- Implementation of the long-term plan is expected to result in decreasing need to use larvicides (an eventual 75 percent reduction is a Long-Term Plan goal).
- Precise triggers (trap counts or landing rates) are required to be met before any Vector Control adulticide applications.
- Efficacy testing will be a significant element of the Long-Term Plan, and these data should provide justification for the pesticide use that does occur.

- Use of the Adapco Wingman technology will optimize aerial adulticide applications (maximize mosquito control while minimizing pesticide usage)
- Continued consultation with New York State Department of Environmental Conservation (NYSDEC) and other resource agencies will ensure that all pesticide applications avoid impacts to endangered species and minimize impacts to settings of particular concern, whether through the use of setbacks, adjustments in application timing, or avoidance of specific areas.
- The plan report now appears to want to lessen such buffers, which right now are 100-150 feet. CEQ feels the buffers are necessary, though if more nuanced applications are proven to avoid non-target impact/drift, CEQ will be willing to consider such evidence as part of the long term strategy.

It is important to emphasize that the Long-Term Plan will be an adaptively managed Plan. The Steering Committee and the advisory committees (Citizens and Technical) are expected to continue to function, and issues can continue to be addressed, even if they arise or are realized after this iteration of the Plan has been completed.

Further Environmental Review

The triggers for further environmental review which are specified herein constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County could commence additional environmental review based on substantial new technical information.

Further environmental reviews (see Section G) are possible under at least two circumstances: adoption of the Annual Plan of Work, and in relation to wetlands management projects. Both are summarized below.

Annual Plans of Work

On an annual basis, the Council on Environmental Quality will review Annual Plans of Work and make a recommendation with respect to the State Environmental Quality Review Act to the Suffolk County Legislature. Annual Plans of Work that comply with the form and content of the Long-Term Plan generally should not require further environmental review. If an Annual Plan

of Work diverges from the Long-Term Plan, whether in terms of the scope of particular elements, or in terms of specific products or approaches to vector control, then all or part of the Annual Plan may be subject to further environmental review, at the determination of the Suffolk County Legislature and/or other involved agencies.

In general, annual plans need to focus on the use of surveillance to determine where mosquito problems exist, and to primarily employ source reduction tools to reduce the impact of mosquitoes on people. The implementation (over time) of the techniques for wetlands management developed in the Best Management Practices manual, as outlined in the Wetlands Management Plan may be a source reduction tool.

Specific triggers for additional SEQRA reviews have been detailed. These triggers include:

- failure to include public education and outreach steps to educate residents and visitors on the means that are available to avoid mosquito bites and diseases associated with mosquitoes
- inadequate mosquito population or disease surveillance
- failure to commit to respond to all mosquito complaints using personnel appropriately trained to identify and mitigate sources of mosquito problems
- failure to use the review processes outlined in the Wetlands Management Plan for wetlands management projects
- proposed use of a non-native biocontrol organism not already resident in Suffolk County natural environments
- proposed use of a larvicide other than Bacillus thuringenesis var israelensis (Bti), Bacillus sphaericus, or methoprene
- proposed use of an adulticide other than resmethrin, sumithrin, permethrin, natural pyrethrins, or malathion
- identification of a preferred adulticide agent other than resmethrin or sumithrin
- use of BMPs 5-15.

Wetlands Management

Most wetlands management projects will be subject to further environmental review. Projects utilizing Best Management Practices 1 through 4, as determined by DEE, (none to Minimal Impacts) will not, unless unusual site-specific conditions are cause for concern; all others will.

The triggers for further environmental review which are specified in the FGEIS and below in Section G constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County and/or the Council on Environmental Quality could commence additional environmental review based on substantial new technical information.

C. Procedural Requirements

Suffolk County Department of Public Works (SCDPW) prepared an Environmental Assessment Form (EAF) for the development of a Vector Control and Wetlands Management Long-Term Plan and submitted the EAF to the Council on Environmental Quality (CEQ) on May 2, 2002. On May 15, 2002, the CEQ issued a recommendation for a Positive Declaration to the Suffolk County Legislature. The Legislature issued the Positive Declaration at its meeting on August 6, 2002.

A draft Scoping document was prepared by Suffolk County Department of Health Services (SCDHS). The draft Scope was circulated for public review beginning August 7, 2002. A public Scoping hearing was held on September 10, 2002, at the Suffolk County Legislative Building in Hauppauge. This hearing was conducted by the CEQ, acting on behalf of the County Legislature, as authorized by Chapter 279 of the Suffolk County Administrative Code.

The CEQ held open the public Scoping record until September 25, 2002, in order to afford the opportunity for additional written comments regarding the scope of the DGEIS. All written comments received through that date, as well as minutes and summaries from the various meetings conducted as part of the Scoping process, were collected together and published by the County.

The Final Scope was published August 1, 2003, and was adopted by the Legislature by Resolution 1122 on December 16, 2003. The resolution was signed by County Executive Robert Gaffney on December 18, 2003.

A Draft Generic Environmental Impact Statement (DGEIS) for the Suffolk County Vector Control and Wetlands Management Long-Term Plan was submitted to CEQ on May 3, 2006. It was accepted as complete by CEQ at its May 17, 2006 meeting. At that meeting, CEQ set a 60 day comment period (through July 17, 2006) and also announced that two public hearings would be held. Public hearings were thus held, on Thursday, June 29, 2006, from 6 to 9 pm, at the Maxine S. Postal Legislative Auditorium, Riverhead, and on Thursday, July 6, 2006, from 10 am to 1 pm in the Rose A. Caracappa Legislative Auditorium, Hauppauge, before members of CEQ, with CEQ Chair Dr. R. Lawrence Swanson presiding.

At the CEQ meeting held on August 9, 2006, CEQ determined that the comments received in writing and at the hearings were substantive in nature, and forwarded a recommendation to the Legislature that it cause to have a Final Generic Environmental Impact Statement (FGEIS) prepared. The Legislature, at its meeting on October 17, 2006, passed resolution 1103-2006 authorizing the preparation of a FGEIS. The resolution was signed by County Executive Steve Levy on October 20, 2006.

The FGEIS was received by CEQ on November 9, 2006. The FGEIS Supplement was sent to the CEQ on January 4, 2006. All documents were forwarded to the Legislature for review and consideration together with comments from CEQ, and considered at the January 29, 2007 meeting of the Environmental, Planning and Agriculture Committee (EPAC) of the Suffolk County Legislature. These findings incorporate the direction from the Legislature.

To the extent that these Findings may contain measures (e.g., mitigation) which are not already explicitly in the Plan, the Plan is deemed to be amended to incorporate these Findings. If any provisions in the Findings are potentially inconsistent with the Plan, the provisions of the Findings are deemed to prevail.

D. Long-Term Plan Overview

Introduction

On August 6, 2002, the Suffolk County Legislature adopted a "Positive Declaration" on the County's proposed Vector Control and Wetlands Management Long-Term Plan. The Legislature subsequently appropriated funding to conduct the program, resulting in SCDPW (as fiscal manager) and SCDHS (as project manager) preparing and issuing a Request for Proposals (RFP) for the preparation of a Long-Term Vector Control and Wetlands Management Plan together with any associated environmental reviews.

An open and public process was undertaken to generate a Long-Term Plan and to perform the environmental impact assessment of the Long-Term Plan. Elements of public participation and input included:

- Formation of project committees such as the Technical Advisory Committee (TAC), the Citizens Advisory Committee (CAC), the Wetlands Subcommittee, and the Monitoring Subcommittee. These formally constituted committees (the TAC and CAC) and more informal groups provided venues and means for comment and review of project work products, and for feedback and input on the development of the Long-Term Plan to be made.
- Reviews of various project work products by nationally recognized technical experts (organized by the TAC).
- The Best Management Practices Manual and Wetlands Management Plan were released in draft form for public review in July 2005. The Long-Term Plan was released for public review in September 2005. On the basis of received public comments, the Long-Term Plan and the associated Wetlands Management Plan and Best Management Practices Manual were revised, and released in draft form again in December 2005. At that time, a draft version of the DGEIS was also released for public comment and review.
- Following the receipt of comments, the County once again revised the Long-Term Plan, the Wetlands Management Plan, and the Best Management Practices Manual. These documents, together with a revised DGEIS, were formally submitted to the CEQ on May 3, 2006.

- Following the public comment period on the DGEIS, the Long-Term Plan, the Wetlands Management Plan, and the Best Management Practices Manual were again revised, with the updated versions released in October 2006. On November 9, 2006, the FGEIS was delivered to CEQ, as a response to comments made on the DGEIS.

Therefore, it is clear that the Long-Term Plan and its associated environmental reviews are the product of an open and very public process, one in which several substantial revisions have been made following extensive public input to generate draft plans and analyses. The Plan was revised several times, on a voluntary basis, by the County.

In addition, Suffolk County commissioned its consultant, Cashin Associates, PC, and its team of subconsultants to conduct extensive fieldwork and local data collection, including local experimentation and environmental characterizations. These efforts included:

- Designing, permitting, constructing, and monitoring a progressive water management project at Wertheim National Wildlife Refuge, in conjunction with US Fish and Wildlife Service (USFWS) and the County.
- Designing, permitting, and conducting the Caged Fish experiment of larvicide and adulticide impacts under environmentally relevant conditions, documenting all aspects of the applications and subsequent fate and transport, and testing for biological effects, in conjunction with the County and the US Geological Survey (USGS).
- Identifying and characterizing 21 local wetlands (Primary Study Areas) to serve as a basis for determining environmental impacts associated with water management.
- Identifying and characterizing four sentinel areas of the County to allow for careful modeling of the risks to human health and the environment from proposed pesticide applications.
- Conducting an assessment of the potential for mosquito control ditches to convey land-based pollutants to the surrounding estuaries.
- Testing for changes in invertebrate communities at five pairs of salt marshes from extended exposure to mosquito control larvicide formulations.

- Determining the long-term vegetation characteristics at two south shore salt marshes, and relating changes in vegetation patterns to extrinsic environmental changes, such as ditching, changes in land use, major storms, and similar factors.
- Monitoring turtle use of upland mosquito ditches near Napeague Harbor, and surveying for their presence in three similar settings.
- Surveying additional stormwater control structures beyond those identified by preliminary County assessments for the potential to breed mosquitoes that might impact human health.
- Testing innovative mosquito control formulations and devices in County environments.
- Constructing a Geographical Information System (GIS) database of local vector control information along with other relevant County environmental data sets.
- Designing and preparing to implement a test of remote sensing capabilities to ascertain vegetation geographical patterns and temporal trends in County salt marshes.

This information was released to the public through 27 separate publications associated with the Literature Search, additional reports connected with other tasks of the project, construction and maintenance of a project website where all relevant information, publications, and presentations were posted, professional presentations at local, national, and international meetings, and through production and dissemination of a project specific newsletter.

Nuisance versus Disease

The Long-Term Plan attempted to distinguish between mosquito control conducted to control nuisance, and mosquito control conducted to prevent human health impacts. However, such a distinction proved to be impracticable. The Plan was successful, however, in describing approaches geared to "Vector Control" (control in the absence of a detected pathogen; synonymous, for purposes of the Long-Term Plan, with the term "Public Health Nuisance Control"), as differentiated from actions associated with "Emergency Response."

It is noted the Long-Term Plan approach is consistent with Public Health Law. The law reflects the position that a severe infestation of mosquitoes that results in large numbers of people receiving many bites is clearly not a "healthy" situation, even if no specific disease is transmitted. State and County Public Health Law describe a mosquito infestation as a "public health nuisance," whether or not pathogens have been detected. A public health nuisance is, by definition, a condition that can adversely affect public health.

It is not possible to distinguish specific mosquito control steps for human health protection from all other mosquito control actions. For instance, West Nile virus (WNV) occurs and reoccurs across nearly all the County in most years. Nearly all human-biting mosquitoes found in the County have the potential to transmit WNV. Source reduction, wetlands management, larval control efforts, and wetland management techniques can reduce the potential for infection by reducing the pool of mosquitoes that can transmit disease. However, since female adult mosquitoes that have fed at least once are the only mosquitoes that carry WNV, the application of these techniques that limit the production of adult mosquitoes necessarily occurs prior to the mosquitoes becoming infected.

WNV impacts in the County are believed to be much less than they might in the absence of such control measures. Modeling suggests that West Nile virus incidence rates could be an order of magnitude higher in the absence of vector control (i.e., potentially tens of deaths, and hundreds of serious illnesses, annually). It is quite probable that other factors, such as the composition of the County's mosquito population, also impacts the infection rate here. However, the control program also has a role in shaping the mosquito population, so that again it is difficult to separate out clearly the impact of the control program from other factors. The terminology used for control of adult mosquitoes may appear to support a distinction between nuisance and disease control, but that is not so. "Health Emergency" adulticide applications are made when the Commissioner of the SCDHS, acting under authority granted by the New York State Department of Health, determines that immediate risks to human health need to be reduced, by reducing adult mosquito populations in a certain area because there is a particularly high risk of transmission of disease to humans. The implication is that other applications are not made to reduce health risks. However, the Long-Term Plan has accurately designated these other kinds of adulticide applications "Vector Control" applications (i.e., control vectors with potential to adversely affect public health, prior to detection of WNV or other pathogens). The terminology is intended to

underline that all human-biting mosquitoes in the County are potential vectors of disease (most often, WNV), and that the reduction of large numbers of these mosquitoes will reduce overall disease risks. This clear connection between the reduction of large numbers of human-biting mosquitoes and decreases in disease risk is the reason that all aspects of the County control program are seen to be part of an overall disease control effort. It is true that alleviation of impacts to residents' and visitors' quality of life does follow from adulticide applications, and this is an important benefit of the program. This brief discussion focuses on West Nile virus. As discussed in the Long-Term Plan and GEIS, an integrated vector control program is credited to manage risks from other diseases and Eastern Equine Encephalitis.

Content of the Vector Control Long-Term Plan

Those aspects of the Vector Control portion of the Long-Term Plan were developed as an implementation of Integrated Pest Management. Integrated Pest Management is a means of addressing pest problems that uses a hierarchical approach where those activities that have greater impact on the organisms but potentially have fewer environmental or human health risks are assayed first, and where actions taken are commensurate with the problem.

The scope of the Long-Term Plan includes all of Suffolk County. However, Orient Point Mosquito Control District is responsible for vector control in that portion of the County. In addition, implementation of mosquito control in Fire Island National Seashore will require completing a separate permit application and environmental review process, and, due to its status in the national park system, may require some additional considerations that do not apply to the remainder of Suffolk County.

The hierarchical elements of the Vector Control component of the Long-Term Plan are:

- Public education and outreach

  Public education and outreach is central to the effectiveness of the Long-Term Plan. The Long-Term Plan will re-enforce existing efforts that allow residents and visitors to avoid being bitten by mosquitoes, and that address mosquito breeding problems determined through responses to citizen complaints. The Long-Term Plan calls for expansion of general public outreach through program presentations, brochures, and web site maintenance, and will target the areas of the County, predominantly along the south shore, where adulticide

applications have been made more frequently. Specific efforts to improve catch basin maintenance and to address tire litter are expected to provide dividends in terms of reductions of disease risks. The County will maintain its "Do Not Spray" registry and will expand its efforts to educate Suffolk County residents regarding specific elements of the vector control program.

- Scientific surveillance

A central tenet of Integrated Pest Management is that information is necessary in order to determine appropriate actions. The Vector Control Long-Term Plan surveillance program is intended to generate necessary information in sufficient quantity and in a timely manner so that the activities of the vector control program are optimized. Surveillance generally determines two parameters concerning the local mosquito population. One is number and speciation, generally called population surveillance. The second is pathogen presence, which is generically called disease monitoring.

Population surveillance looks to assess larval and adult populations. Larval populations are determined at set stations, where crews collect samples with laboratory confirmation of numbers and speciation. Crews also seek for breeding sites in response to citizen complaints. The County will maintain its existing larval population sampling efforts, and endeavor to respond to all complaints within three days. Adult populations are assessed through trapping, primarily. The fixed New Jersey trap network will be expanded by three under the Long-Term Plan, and, if adult control is proposed, special population sampling using CDC light traps will be undertaken prior to any application to ensure numerical triggers are exceeded. In addition, post application sampling will be conducted to measure efficacy. In some circumstances, landing rates will be used either in place of trapping or as an adjunct to trapping efforts.

Disease surveillance generally uses CDC gravid or CDC light traps. The initial set out of CDC traps will be expanded to 35 weekly set outs, and will be proportionately increased as the season progresses. The County will continue to send its pools of potentially infected mosquitoes to the State Department of Health for testing, although the Long-Term Plan recommends the construction of a Bio-Safety Level 3 laboratory in Suffolk County so that testing may occur more quickly and be conducted on more potential pools than is currently

possible. Dead birds will continue to be collected, tested for WNV presence locally, and tested for a larger range of pathogens at the State laboratory.

Generally, SCVC will assume responsibility for population surveillance, and the Suffolk County Department of Health Services Arthropod-Borne Disease Laboratory (ABDL) will be responsible for disease surveillance. SCVC and the ABDL will continue to work closely together and share responsibilities to ensure that the primary mission of public health protection is adequately supported.

A discussion of surveillance results will be included in Annual Plans of Work. Detailed reporting and analysis of surveillance data will be included in each Triennial Report.

- Source control

Source control means to eliminate conditions conducive to mosquito breeding. This is a focus of public outreach efforts. It is also the most effective method of mosquito control conducted in response to public complaints. The County already has a strong program to encourage residents to take steps to drain standing water from containers near houses, to ensure pools are properly maintained, and to replace water in birdbaths at frequent intervals. The County will expand these efforts by addressing issues such as used tire management and catch basin maintenance with other local governments, and will expand the storm water facility maintenance program to private concerns such as shopping centers or apartment complexes. These efforts are especially important as the house mosquito (*Culex pipiens*) is believed to be the prime vector for WNV in Suffolk County (other mosquitoes are also significant risk factors for WNV transmission, as well).

- *Wetlands Management*

The Long-Term Plan reconfirms the existing County commitment to abandon ditching as a means of wetlands management for mosquito control, and to avoid machine ditch maintenance except in the most limited of circumstances. In the longer run, the Long-Term Plan has identified the utilization of more progressive wetlands management in salt marshes (as defined in the Best Management Practices Manual) as one element in increasing effective control of mosquitoes and decreasing the potential for environmental impacts associated with vector control. Potential reductions of 75 percent in larvicide use, reductions in adulticide

use, and improvements in important salt marsh ecological functions are all thought to result from careful and considered application of the Best Management Practices in select coastal marshes in the County.

Concerns raised by interested and involved parties have resulted in much more thorough review and appraisal of wetlands management as a means of vector control. For the first three years of the Long-Term Plan, only minor and relatively no impact projects will be considered by the County (see Figure 1, Figures 2-3, and Figure 6). Any project that is usually more likely to have potentially significant impacts or major impacts (Best Management Practices 5 to 15; Figures 4-5) will be subject to additional review under SEQRA. In addition, any project involving machine maintenance of existing ditches, structures, waterways, or other features associated with wetlands will be noticed to CEQ, either through submission of a copy of the permit application for the project, or submission of a project description detailed enough to serve as a NYSDEC permit application.

- Biocontrols

Biocontrols are not a major facet of the County program. This is largely due to the potential for environmental impacts from the invasive and aggressive *Gambusia* fish which has served the County as its primary biocontrol for several decades, and so the necessity to restrict biocontrols to settings where the fish will almost certainly not impact natural water bodies. In addition, many settings where biocontrols would serve good purposes for mosquito control are ecologically sensitive, often because they are largely predator-free. The Long-Term Plan proposes to substitute fathead minnows (*Pimephales promelas*) for *Gambusia*, as the minnow as been identified as a more benign species should it escape to natural water bodies. The County will also follow developments in other jurisdictions regarding other promising organisms that are shown to consume mosquitoes, such as certain freshwater copepods (potential biocontrols for catch basins). However, the County will be very cautious in implementing biocontrol use, to ensure that sensitive environments are not disrupted through the introduction of predator species.

- Larval control

The Long-Term Plan reaffirms the County commitment to only using pesticides when scientifically-collected information supports its use, in the context of Integrated Pest

Management principles. Surveillance data regarding the species and stages of immature mosquitoes along with information on the time of year and conditions at the prospective treatment site will be used to determine if use of one of two bacterial pesticides, *Bacillus thuringiensis var israelensis* (Bti) or *Bacillus sphaericus* (Bs), or the insect growth hormone mimicker methoprene, is appropriate. At times, the County may use a "duplex" treatment of Bti and methoprene, as well. Application rates will always be at label maximums. This insures maximum effectiveness for the application, and is important to reduce the development of resistance in treated populations. For regularly sampled locations, the primary determinant of the need to larvicide will be "presence/absence" over an appropriate subset of sampling points. The Long-Term Plan also identifies the potential to develop numerical triggers through analysis of data sets as augmented by continuing sampling, through the creation of a GIS (Geographical Information System) database of historical sampling results as part of the Plan development process. The County will continue to apply larvicides by helicopter to marshes that have large expanses of breeding, although it is anticipated that implementation of the Wetlands Stewardship Strategy (to be developed by the Wetlands Stewardship Committee under the direction of SCDEE) will help to significantly reduce larviciding needs. Other larvicides will be applied by field crews in response to surveillance data generated by citizen complaints or regular surveillance of smaller breeding locations. To check *Culex pipiens* populations further, the County will expand its surveillance of catch basins to some 40,000 (or more) sites each year. Time release formulations of methoprene, or, sometimes, Bs, will be used to prevent the emergence of adult mosquitoes at these sites.

The Long-Term Plan requires the establishment of an efficacy program and also sampling to determine if resistance is being generated in treated populations.

- Adult control

Control of adult mosquitoes is the least favored means of mosquito control. Adulticide use signals the failure of all other potential treatment means, and is the last option for program managers. The County always endeavors to minimize its use of adulticide products.

Adult control can be deemed to be necessary under two separate operational scenarios. One is defined as a "Vector Control" (public health nuisance) application; the other is defined a

"Health Emergency" application. In either case, pesticide use decisions are only made on the basis of scientifically-determined surveillance data.

Vector Control adulticide applications are made to reduce large numbers of human biting mosquitoes. Criteria for conducting a Vector Control treatment include:

1. Evidence of mosquitoes biting residents (there is no problem unless people are affected):

    - Service requests from public - mapped to determine extent of problem
    - Requests from community leaders, elected officials

2. Verification of problem by SCVC (service requests must be confirmed by objective evidence):

    - New Jersey trap counts higher than generally found for area in question (at least 25 females of human-biting species per night).
    - CDC portable light trap counts of 100 or more.
    - Landing rates of one per minute over a five minute period.
    - Confirmatory crew reports from problem area or adjacent breeding areas.

3. Control is technically and environmentally feasible (pesticides should only be used if there will be a benefit):

    - Weather conditions predicted to be suitable (no rain, winds to be less than 10 mph, temperature to be 65ºF or above).
    - Road network adequate and appropriate for truck applications.
    - "No- treatment" wetlands, wetlands and open water buffers, and no-spray list members will not prevent adequate coverage to ensure treatment efficacy.
    - There are no issues regarding listed or special concern species in the treatment area.
    - Meeting label restrictions for selected compounds (such as avoiding farmland) will not compromise expected treatment efficacy.

4. Likely persistence or worsening of problem without intervention (pesticides should not be used if the problem will resolve itself):

- Considerations regarding the history of the area, such as the identification of a chronic problem area.
- Determination if the problem will spread beyond the currently affected area absent intervention, based on the life history and habits of the species involved.
- Absent immediate intervention, no relief from the problem can be expected.
- Crew reports from adjacent breeding areas suggest adults will soon move into populated areas.
- Life history factors of mosquitoes present – i.e., if a brooded species is involved, determining if the brood is young or is naturally declining.
- Seasonal and weather factors, in that cool weather generally alleviates immediate problems, but warm weather and/or the onset of peak viral seasons exacerbate concerns.
- Determining, if the decision is delayed, if later conditions will prevent treatment at that time or not. Conversely, adverse weather conditions might remove most people from harm's way.

In essence, criteria 1 and 2 are necessary thresholds which must be met, prior to a treatment being considered. With enhanced surveillance, there will be rigorous, numeric validation of mosquito control infestation near a potentially affected population in all cases. Treatment will not occur unless criteria 1 and 2 are satisfied through a combination of surveillance indicators, although not all surveillance techniques may be feasible in every setting and situation.

Vector Control applications will normally be made by truck. Necessary public notices will be issued in a timely manner (normally, at least 24 hours pre-application), and appropriate precautions will be made to meet NYSDEC restrictions on applications, and to avoid "No Spray" properties (including all farms).

The need for Health Emergency treatments is determined by the New York State Department of Health West Nile Virus Response Plan for mosquito-borne disease. Because of the persistent presence of WNV in the County, the County perpetually begins each year in Tier II. As indicators of pathogen presence accumulate (positive dead birds, positive pools of mosquitoes), the Commissioner of the SCDHS will petition the Commissioner of the State Department of Health to declare a Health Emergency. If the petition is granted, and the risk assessments made by SCDHS indicate that risks to the residents of an area of the County are no longer tolerable, the Commissioner will declare a Health Emergency. In conjunction with NYSDEC and SCVC, SCDHS will determine the optimal treatment area to reduce risks of disease transmission to people. An application will be made to NYSDEC for NYSDEC to issue an Emergency Authorization to permit adulticide applications that might otherwise violate the State Freshwater Wetlands Regulations. Appropriate required public notices will be issued. Pre-application mosquito sampling will be conducted (for efficacy determinations). If, as is almost always the case for Health Emergency applications, an aerial application is proposed, a helicopter using the Adapco Wingman guidance system will be used to optimize the delivery of the pesticide.

Efficacy measurements will be made following every adulticide application. The Long-Term Plan also calls for the establishment of resistance testing for the more commonly used compounds.

The Long-Term Plan proposed a general reliance on resmethrin, a synthetic pyrethroid, as the adulticide pesticide. Resmethrin has been found to be an effective pesticide for mosquito control, can be used for ultra-low volume applications for truck and aerial delivery, undergoes rapid decay in the environment, and, as discussed below, has few identified non-target effects when applied as proposed under the Long-Term Plan. Sumithrin, a similar pyrethroid, is proposed to be the primary back-up to resmethrin, and the primary pesticide for any hand-held applications (the resmethrin label is currently interpreted as not permitting hand-held applications). The Long-Term Plan also identifies two other pyrethroids, permethrin and natural pyrethrins, as potential adulticide compounds. Neither is preferred; however, permethrin is a more widely available product that is manufactured by more than one company, and so may continue to be available under conditions when the patented, less-widely used pyrethroids may not be. Natural pyrethrins are identified as a potentially useful

compound because its label allows for use over agricultural areas. In addition to the pyrethroids, malathion, an organophosphate pesticide, was identified as a potential adulticide. Malathion would be used under very specialized conditions, such if thermal fogging were needed, daylight applications were called for, or if resistance testing indicated pyrethroid applications would be ineffective in meeting the goals of the application. All of these pesticides would be applied at the maximum label rate, as that is the best way of achieving effective mosquito control and is helpful in avoiding the development of pesticide resistance.

Each year, SCVC will prepare and submit to CEQ and the Legislature a report on its pesticide use in the previous calendar year. The report will document actions taken to minimize the use of pesticides. It will summarize any notable scientific findings regarding the pesticides used by the program. The report will also identify any research or product development that may lead to selections of alternatives to the compounds selected by SCVC over that time period. The report will also review the thresholds used for Vector Control application consideration, and determine if those thresholds were appropriate to achieve the goals of protecting public health and the environment.

Wetlands Management component of the Long Term Plan

The Long-Term Plan establishes a Wetlands Stewardship Committee. The Suffolk County Department of Environment and Energy (SCDEE) will chair the committee. NYSDEC permits and reviews will be required for nearly every project. No project requiring a NYSDEC permit will be allowed to proceed without explicit review and approval of SCDEE, meaning that permit applications and Wetlands Stewardship Committee considerations will not begin without SCDEE vetting of the proposed project. Any project that is usually more likely to have potential for major impacts (Best Management Practices 10-15), or any other project, using Best Management Practices 5 through 9 that the Wetlands Stewardship Committee membership determines to need review, will undergo the review and recommendations of the Wetlands Stewardship Committee of the project goals, design, and impact assessment. Any project requiring a NYSDEC permit will be noticed to CEQ. Thus, any project except for the most minor will undergo extensive scrutiny and analysis prior to any alteration of the marsh.

If the DEE adopts any of the BMPs 2-4 as part of [their] its stewardship strategy, then "Maintenance as define in BMPs 2-4 needs further clarification [classification].

a) No material alteration of marsh hydrology, tidal circulation characteristics, vegetation or animal populations shall occur as part of any maintenance activity.

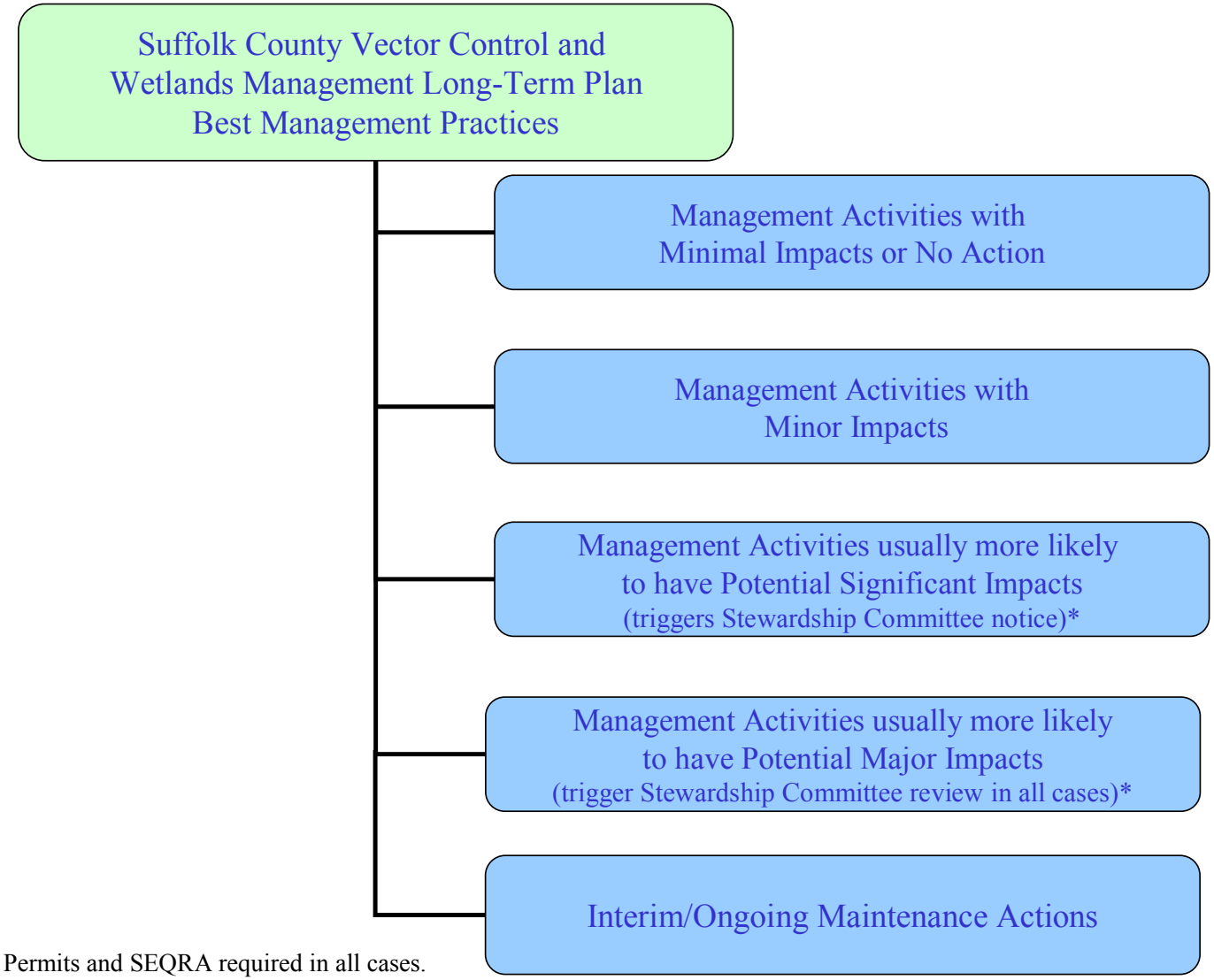
b) Maintenance should involve only existing water features in a marsh and cannot be used to expand any feature in length, width or depth.

c) Suffolk County can remove blockages/obstructions in a ditch or impairments to tidal flow in accordance with conditions identified in the FGEIS.

d) Maintenance cannot expand a ditch network.

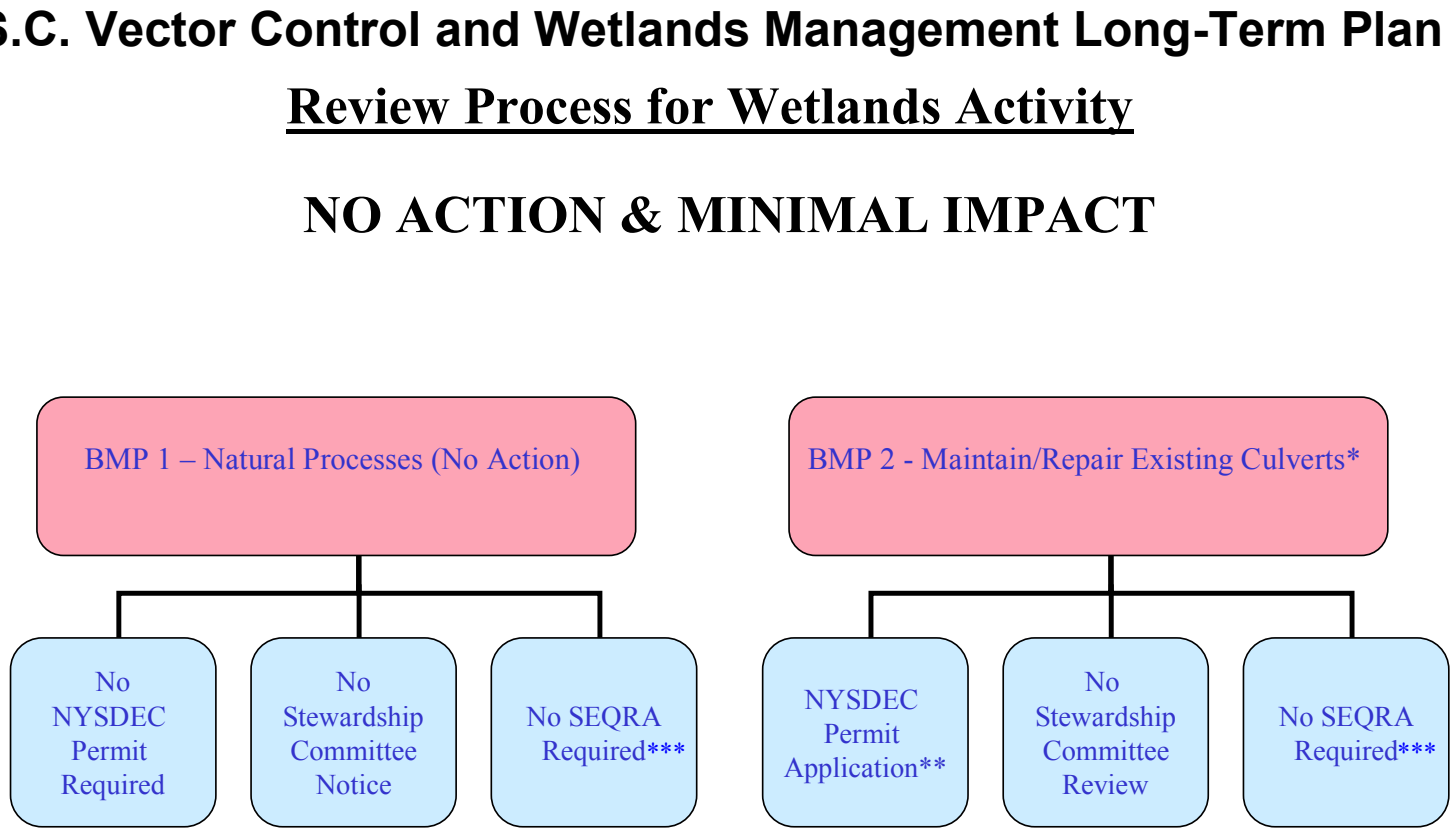
e) Maintenance shall avoid enhancement of storm water conveyance.

Figure 1. Overall Hierarchy of Proposed Best Management Practices



* DEC Permits and SEQRA required in all cases.

Figure 2. Review Process for Management Activities with No or Minimal Impacts

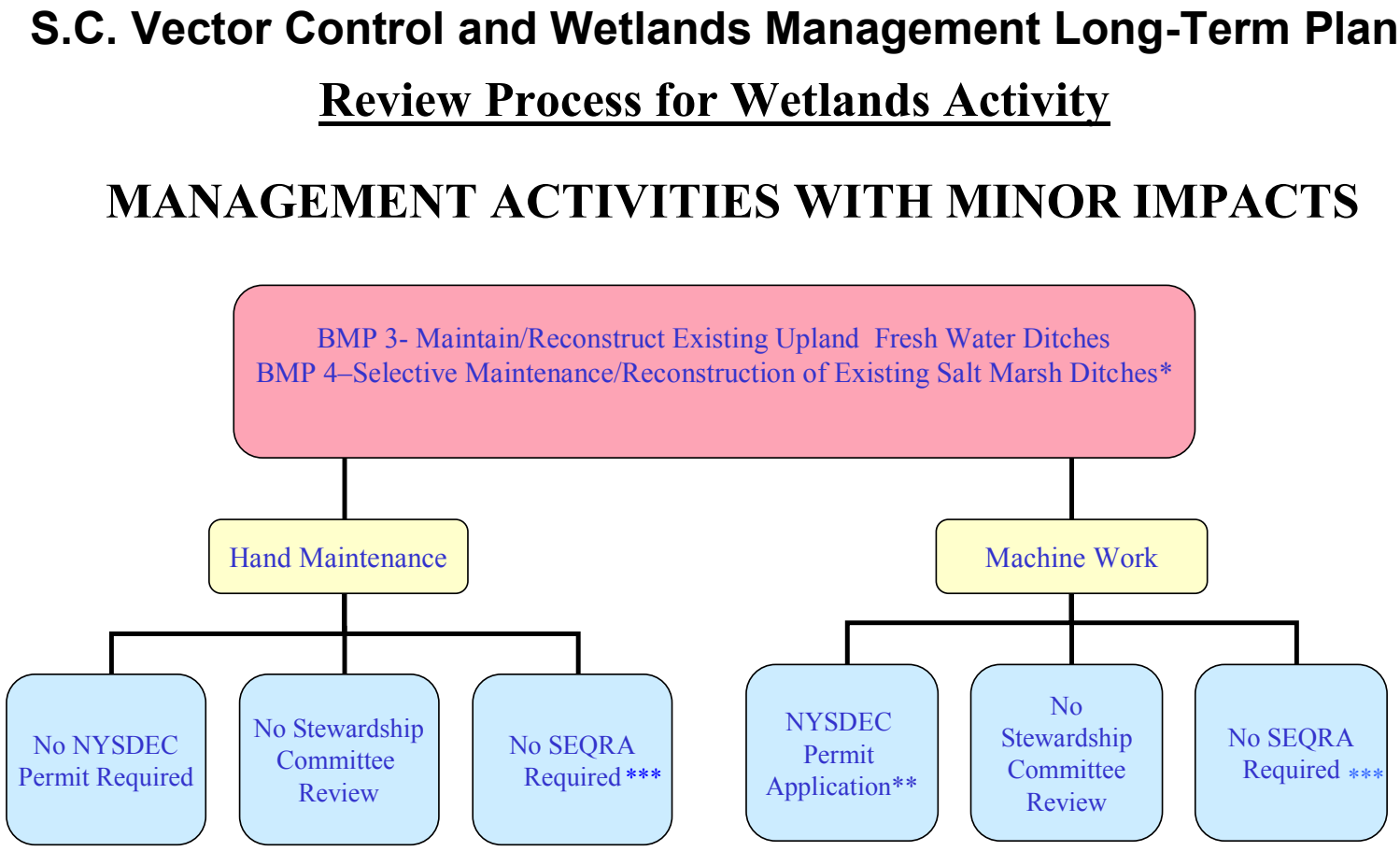


* Replacement in-kind with substantially identical culvert.

** Notice will also be sent to Town and Trustee jurisdictions.

*** BMP 1-4 may require SEQRA review if deemed appropriate by DEE/CEQ.

Figure 3. Review Process for Management Activities with Minor Impacts

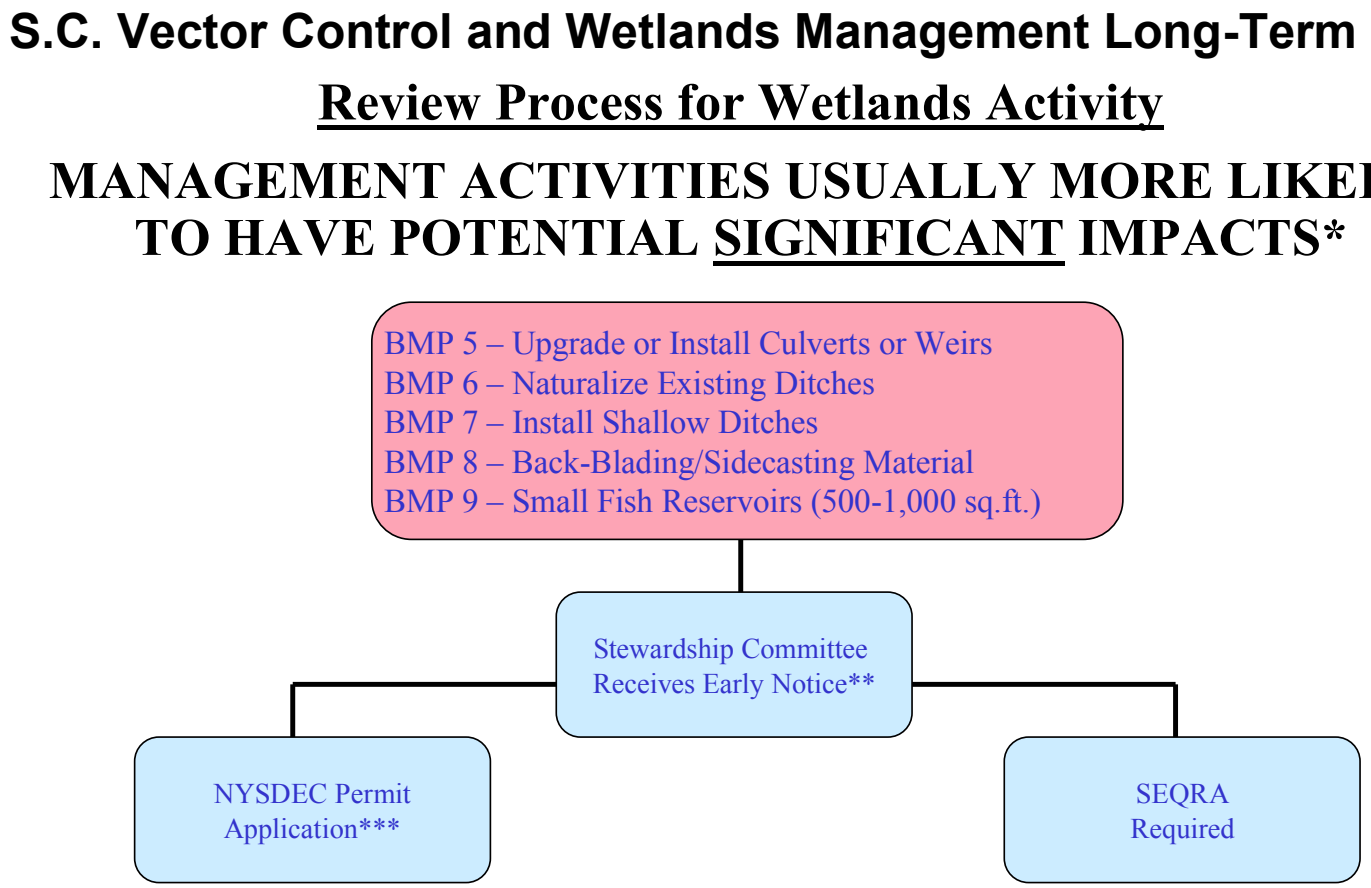


* Minimal machine maintenance when required for critical public health or ecological purpose (50,000 feet/year, 50 acres maximum, 1 acre minimum).

** Notice will also be sent to Town and Trustee jurisdictions.

*** BMP 1-4 may require SEQRA review if deemed appropriate by DEE/CEQ.

Figure 4. Review Process for Management Activities with the Potential for Significant Impacts

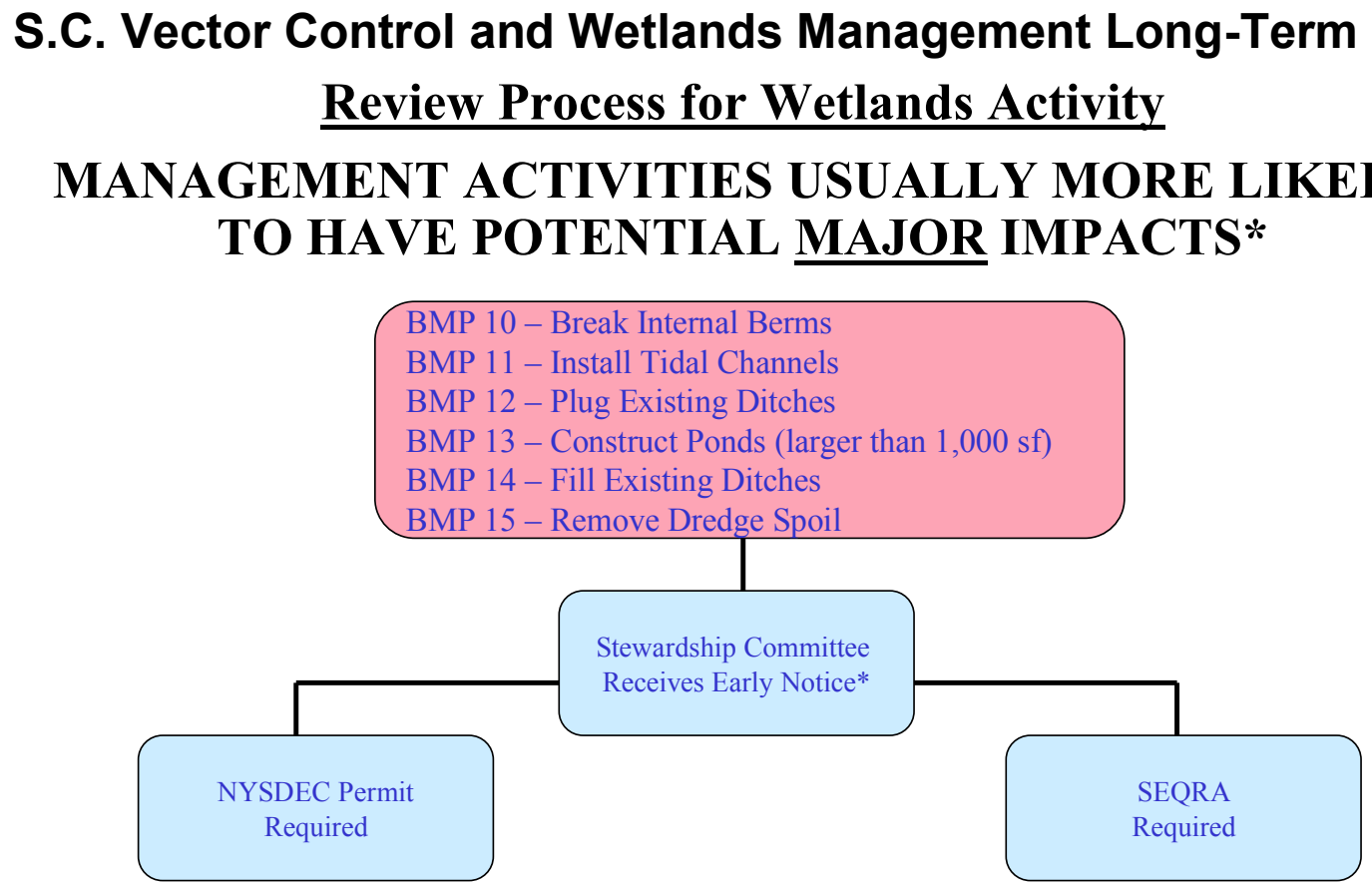


* In former plan drafts, BMP's 5-9 were designated "minor impacts" unless they affect 15 or more acres. In the current plan all are deemed usually more likely to have "potential significant impacts," irrespective of size. Impacts may be beneficial not necessarily adverse.

** Stewardship Committee can submit comments to project sponsor and/or SEQRA lead agency prior to project approval. Stewardship Committee meetings can also occur, as needed.

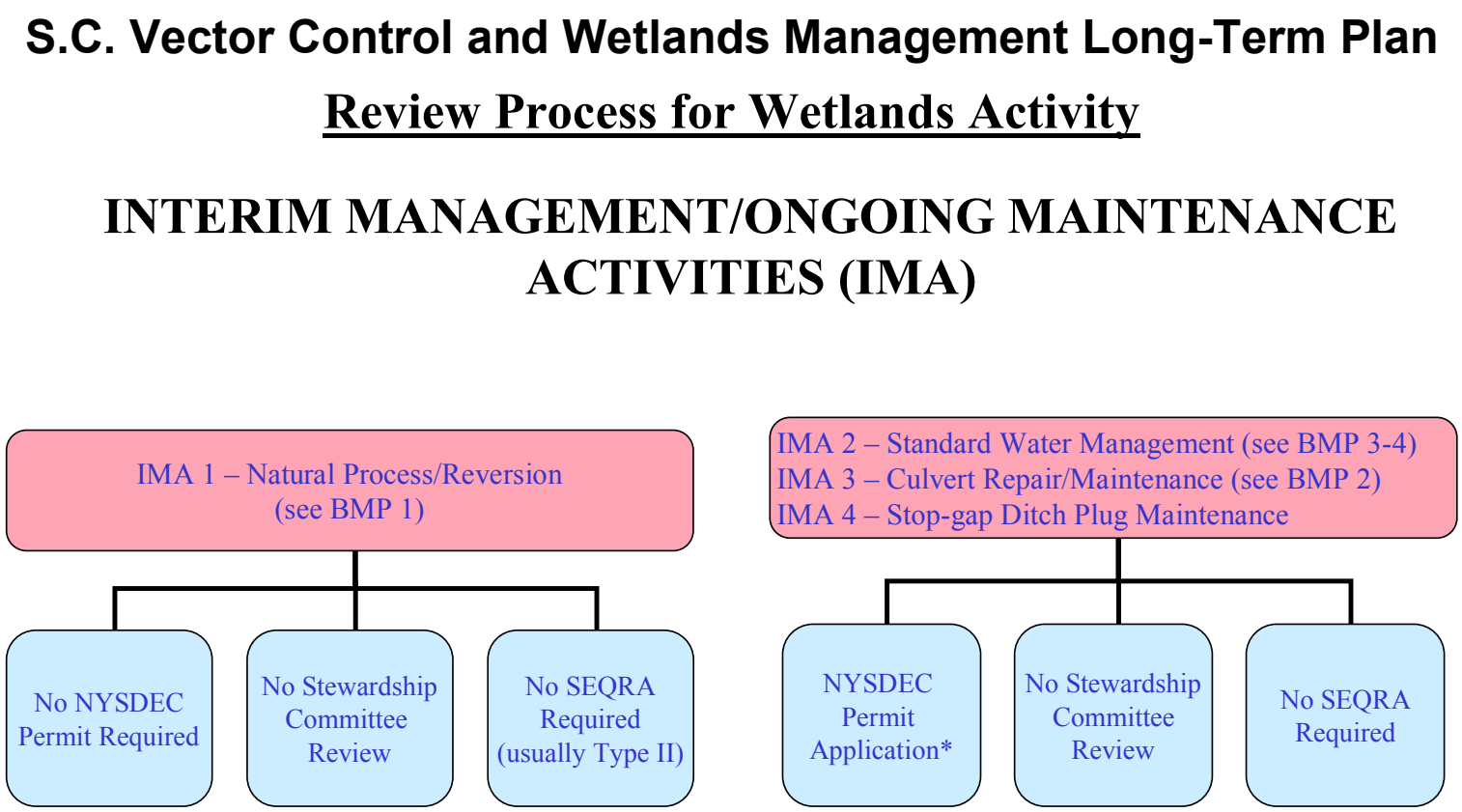
*** Notice will also be sent to Town and Trustee jurisdictions.

Figure 5. Review Process for Management Activities with the Potential for Major Impacts



* Includes representation from local jurisdictions.

Figure 6. Review Process for Interim Management/Ongoing Maintenance Activities



* Notice will also be sent to Town and Trustee jurisdictions.

In addition, over the first three years of the Long-Term Plan, the Stewardship Committee is charged with developing more rigorous indicators for marsh health for Suffolk County, and using them to assess marsh health and develop a strategy to manage all of the counties 17,000 acres of salt marsh (not just the 4,000 acres of vector control concern). SCDEE will oversee the development of this strategy. Marsh health (functions and values) and the preservation of marshes are to be paramount considerations in evaluating any potential project.

The Wetlands Stewardship Committee is envisioned in the Long-Term Plan to have the following composition:

Estuary programs:
- Long Island Sound Study (LISS) representative
- Peconic Estuary Program (PEP) representative
- South Shore Estuary Reserve (SSER) representative

State
- New York State Department of Environmental Conservation (NYSDEC) Region I
- NYSDEC Bureau of Marine Resources
- New York State Department of State (NYSDOS)

County
- County Legislature
- County Executive
- Suffolk County Department of Health Services (SCDHS)
- Suffolk County Department of Public Works (SCDPW)
- Suffolk County Department of Environment and Energy (SCDEE) (chair)
- Suffolk County Department of Planning
- Suffolk County Department of Parks
- Council on Environmental Quality (CEQ)

Local
- Town representative (based on project location)
- Trustee's representative (based on project location)

Non-governmental Organizations
- Two appointed by County Legislature
- Two appointed by County Executive

Any agency or entity that initiates a project that is before the committee, cannot vote on that project.

Appendix 2 more completely describes the functions of the Wetlands Stewardship Committee.

The Long-Term Plan identified priority sites for consideration of wetlands management (approximately 4,000 acres of salt marshes), and also identified other sites where no marsh

management for vector control purposes appeared to be appropriate (also approximately 4,000 acres). The Long-Term Plan, in the context of the Integrated Marsh management program developed by the Wetlands Stewardship Committee under the direction of SCDEE, proposes to assess the priority sites and the remaining 9,000 acres of other coastal marshes over the next 12 years or so to determine whether marsh management (possibly with a vector control element) is appropriate.

Other important Long-Term Plan elements

SCVC and the Arthropod Borne Disease Lab (ABDL) have redefined areas of operation under the Long-Term Plan, with SCVC focusing on population dynamics and control, and the ABDL concentrating on disease surveillance and determination of the need for adulticide treatment to reduce health risks. Each division has been slightly reorganized, and the County has committed to providing the personnel necessary for the organizations to meet their duties under the Long-Term Plan. The Long-Term Plan also emphasizes the need for continuing professional education to maintain the current top-notch standing of these organizations and to support continuing review and reporting on program elements.

The Long-Term Plan is not envisioned to be a static document. Means for continuing adaptive management are outlined in the Plan, including, obviously, incorporation of the findings of the Wetlands Stewardship Committee into the Wetlands Management element of the Plan. In addition, to meet the need for continuing evolution of the Long-Term Plan, and also to meet important public outreach goals, the production of a Triennial Report has been proposed. Its outline is attached as Appendix 1 to this Findings Statement.

E. Reasonable Alternatives Considered

In accord with the requirements of SEQRA, the environmental review of the Long-Term Plan considered reasonable alternatives to the Long-Term Plan.

- No Action (continue the existing program)

SEQRA requires that a "no action" alternative be considered. If no changes were made to the existing situation, then the existing mosquito management program would be continued.

The existing program is an Integrated Pest Management program, but the Long-Term Plan has identified ways that it could be improved. The ways that the existing program would be improved include:

- An expanded and improved education program
- An expanded surveillance program
- Potential construction of a local BioSafety Level 3 laboratory
- Improved GIS capabilities for data management
- Improved source reduction, including an emphasis on tire management and storm water facility maintenance
- Implementation of a more ecologically sound and yet more effective water management program
- Selection of a better biocontrol agent than *Gambusia* fish
- Proposed implementation of numerical triggers for larviciding
- Establishing goals for larvicide reductions through more effective water management
- Purchase and installation of the Adapco system for aerial adulticide applications
- Establishing clear and precise numerical triggers for Vector Control treatments
- Creating pesticide efficacy programs
- Establishing resistance testing

- Establishing clear distinctions for the complementary roles of SCVC and the ABDL
- Creating mechanisms by which the Long-Term Plan can be modified as needs dictate

Thus, the No Action alternative is clearly inferior to the Long-Term Plan.

- No Mosquito Control

A considered alternative was one where no mosquito control was to be conducted. This alternative was found to be insufficiently protective of human health. A model of WNV prevalence in the theoretical absence of mosquito control found that tens of deaths might occur each year, with more than one hundred additional cases requiring hospitalization. In addition, because careful implementation of progressive water management can augment important salt marsh functionalities, potential ecological benefits would be lost. Human health and environmental impacts from pesticide use (see Section F below), which would be avoided under this alternative, were not found to be of the same magnitude as the potential human health impacts from disease. The potential for ecological impacts from water management are mitigated by processes established for programmatic and project level reviews (see Section D above and Section F below).

- Alternative IPM approaches

Various permutations of the overall Long-Term Plan approach were considered. They included:

- No water management at all

  This is to adopt a marsh reversion policy for all marshes throughout the County. The environmental analysis suggested that, for certain marshes, allowing ditches to infill could increase mosquito breeding. In addition, for certain marshes, allowing the ditches to infill would reduce tidal circulation, and therefore lead to reduced functioning as a salt marsh. Therefore, having no water management at all would lead to potentially greater human health impacts because of increased mosquito breeding, and decreases in important ecological functions.

- Selective ditch maintenance

Experiences in other jurisdictions suggests that there are water management alternatives that potentially are more effective as mosquito control means, have potentially fewer environmental impacts, and should augment certain marsh functionalities such as fish production and water bird use of the marsh. This suggests that ditch maintenance is an inferior means of conducting water management.

- Ditch maintenance of all ditches

This alternative is based on the notion that structures should be maintained as they were constructed to be. However, it is clear that not all ditches are needed for mosquito control purpose. It is also likely that some ditches have had negative environmental impacts on certain marshes. Therefore, a universal policy of ditch maintenance is also an inferior means of mosquito control and of marsh management.

- Alternative larvicide compounds

Three alternatives were considered: ethoxylated fatty alcohols, Temphos, and Golden Bear Oil. Temphos clearly has the potential for greater ecological impacts to non-target aquatic invertebrates compared to Bti, Bs, and methoprene. The other two compounds are not as well studied. However, they appear to have the potential for non-target organism impacts, and do not appear to meet operational needs for SCVC. Therefore, these three compounds were evaluated to be inferior choices.

- No larvicide use in fresh water settings, with no methoprene use in salt water settings

Based on efficacy data, it is clear that mosquito breeding would be increased under this choice. The County has found that increased mosquito populations increase risks of disease transmission. Therefore, selecting this alternative would increase the risk of human disease. The analysis was not able to quantify the increase in risks, however. Selection of this alternative is based on the environmental benefits of reduced larvicide use outweighing the increase in human health risks. Although no use of pesticides is risk free, the quantitative risk analysis found that the proposed Long-Term Plan use of Bti, Bs, and methoprene should result in no changes to ecological conditions, as the modeling

suggested the exposure of organisms to these pesticides would be below thresholds where impacts were found to occur. Therefore, it is likely that no discernable environmental benefits would ensue, and so the risk increase to human health is likely to be much greater than (and incommensurate with) any potential ecological benefits. In fact, significantly increased adulticide usage could occur as a result. This makes this alternative inferior to the Long-Term Plan.

- Alternative adulticide compounds

Four alternatives were considered: naled, fenthion, chloripyrifos, and deltamethrin. Qualitative risk assessments were conducted of these compounds. Naled, fenthion, and chloripyrifos are organophosphate pesticides. US Environmental Protection Agency studies suggest they are likely to have more non-target impacts than the pyrethroids selected for the Long-Term Plan. They thus represent inferior choices to resmethrin and sumithrin (the preferred Long-Term Plan adulticides). Deltamethrin is also a synthetic pyrethroid. The qualitative analysis of deltamethrin suggested it should have ecological and human health impacts that are similar to the selected pyrethroids. Because no information surveyed suggested it would have lower impacts than the selected pyrethroids, it was not selected as an alternative that should be preferred over the Long-Term Plan choices.

- Use of Mosquito Magnets in Davis Park

Mosquito Magnets and other mosquito traps have been found to be effective in some testing. However, local tests conducted under the Long-Term Plan did not find that they deterred mosquitoes from reaching a target area. Therefore, establishing an array of such traps across the barrier beach to reduce infiltration of mosquitoes to the community was thought to be technically flawed.

- Adulticide only for Health Emergencies

Four study areas were considered for the quantitative risk assessment. Two areas (Dix Hills, with one application, and Manorville, with two applications) were evaluated under Health Emergency scenarios. Mastic-Shirley (10 applications) was evaluated for a mix of Health Emergency and Vector Control applications, and Davis Park (14 applications)

was evaluated for Vector Control applications only. Increasing the number of applications did not increase risks above impact thresholds for most of the scenarios and compounds evaluated. Potential impacts to terrestrial insects were found under all scenarios and for all pesticides (see Section F below). Potential impacts to aquatic invertebrates were found for the higher use scenarios for permethrin and malathion, but not for resmethrin and sumithrin. More sophisticated ecological modeling suggested that any permethrin impacts would be of short duration, and would not affect ecological conditions in the following season (these results were thought to be valid for malathion, as well). The only potential risk found to be greater than threshold limits for human health was found for the highest potential release of malathion in Davis Park, and this risk increase could be mitigated by washing the exposed vegetables (a "community gardener" scenario was modeled for all risk assessment areas, even though it was understood that conditions on Fire Island do not allow for extensive vegetable gardens). Thus, only under the highest use scenario with the highest potential exposure concentration was there even a suggestion that Vector Control applications might lead to greater impacts than Health Emergency applications. Thus, the risk assessment generally found the potential for increased risks associated with Health Emergencies and Vector Control applications to be similar (and negligible). Therefore, there would be only slight risk benefits to be achieved by eliminating Vector Control applications. The analysis by the County, however, finds that increased numbers of mosquitoes tends to increase risks of disease transmission. Therefore, there is a risk benefit for human health from decreased disease risks when Vector Control applications are made. Therefore, eliminating Vector Control applications would not only decrease quality of life, but it would increase human health risks, and provide only negligible risk advantages. This made it an inferior alternative.

- Adulticide only after human illness

This programmatic choice is logically flawed. For one, adulticides are used to avoid human illness. In this scenario, the illness has already occurred. Secondly, it needs to be understood that there is often a week or more lag between the time of infection and diagnoses of illness. Because mosquitoes often have high mortality rates (especially for brooded mosquitoes), the mosquitoes that may have been responsible for the illness may

already be dead when the illness is determined. Therefore, it will often be the case that treatment decisions will be made for reasons other than the targeted mosquitoes having caused illness. If so, those treatment criteria could be used prior to the onset of illness. Because the mosquitoes that caused illness are not likely to still be present, it is clear that eliminating mosquitoes that caused people to become ill is not the direct cause of the proposed adulticide application. This means other criteria must be used to determine where and when the application will be made. If other criteria are used, then these self-same criteria could have been applied prior to the onset of illness, with the effect of potentially preventing impacts to human health. In nearly all mosquito control situations with a virus like WNV that has a long lag between induction of illness and diagnosis of the disease, and where brooded mosquitoes are important to the risk of transmission, past human cases are a poor criterion on which to base mosquito control decisions, and the more important criteria that measure current risks from virus presence are not affected by incidences of disease. Therefore, disease occurrence in humans is a suboptimal trigger for treatment.

- No adulticiding

Information collected in the impact assessment suggests that adulticiding is effective at killing adult mosquitoes. If virus is circulating in these mosquitoes, their deaths will decrease risks to people from mosquito-borne disease. The analyses carried out on adulticide applications suggest that no significant increases in risks to the environment or human health result from judicious use of these pesticides. Therefore, avoiding the use of adulticides does not result in significant risk reductions. On the contrary, it could result in significant risk increases for mosquito-borne disease impacts.

F. Long-Term Plan Potential Significant Impacts and Identified Mitigation

Introduction

Suffolk County, through its consultant, Cashin Associates, and the team of subconsultants assembled by Cashin Associates, has conducted a most thorough and complete evaluation of potential impacts of the proposed Long-Term Plan. As detailed above in Section C, the overall approach to this project provided for a robust feedback system whereby initial findings were commented on and criticized, leading to revised and improved programs and analyses of the proposed programs. Not only were traditional methods of environmental analysis used (such as the literature search and modeled risk analysis), but local and unique experiments, assessments, and demonstration projects were undertaken to strengthen the development of the project and its environmental impact analysis.

Several elements are key to the findings regarding the proposed Long-Term Plan. These are:

- The 27 volume literature search
- The quantitative risk assessment of potential ecological and human health impacts of the proposed Long-Term Plan pesticides, using four exemplar areas of the County with different application scenarios, conducted by Integral Consulting.
- The Caged Fish experiment of fate and transport and potential impacts to sentinel organisms for methoprene and resmethrin under operational conditions in salt marsh ditches, under the direction of Professor Anne McElroy, Stony Brook University.
- The Wertheim National Wildlife Refuge demonstration of progressive water management practices and their potential to create environmental benefits and meet mosquito control needs, with the cooperation of USFWS.
- A model of potential human health impacts from WNV in the absence of local mosquito control, based on serological data collected in New York, Ohio, and Ontario.

Hundreds of samples of air, water, sediment, and biota were taken, with samples analyzed to the low part-per-trillion level, the lowest known detection limit ever attained. Numerous other efforts from this three-year study contributed to the conclusions reached here.

The contributions of volunteers were extremely important, and shaped the results presented here. These volunteers included citizens and government and academic professionals from outside of the project, who served on the various committees and who analyzed project output and draft and provisional documents.

Impacts and Mitigation

The following specifies potentially significant impacts that may be incurred with the adoption of the Long-Term Plan by the Suffolk County Legislature, and also identifies mitigation of these potential impacts.

- Education and Outreach

The Long-Term Plan identified the potential for impacts associated with counseling the public to use DEET to avoid mosquito bites. Although it is not clear that any health impacts result from the use of DEET, the Long-Term Plan repeats the advice of the State Department of Health and urges the public to use caution when applying DEET to skin, and to ensure label directions are followed. Any potential impacts associated with DEET use are mitigated by reductions in disease risk associated with its effective deterrence of mosquito bites.

- Source Reduction

Collection of littered tires can increase waste management requirements, and the maintenance of storm water structures can also generate somewhat problematic materials. The scope of these problems, in light of waste management as a whole County-wide, is not great. The impact of problems associated with these waste streams is mitigated by the potential for improved mosquito management, especially in the reductions of risks to human health.

- Water Management

The Long-Term Plan identifies 15 Best Management Practices and four Interim Management/Ongoing Maintenance Activities (Tables 1 through 5) that could be conducted in coastal marshes to further mosquito control purposes. The following five tables summarize the possible impacts associated with each, and also identify mitigation for each potential impact (identified in the Tables as “Potential Benefits”).

Table 1. Management Activities with No or Minimal Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 1.	Natural processes (reversion/no action)	- Default option - Land owner prefers natural processes to proceed unimpeded - Natural reversion is actively infilling ditches - No existing mosquito problem	- Return to pre-ditch hydrology - More natural appearance/processes - Requires no physical alterations	- Possible increase in mosquito breeding habitat, creation of problem - Loss of ditch natural resource values - Loss of tidal circulation - Phragmites invasion if fresh water is retained on marsh - Drowning of vegetation if excess water is held on marsh	Not applicable	NPN
BMP 2.	Maintain/repair existing culverts	- Flooding issues - Are existing culverts adequate for purpose? - Are existing culverts functioning properly?	- Maintain existing fish and wildlife habitats - Maintain tidal flow and/or prevent flooding	- Continue runoff conveyance into water bodies - Roads & other associated structures	- Hand tools (minor maintenance) - Heavy equipment for repair	GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required

Table 2. Management Activities with Minor Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 3.	Maintain/ reconstruct existing upland/ fresh water* ditches	- Flooding issues - Are existing ditches supporting flood control? - Are existing ditches needed for agricultural uses?	- Maintain existing fish and wildlife habitats and hydrology - Prevent or relieve flooding - Support turtle habitat - Provide fish habitat	- Continue runoff conveyance? - Perpetuate existing degraded conditions - Excess drainage	- Hand tools (minor maintenance) - Heavy equipment for reconstruction (rare)	NPN, GCp (6 NYCRR Part 663)
BMP 4	Selective Maintenance/ Reconstruction of Existing Salt Marsh Ditches	- Local government issues and concerns resolution - SCDHS Office of Ecology review - Mosquito breeding activity - Land owners long-term expectations - Overall marsh functionality - Ditch maintenance is to be selective and minimized	- Enhance fish habitat - Maintain existing vegetation patterns - Maintain existing natural resource values - Allow salt water access to prevent/control Phragmites - Reuse pesticide usage	- Perpetuate ongoing impacts from ditching (lack of habitat diversity)	- Hand tools (minor maintenance) - Heavy equipment for reconstruction	NPN, GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required

Table 3. Management Activities Usually More Likely to Have Potential Significant Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 5.	Upgrade or install culverts, weirs, bridges	- Flooding - Flow restrictions - Associated marsh impacts - Cooperation from other involved departments	- Improve tidal exchange and inundation - Improve access by marine species - Increase salinity to favor native vegetation - Improve fish habitat & access	- Negative hydrological impacts - Changes in vegetation regime	- Heavy equipment required	GCp, P, PiP
BMP 6.	Naturalize existing ditches	- Grid ditches - Mosquito breeding activity - Landowner needs - In conjunction with other activities	- Increase habitat diversity - Increase biofiltration - Improve fish habitat and access by breaching berms	- Hydrology modification - Minor loss of vegetation - Possible excess drainage	- Hand tools (minor naturalization) - Heavy equipment for major	GCp
BMP 7.	Install shallow spur ditches	- Mosquito breeding activities - Standard water management not successful (continued larviciding)	- Increase habitat diversity - Allow higher fish populations - Improve fish access to breeding sites	- Drainage of ponds and pannes - Hydraulic modification - Structure not stable	- Preferably hand tools	GCp
BMP 8.	Back-blading and/or sidecasting material into depressions	- Mosquito breeding activities - Standard water management not successful (continued larviciding)	- Improve substrate for high marsh vegetation - Compensate for sea level rise or loss of sediment input - Eliminate mosquito breeding sites	- Excessive material could encourage Phragmites or shrubby vegetation - Materials eroded so that application was futile	- Heavy equipment required	Usually NPN or GCp; could be PiP or I
BMP 9.	Create small (500-1000sq. ft) fish reservoirs in mosquito breeding areas	- Mosquito breeding activities - In conjunction with other water management - Natural resource issues	- Increase wildlife habitat diversity/natural resource values - Improve fish habitat - Eliminate mosquito breeding sites - Generate material for back-blading	- Convert vegetated area to open water with different or lower values	-Heavy equipment required	PiP

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.
NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required
P = Permit Required
PiP = Presumptively Incompatible Use- Permit Required
I = Incompatible Use

Table 4. Management Activities with the Potential for Major Impacts

BMP	Action	Factors to Consider	Potential Benefits	Possible Impacts	Equipment to be used	General Compatibility With Tidal Wetlands 6 NYCRR Part 661
BMP 10.	Break internal berms	- Water quality (poor) - Standing water (mosquito breeding) - Impacts on structural functions	- Allow access by marine species - Prevent waterlogging of soil and loss of high marsh vegetation - Improve fish access to mosquito breeding sites - Prevent stagnant water	- Changes in system hydrology - Excessive drainage of existing water bodies - Introduction of tidal water into areas not desired	- Hand tools (minor) - Heavy equipment (major)	Pip
BMP 11.	Install tidal channels	- Improve water quality - Tidal ranges and circulation - Increase salinity (invasive vegetation) - Natural resources enhancement	- Improve tidal exchange - Improve access by marine species - Increase salinity to favor native vegetation - Improve tidal inundation - Improve fish habitat	- Changes in system hydrology - Excessive drainage or flooding of uplands - Increase inputs from uplands into water body	- Heavy equipment	PiP
BMP 12.	Plug existing ditches	- Improve fish habitat - Tidal ranges and circulation - Prevent upland inputs - Natural resources enhancement	- Return to pre-ditch hydrology & vegetation - Reduce pollutant conveyance through marsh - Provide habitat for fish & wildlife using ditches - Retain water in ditch for fish habitat - Deny ovipositioning sites	- Changes in system hydrology - Reduce tidal exchange - Reduce fish diversity in ditches due to lack of access - Impoundment of freshwater could lead to freshening & Phragmites invasion - Possible drowning of marsh vegetation	- Heavy equipment	PiP or I
BMP 13.	Construct ponds greater than 1000 sq.ft.	- Landowner's needs - Water fowl habitat - Natural resources enhancement - Aesthetic improvements	- Increase habitat values for targeted species and associated wildlife - Improve habitat for fish - Eliminate mosquito breeding sites	- Changes in system hydrology - Convert vegetated areas to open water with different and possibly lower values	- Heavy equipment	PiP
BMP 14.	Fill existing ditches	- Landowner's needs - Aesthetic improvements - To restore pre-ditch hydrology - Vegetated areas	- Return to pre-ditch hydrology and vegetation - Reduced likelihood of pollutant conveyance through marsh - Create vegetated habitat to replace that lost by ditches or by other alterations - Deny mosquito breeding habitat by eliminating stagnant ditches	- Potential to create new breeding habitats if ditches are not properly filled or by making the marsh wetter - Loss of ditch habitat for fish, other marine species & wildlife using ditches - Loss of tidal circulation - Phragmites invasion if freshwater is retained on marsh - Drowning of vegetation if excessive water is held on marsh	- Heavy equipment	PiP or I
BMP 15.	Remove dredge spoils	- Increase wetland habitat	- Convert low-value upland to more valuable wetland habitats - Eliminate mosquito breeding sites	- Could result in new breeding sites if not carefully designed - Major change in local topography	- Heavy equipment	PiP

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

PiP = Presumptively Incompatible Use- Permit Required

I = Incompatible Use

Table 5. Interim Management/Ongoing Maintenance Actions

Interim Action	**Action**	**Factors to Consider**	**Potential Benefits**	**Possible Impacts**	**Equipment to be used**	**General Compatibility with Tidal Wetlands 6 NYCRR Part 661**
IMA 1.	Natural processes (No action reversion)	-Presumptive interim action	- Non-intervention in natural system	- Non-intervention in natural system	- Non-intervention in natural system	- Non-intervention in natural system
IMA 2.	Selective ditch maintenance (Standard Water Management)	- mosquito breeding activity - water quality (poor) - improve fish habitat	- Enhance fish habitat - Maintain existing vegetation pattern - Improve fish access to breeding sites - Increase fish and wildlife habitat diversity - Increase biofiltration - Improve fish habitat and access by breaching berms	- Perpetuate ongoing impacts from ditches - Hydrology modification - Minor loss of vegetation - Possible excess drainage of marsh surface	- Hand tools (Minor) - Heavy equipment (Major)	NPN, GCp
IMA 3.	Culvert repair/maintenance when tidal restrictions are apparent	- improve water quality - restore pre-restriction hydrology -mosquito breeding activities	- Maintain existing habitat - Maintain existing flows and/or prevent flooding	- Continue runoff conveyance into water bodies - Potentially inadequate water transmission	- Heavy equipment	GCp
IMA 4.	Stop-gap ditch plug maintenance	- prevent upland inputs - increase wetland habitat - sustain fish and wildlife habitat	- Return to pre-ditch hydrology & vegetation - Reduce pollutant conveyance through marsh - Provide habitat for fish & wildlife using ditches - Retain water in ditch for fish habitat - Deny ovipositioning sites	- Reduce tidal exchange - Reduce fish diversity in ditches due to lack of access - Impoundment of freshwater could lead to freshening & Phragmites invasion - Possible drowning of marsh vegetation - Impermanent approach (likely to fail within 5 years)	- Heavy equipment	GCp

Please note that other jurisdictions besides NYSDEC may also regulate activities in wetlands.

NPN = Uses Not Requiring a Permit
GCp = Generally Compatible Use- Permit Required

Extensive experience in other jurisdictions such as New Jersey and Connecticut, suggests that careful site selection and professional implementation of these Best Management Practices tends to minimize the potential for negative impacts and increase the potential for benefits to accrue.

In addition to these efforts to mitigate impacts, Suffolk County will take the following actions to ensure that projects do not result in unwanted and unexpected negative environmental impacts:

- All water management projects are to be conducted on the basis that marsh health and marsh preservation are the primary project concern.
- All projects using Best Management Practices 5 to 15 (listed in Tables 3 and 4) will be subject to initial review through SCDEE and also will be subject to further environmental review.
- All projects will receive NYSDEC permits, as required, and undergo State environmental reviews, as required. Any project requiring a NYSDEC permit will be noticed to CEQ.
- The Long-Term Plan calls for the creation of a Wetlands Stewardship Committee. The Committee will be chaired by SCDEE. This Committee, as discussed in Section D, (and further outlined in Appendix 2) will be responsible for developing a definition of marsh health, and to use that definition to develop a County-wide marsh management plan that will be the basis of an Integrated Marsh Management program. The Integrated Marsh Management program will address all County marsh management needs, including those associated with vector control. The Wetlands Stewardship Committee will also be required to review and make recommendations on all projects that use Best Management Practices 10 to 15, and Best Management Practices 5-9 that the membership of the Committee determines requires further review.
- For the first three years of the Long-Term Plan, the County will only conduct water management projects that have the potential for minimal environmental impacts.
- All wetlands management projects will be developed, reviewed, and assessed on site-specific basis.

- Projects that do not meet goals and objectives after implementation will be subject to remedial activities to mitigate any potential impacts.

- Biocontrols

The Long-Term Plan identified potential impacts of the introduction of fish into certain fresh water habitats as a potential impact associated with the use of biocontrols. This is because certain predator-deficient environments allow for the development of aquatic invertebrates, insects, and amphibians. Some of the insects that can flourish in these environments are mosquitoes. Thus, it can seem to be worthwhile, from a mosquito control standpoint, to introduce mosquito larvae predators to reduce emergent populations. This would likely have negative impacts on other species, however. Therefore, the County will mitigate this potentially negative impact by limiting fish releases generally to locations where they have been used before. In addition, any expansion of fish releases will only occur after the locations have been reviewed and determined not to provide these kinds of "vernal pool" or "coastal plain pond"-type environments, and that any connected waters that the fish might migrate to also do not constitute such environments. This will be done for natural waters, and also for the various artificial waterways (such as recharge basins) that sometimes appear to need treatment.

- Larval Control

Comments were received on the County's proposed use of methoprene and its potential for environmental impacts. The comments tended to focus on two areas:

1) The County ignored important scientific findings in making its analysis
2) The County did not correctly interpret a study conducted in Minnesota

There is no study that was evaluated as part of the Long-Term Plan which suggested that methoprene, as used in vector control applications in Suffolk County (as per NYSDEC-approved label requirements), has significant adverse ecological impacts. To the contrary, the Long-Term Plan's comprehensive risk assessment found that methoprene has no such impacts. Therefore, these findings do not recognize these comments and potential impacts as being substantiated. No commenters have refuted the specific technical materials in the

DGEIS or the FGEIS. Some commentators have recommended that, as a matter of policy, methoprene should be eliminated from the County's vector control program, without scientific documentation of adverse impacts. The commentators have made the recommendation based on speculation that, in the future, scientists may document adverse methoprene impacts in our salt marsh. This basis of speculation is clearly contrary to SEQRA.

Michael Horst has published research regarding impacts of methoprene on various crustaceans since 1999. He has found serious impacts, especially to larval stages of crabs and lobsters. The following summarizes the findings of this environmental assessment with regard to Dr. Horst's research:

- Methoprene is applied in wetland areas, not where larval crabs and lobsters used by Dr. Horst are found. Blue claw crabs hatch offshore and only arrive in estuaries when they are close to being fully developed. It is unlikely any are present in salt marshes in larval forms. Lobsters hatch offshore, develop offshore, and live offshore. A modeling exercise, made to estimate the maximum amount of pesticides that could have been in Long Island Sound when the 1999 lobster die-off occurred, found the maximum amount of methoprene that could be present in the near offshore waters of the sound was measured in the parts per quadrillion, and the lowest concentration linked to effects are in the parts per billion.
- Dr. Horst tends to overestimate the concentration of methoprene that could be present in salt marsh ponds, ditches, and streams, and in estuarine waters, according to all other researchers in the field. He also finds effects that, sometimes, others cannot duplicate.
- Dr. Horst has identified effects from methoprene that other researchers have not found, and have not looked for. This is because he is concerned about impacts from methoprene effects on endocrine systems of organisms. It is possible that pesticides (and other chemicals) that affect endocrine systems are not being correctly evaluated. However, the work in this field is preliminary, and cannot and should not be used to draw conclusions regarding any environmental impacts, based on only a few, limited laboratory studies.

To more specifically illustrate problems with the methoprene research cited by commentators, Dr. Horst's 1999 research with crab larvae used concentrations up to 500 times higher that those levels present in real-world vector control applications. Dr. Horst's more recent work in 2005 with lobster larvae suggested that there was increased mortality in Stage II lobster larvae in experiments conducted utilizing concentrations of 1 to 2 ppb methoprene continuously during a 72 hour exposure. These results were not confirmed in concurrent Stony Brook University analyses.

In any case, one ppb methoprene exposures maintained continuously for 72 hours is an extremely unrealistic exposure. The Caged Fish Study, conducted as part of the Long-Term Plan, with independent verification by USGS, clearly demonstrated that the concentrations required to cause impacts found by the Horst laboratory do not persist in the water column. Nominal concentrations of methoprene rapidly decrease to near or below detection limits of 5 ng/L (0.005 ppb); most of this reduction occurs within two hours of application. In addition, the quantitative risk assessment found, with comfortable margins of error, that risks of ecological impact do not increase to any significant level when methoprene is applied as is anticipated under the Long-Term Plan. Field sampling of salt marshes around Suffolk County also found no differences in the presence or absence of keystone marsh species with the use or not of methoprene in the marshes.

Some have placed great reliance of reports from researchers in Minnesota that appear to show impacts from methoprene use in fresh water marshes. The Hershey group's studies, published in 1997 and 1998, looked at six years of data collected from 1989 to 1994. The research indicated that methoprene use was correlated with relative reductions in insect populations and diversity (primarily in the chironomids), compared to control sites (but note that all populations actually increased in numbers and diversity over the study period; the treatment site populations grew more slowly than the control site populations did). However, sampling of the same marshes in 1997 and 1998 found the effect was gone, although insecticide use was continued. These reports are interpreted by many, including Suffolk County, as indicating that methoprene was not the primary cause of the change in the marsh insect populations.

In summary, the Hershey results do not document potential adverse impacts of methoprene, particularly in terms of Suffolk County's vector control setting. Scientifically, the Minnesota results are equivocal. The results relied on by Hershey impacts were apparently anomalous, as variations in chironomid populations occurred only in later years of the study, with no apparent causal explanation. Confounding factors such as meteorological variations may have been the root of observed impacts on chironomids. Significantly, Hershey's results were not reproduced in subsequent studies and years (i.e., no impacts, despite continuing pesticide use). Finally, it is important to emphasize that, even though the Hershey study was rigorously evaluated, it is substantially irrelevant to the Suffolk County vector control program. Hershey's work was performed exclusively in fresh water systems, while Suffolk's use of methoprene is focused predominantly on salt marshes. As such, Hershey dealt with different use patterns and ecological settings than those present in Suffolk County.

Aerial applications of larvicides appear to have the potential to cause impacts to certain bird species. Aircraft, especially when flown low over a marsh, have been observed to startle resting and nesting birds, causing them to take flight. Research on the impacts of startling such birds at one or two week intervals, as can occur due to repeated applications of larvicide across a season, is sparse, and so the impacts to any such species is based on speculation.

This potential impact is mitigated in two ways through the Long-Term Plan. One is by identifying important populations, and then altering application techniques to avoid any startling. This is already the practice of SCVC when piping plover nesting sites may be in potential flight paths. SCVC has requested that local experts work more closely with it to identify any significant populations or environments that may be impacted by its operations; although the focus of this effort is on fresh water settings, the same experts may be useful in identifying at risk populations in salt marshes, and the times when they are most sensitive to disturbance. Secondly, it is hoped that full implementation of progressive water management across the salt marshes will lead to a reduction in aerial larviciding. This has been the experience in neighboring jurisdictions where these procedures are used regularly.

Generally, the potential for impacts from the use of larvicides will be mitigated by the proposed large-scale reduction in applications, as the need for such applications is reduced.

Another overall mitigation is the benefit to human health resulting from disease risk reductions when potential vector populations are reduced.

As mentioned above, potential impacts associated with larval controls in fresh water settings are going to be further mitigated by encouraging information exchange between experts with knowledge of at risk organisms or settings, and SCVC. As each party understands habitat needs of the organisms, and proposed treatments by SCVC, it is anticipated that alterations can be made in the means SCVC uses to control mosquitoes to minimize the potential for impacts. These alterations could be shifts in the time of day that applications are made, to avoidance of treatments for certain settings at certain times, to more studied selection of treatments and times or applications to optimize mosquito control while minimizing the opportunities for impacts to occur. SCVC has, for example, worked closely with NYSDEC to avoid treating any tiger salamander habitats at times when impacts might affect breeding, or development and emergence of young. This is true although there do not appear to be any reasons to believe larvicide applications directly affect amphibians.

The quantitative risk assessment, the scientific literature in general, and local field work all found no potential impacts from the use of the biorational larvicides selected by the County under its proposed application means. Nonetheless, the County will seek to minimize its use of pesticides in the program. This is for several reasons:

- Minimizing pesticide use complies with spirit of the County pesticide phase-out law
- Minimizing pesticide use complies with Integrated Pest Management, where other means of pest control are preferred to the use of pesticides
- Reliance on pesticides for mosquito control can lead to suboptimal control. Resistance might develop, weather or other factors may impede the delivery of the pesticide, or the application may fail to impact the targeted population as expected (for a number of reasons). Thus, the pesticide may not achieve the expected efficacy.
- The potential exists for impacts due to accidents or misapplications.
- All studies, experiments, and calculations involve some uncertainties; in the case of much of the work with mosquito control pesticides, there are certainly a number of

factors and conditions that have not been completely studied and understood. Therefore, there is still a potential for impacts from the use of these products.

Therefore, the County will continue to seek to reduce its use of these compounds wherever and whenever it is feasible to do so.

- Adult Control

In the course of modeling helicopter releases of adulticides, RTP Environmental discovered there was drift of the pesticides from the release point so that at least some of the material was deposited outside of the target zone. To mitigate this potential impact, the County purchased an Adapco Wingman system. This is a coupled weather station-modeling-aircraft guidance system, where real-time meteorological data are used to model potential draft patterns of released ultra-low volume pesticides, and flight patterns are instantaneously generated to optimize the delivery of the pesticides to the target zone. This modeling system was installed on the contract helicopter used by the County in late 2005.

The quantitative risk assessment found at the point in the model grid where pesticides concentrations were greatest in Davis Park, that some elevated risks for human health for a receptor called the "community gardener" are possible (the community gardener receptor was studied in all settings, although it is not feasible for someone on Fire island to have a large, extensive vegetable garden). A community gardener is someone who eats all of their vegetables and fruit in summer from home-grown produce (15 percent of all annual produce ingestion) and works in the garden. Such an individual receives a higher dose of pesticides from residues ingested on the vegetable and from dermal contact with contaminated plants. The exposure modeled is a chronic, non-cancerous toxicity associated with malathion only. The risk can be mitigated by washing produce. It is also mitigated because malathion is not a preferred pesticide for the Long-Term Plan, and exposures associated with the pyrethroids (including resmethrin and sumithrin) do not exceed concentrations of concern. Public education efforts will help to mitigate risks associated with home-grown produce ingestion.

The quantitative risk assessment determined that there could be impacts to night-flying insects based on air dispersion model output concentrations compared to significant concentrations that could cause effects on bees (see Table 6 and Table 7).

Table 6. Bee Risk Quotients, Study Area Maximum Average Pesticide Concentrations

Pesticide	Davis Park	Dix Hills	Manorville	Mastic-Shirley (aerial)	Mastic-Shirley (truck)
Permethrin	200	8	9	20	90
Resmethrin	90	4	4	8	40
Sumithrin	100	5	6	10	60
Malathion	200	30	20	50	100

(PBO effects included)

Table 7. Bee Risk Quotients, Study Area Mean Pesticide Concentrations

Pesticide	Davis Park	Dix Hills	Manorville	Mastic-Shirley (aerial)	Mastic-Shirley (truck)
Permethrin	7	3	2	7	2
Resmethrin	3	1	1	3	1
Sumithrin	4	2	1	4	1
Malathion	20	20	9	30	8

(PBO effects included)

A number of key factors may act to mitigate and in some cases entirely remove the potential for risks to honeybees and other non-target insects:

- Actual risks would be most likely to occur when insect activity coincides with the application timing, with risks being largely mitigated for daytime insects if spraying were to occur at night.
- Additional habitat preferences, activity patterns, and behavior could result in lower risks for certain non-target insects than those predicted in this evaluation. For example, many insects are active on the ground and may be below vegetation, which may intercept applied adulticides. Many insects, such as crickets, beetles, ants, and millipedes, spend a portion of their life cycle underground. If this period does not temporally coincide with the spray season, the potential for exposure could be significantly mitigated. Some flying insects, such as certain moths and dragonflies, rest at nighttime underneath plants or other structures, and therefore would be less likely to be exposed during nighttime applications. Certain insects may actively avoid sprayed areas, and it has been shown that permethrin has a strong repellant effect on honeybees, for example.
- Verification of the air modeling data showed that under "normal" atmospheric conditions, there was typically a three to one difference between predicted PBO values and measured PBO values; with unusual atmospheric conditions, the agreement was less good (an average of 14:1). The model overpredicts the pesticide concentrations. Conservatively, it seems reasonable to assert a slight overprediction

of three to five times on the basis of the air modeling, which suggests that under most atmospheric conditions resmethrin has little potential for impact to bees, using the study area mean concentrations as a basis for understanding impacts. The same would follow for sumithrin; similar conclusions follow for at least two of the permethrin results.

- Exposures and risks are predicted based upon instantaneous conditions, precluding the incorporation of degradation of adulticides. However, adulticides are generally not persistent in terrestrial environments. Because of the difficulty in measuring resmethrin concentrations in the field, it was conservatively assumed that the resmethrin to PBO ratio would remain constant. However, deposition samples collected on solid media and aqueous samples collected within 30 minutes of the pesticide applications all found that the resmethrin had significantly decreased in concentration relative to PBO. This strongly suggests that the degradation of resmethrin may reduce the predicted concentrations enough so that the concentration of concern for bees is not achieved under most conditions.

The combination of degradation of resmethrin and overprediction by the air modeling makes it conceivable that the predicted concentrations are at least an order of magnitude greater than may actually occur. This suggests there is not likely to be a potential impact for resmethrin to flying insects under the more conservative assumptions in Table 6 for any of the aerial application scenarios. Because sumithrin has been found to behave similarly to resmethrin in laboratory experiments, it may be that it, too, degrades very quickly relative to PBO. If that were the case, then aerial applications of sumithrin would likewise be of much less concern, even under the more conservative modeling scenario.

In very broad terms, the toxicity of an insecticide dose is proportional to the size of the affected insect. The pesticides used under the Long-Term Plan are intended to be toxic to mosquitoes. Therefore, insects of similar or smaller sizes are likely to be affected if they are also exposed to the pesticide. Table 8 lists the orders of flying insects found in the New York metropolitan area that are of similar or smaller size compared to mosquitoes.

Table 8. Orders of flying insects that contain many/certain insects that are generally similar in size or are smaller than mosquitoes (0.15 inches)

Order	Notes	Order Exemplars
Diptera	Some classify this order as larger than mosquitoes (mosquitoes belong to Diptera)	True flies – black flies, midges, fruit flies, houseflies, mosquitoes
Ephemeroptera	Often attracted to lights; short-lived; Paleoptera; some classify this order as larger than mosquitoes	Mayflies
Homoptera	Important herbivores	Aphids, scale insects, leaf hoppers, cicadas
Mecoptera	Seldom common; insect predators	Scorpion flies
Proscoptera	Many wingless; effective dispersers (often first colonizers of islands)	Bark lice
Strepsiptera	Only males fly; insect parasites	
Thysanoptera	Often destructive to plants	Thrips
Zoraptera	Termite-like; rare; winged individuals may be dispersal form	

There has only been one test of pyrethroid application impacts on flying insects; in that experiment, both the control and test sites experienced declines in populations, and both recovered within a week. Another test using a different class of adulticide also found recovery of the insect population within a week. This suggests that any effects on non-target organisms are likely to be short-lived; since the mechanism for recovery is likely to be in-migration, one caveat, thus, is that the treatment area sizes should be minimized.

Acute and chronic impacts to aquatic invertebrates were predicted for malathion under many evaluated scenarios, and for permethrin in one case through the quantitative risk assessment. No elevations in risk that are likely to cause impacts were predicted for the use of resmethrin or sumithrin. A sophisticated aquatic ecosystem model developed by the US Environmental Protection Agency was used to test whether permethrin use might result in ecological impacts (permethrin, rather than malathion, was tested because pyrethroids were identified as the preferred adulticide, and so testing a pyrethroid for impacts was deemed to be of greater value in predicting any ecological impacts from implementing the Long-Term Plan). The model found short-term declines in populations for a variety of organisms following modeled exposure to permethrin. However, all but one population recovered within several months of the cessation of applications, and the slower recovery of the remaining population did not lead to any ecological changes in the modeled system.

Mitigation of these potential impacts includes:

- Measurement of effects may be based on overpredictions of deposited concentrations (see just above)
- Pyrethroids, as represented by resmethrin, appear to degrade very rapidly (testing of pesticides in association with the Caged Fish experiment was only able to detect resmethrin in the water column immediately following applications)
- Historically, applications have only been made to small portions of the County. In 2003, which had more adulticide use of any year since 1999, only six percent of the County received an adulticide application. This means that any potential impacts are extremely limited in terms of geographical extent.

More generally, the County will also seek to mitigate potential impacts to those areas that commonly receive one (or more) Vector Control adulticide application in a season. Targeted outreach will stress the importance of avoiding exposure to mosquitoes, and in taking mitigating steps if exposure cannot be avoided. The Commissioner of SCDHS will also craft an advisory detailing the means that SCDHS recommends (or suggests) to minimize risks for potential impacts from exposure to adulticides. Washing of home-grown vegetables in areas where adulticides may be used more often will be an important outreach topic.

The small area of the County impacted by adulticides in any one year is a general mitigation of impacts. In addition, the strict compliance of SCVC with defined, numerical application triggers may reduce the number of applications, and will mitigate any public perceptions that applications are made on the basis of ambiguous criteria. Finally, implementation of progressive water management steps should provide more effective larval control than has been achieved using larvicides and ditch maintenance, which may decrease the need for adulticide applications.

The use of adulticides also provides ancillary benefits. Adulticide applications reduce risks for mosquito-borne disease and also reduce impacts to quality of life. This is because efficacy data clearly shows adulticides are effective means of reducing mosquito populations, although these populations may recover within several weeks in conditions allow. The collection of efficacy data in association with adulticide applications will allow the County to

clearly justify this element of the program. If the efficacy data do not support claims of population reductions, then the County will need to reexamine its use of this control tool.

The County will mitigate the overall impacts of its use of pesticides through an annual review. Elements of this review will include documenting the use of pesticides in the previous year, analysis of any relevant scientific findings on the products in use, and considered evaluation of alternatives in light of any new information (research or product development) since the previous year's report. The report will also discuss the application thresholds used to determine if Vector Control applications should be made, and determine if adjustments need to be made in light of human health and environmental considerations.

- Adaptive management

Suffolk County has made a public commitment to adaptively managing the Long-Term Plan. This is a clear mitigation of any impact associated with the Long-Term Plan. If the above analysis did not adequately identify a potential impact, or if some potential impact was overlooked in the environmental analysis, the ability to adjust the program to meet changed circumstances allows the Long-Term Plan to be modified. The list of issues to be addressed in the Triennial Plan, attached as an appendix to this Findings Statement, makes clear Suffolk County's determination to carefully assess the effectiveness and potential impacts of the Long-Term Plan.

G. Requirements for Further Environmental Reviews

Potential further environmental reviews for actions taken under the Long-Term Plan relate to at least two types of actions:

- adoption of the Annual Plan of Work by the County Legislature
- reviews of water management projects and BMPS 5-15

The triggers for further environmental review which are specified herein constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County and/or the Council on Environmental Quality could commence additional environmental review based on substantial new technical information.

The adoption of these Findings by the Legislature (as Lead Agency) means the Legislature is satisfied that the potential impacts of the Long-Term Plan have been adequately reviewed. From this perspective, if an Annual Plan of Work complies substantively with the Long-Term Plan, then potential impacts of that annual plan will have been adequately considered, as well, and the Annual Plan of work would be deemed a Type II Action pursuant to SEQRA.

The primary criterion for determining if an Annual Plan of Work is not substantively in accord with the Long-Term Plan should be the annual plan's compliance with the overall approach of the Long-Term Plan, and, where specified, a failure to use particular actions, or a major deviation from an important specific set of actions. In general, annual plans need to focus on the use of surveillance to determine where mosquito problems exist, and to primarily employ source reduction tools to reduce the impact of mosquitoes on people. An important source reduction tool must be implementation (over time) of the techniques for water management developed in the Best Management Practices manual, as outlined in the Wetlands Management Plan. Any plan that proposes to manage mosquitoes without surveillance or to not use water management as a means of obtaining long-term control of mosquito problems will require additional environmental review.

Other criteria that would lead to additional environmental review of an annual plan would be:

- failure to include public education and outreach steps to educate residents and visitors on the means that are available to avoid mosquito bites and diseases associated with mosquitoes
- Inadequate mosquito population or disease surveillance
- failure to commit to respond to all mosquito complaints using personnel appropriately trained to identify and mitigate sources of mosquito problems
- failure to use the review processes outlined in the Wetlands Management Plan for water management projects
- proposed use of a non-native biocontrol organism not already resident in Suffolk County natural environments
- proposed use of a larvicide other than *Bacillus thuringenesis var israelensis* (Bti), *Bacillus sphaericus*, or methoprene

- proposed use of an adulticide other than resmethrin, sumithrin, permethrin, natural pyrethrins, or malathion
- identification of a preferred adulticide agent other than resmethrin or sumithrin

Environmental reviews may consist of a negative declaration if no significant environmental impacts will result (6 NYCRR §617.10(d) (3)) or a supplemental environmental impact statement if one or more significant adverse environmental impacts was not adequately addressed (6 NYCRR §617.10(d) (4)). Use of an expanded EAF may be appropriate when a negative declaration is proposed.

The adoption of these Findings by the Legislature (as Lead Agency) means the Legislature is satisfied that the potential impacts of the Long-Term Plan have been adequately reviewed. From this perspective, the classification of allowable water management actions (as described in the Best Management Practices manual) as "no to little" potential impacts, "minor" potential impacts, "usually more likely to have potentially significant" impacts, and "usually more likely to have major" potential impacts will have been accepted, and the descriptions of the potential for impacts (and the mitigation steps to avoid impacts) will have been deemed to be adequate.

Nonetheless, on a project by project basis, the following criteria need to be considered to determine if additional environmental reviews are warranted:

- the techniques to be employed have been classified as having the potential for potentially significant or major environmental impacts (BMPs 5-15)
- consultation with local authorities or review by the Wetlands Stewardship Committee finds there is a potential for environmental impacts under the proposed course of action
- review by the CEQ finds there is a potential for environmental impacts under the proposed course of action

Environmental reviews may consist of a negative declaration if no significant adverse environmental impacts will result (6 NYCRR §617.10(d) (3)) or a supplemental environmental impact statement if one or more significant environmental adverse impacts was not adequately addressed (6 NYCRR §617.10(d) (4)). In light of the extensive reviews of the techniques to be employed for water management in the GEIS and associated documents, use of an expanded

EAF to cite relevant sections of the GEIS or to report on local data collection efforts that justify the project may be appropriate if a negative declaration is proposed.

The triggers for further environmental review which are specified above constitute the minimum conditions under which additional environmental review would be initiated. At any time, the County could commence additional environmental review based on substantial new technical information.

Appendix 1 to the Statement of Findings: Contents of the Triennial Report

The following outline is intended to provide a preliminary overview of issues which will be analyzed to form the basis of the Triennial Report. The outline includes indicators (where available) which will be used to measure success. The content and format of the Triennial Report will be contingent on Steering Committee and Wetlands Stewardship Committee input which will be sought at the early stages of report preparation.

1) Executive Summary

The Executive Summary will provide an overview of the following issues, which will be addressed in detail in subsequent report sections.

- Public health (viral surveillance, human disease)
- Vector control (pesticide usage, water management, surveillance, etc.)
- Education/outreach
- Wetlands Stewardship Program – Accomplishments and Plans
- Potential Plan Updates and Amendments

2) Public Health

- Viral surveillance results
- Human health (cases and deaths from mosquito-borne diseases)

3) Vector Control Long-Term Plan Implementation

The report will integrate results from the Department of Public Works, Division of Vector Control and Department of Health Services, Division of Public Health.

A. Public Education and Outreach

Current Program:

- Recommend avoidance of the outdoors at dawn and dusk.
- Consider use of personal repellants (DEET, Bite Blocker, Picaridin, Oil of Lemon Eucalyptus).
- Maintain home environments that do not foster mosquito breeding.
- Distribute Publications such as “Fight the Bite” and “Dump the Water.”
- Maintain County Web Site
  - Post spray events
  - Link to no spray list

Long-Term Plan Recommendations:

- Establish tire management education program to eliminate mosquito breeding habitat. Encourage other county departments and municipalities responsible for routine sanitation or maintenance activities to properly dispose of tires.
- Conduct farmer irrigation outreach-targeted education through Cornell Cooperative Extension.
- Encourage private storm water system maintenance.
- Conduct tailored outreach to municipal highway departments regarding storm water structures as mosquito habitat.

- Emphasize personal responsibility for reducing impacts from mosquitoes (avoiding mosquitoes whenever possible, wearing long-sleeves and pants, and using repellents).
- Improved efficacy reporting. Results made available to the public via the web and annual reports.
- Post efficacy reports on the SCVC website. Reports will summarize the results of mosquito control efforts measured before, during and after aerial spray event.
- Maintain the Citizens Advisory Committee.
- Create a listserv for adulticide application notifications.
- Integrate new web site into existing county site.
- Revise public notice/guidance.
- Participation in "Mosquito Awareness Week."
- Targeting specific communities (recommended in DGEIS comment period).
- Focusing on educating school-aged children (recommended in DGEIS comment period).

Indicators of Success

- Degree to which current program and Long-Term Plan recommendations are implemented. Implementation will be quantified, where possible. E.g.:
  - Partnerships established with towns for tire management plans.
  - Public education workshops which have been conducted.
  - Brochures and fact sheets disseminated to public.
  - Number of efficacy reports posted.
  - Programs targeted at specific communities and school-aged children.

B. Scientific Surveillance

Current Program:

- Presence or absence of larvae
- Collect and process 10,000-12,000 larval and adult mosquito samples
- Collect and process approximately 75,000 mosquitoes for arbovirus surveillance
- Integration of Geographic Information System (GIS) and Global Positioning System (GPS) technology for surveillance information
- 27 permanent NJ traps; 80 CDC trap-nights per week.

Long-Term Plan Recommendations*:*

- Increase surveillance capabilities.
- Increase staff for surveillance for both SCVC and the ABDL.
- Increase permanent NJ trap network to 30.
- Increase CDC trapping to 105 trap-nights per week.
- Conduct quantitative mosquito assessment prior to EVERY adulticide event.
- Conduct post-spray efficacy monitoring.

Indicators of Success

- Degree to which current program and Long-Term Plan recommendations are implemented. E.g.:
  - Number of staff-days dedicated to surveillance.
  - Number of mosquito samples processed.
  - Number of CDC light traps deployed and NJ traps maintained.
  - Number of pre-adulticide mosquito counts.
  - Annual reports on surveillance analysis, including post-spray efficacy.

C. Source Reduction/Control

Current Program:

- Public education program (above).
- Response to citizen complaints.
- Catch basin and recharge basin control efforts.

Long-Term Plan Recommendations:

- Expand surveillance of catch basins from 10,000 to 40,000 inspections.
- Augment education component (County tire collection effort, private storm water management system outreach effort, increase interaction between SCVC and highway departments)

Indicators of Success

- Catch basins inspected.
- Records on response to complaints.
- Improve waste management and county departments tire management

D. Biocontrols

Current Program:

Mosquito fish, (Gambusia spp.)

Long-Term Plan Recommendations:

- Fathead minnows; other disease free fish native to the area.
- Predacious Copepods

Indicators of Success

- Research alternatives and explore other states initiatives
- Same or increased level of biodiversity after introduction of biocontrol
- Reduced mosquito larvae counts in sampling

E. Larval control

Current Program:

- Biorational larvicides, Bacillus thuringiensis var. israelensis (Bti), Bacillus sphaericus (Bs), and methoprene
- Surveillance of the nearly 2,000 breeding points in the County

- 15,000 inspections of breeding sites and other surveillance findings (includes catch basins and sumps)
- Approximately 4,000 acres of the County's salt marshes aerial larvicided

Long-Term Plan Recommendations:

- Increased surveillance
- Surveillance of the 2,000 breeding points in the County
- 15,000 inspections of breeding sites and other surveillance findings
- Identify problem breeding sites
- Expanded catch basin and recharge basin larviciding
- Implementation of ecological controls
- Implementation of formal resistance testing and management
- Water management - 75% percent reduction goal in acreage treated

Indicators of Success

- Number of inspections/surveillance events.
- Area larvicided (frequency and extent).
- Record and analyze dip counts in relation to reduction in treatments (results).
- Annual larvicide efficacy reports (results).
- Reduced adulticide events expected after successful larvicide control in known problem areas.

F. Adult control (only if necessary)

Current Program:

- Resmethrin, sumithrin, malathion, permethrin and natural pyrethrin
- Adulticide-directed surveillance, decision-making procedures, and efficacy and resistance testing

Long-Term Plan Recommendations:

- Criteria for spraying
  - Evidence of mosquitoes biting humans – service requests mapped
  - Verification of problem-New Jersey trap counts > 25 females /night
  - CDC light trap counts > 100; Landing rates of one to five per minute
  - Control is technically feasible Weather conditions suitable (no rain, winds<10 mph, temperature 65 ° or above)
- Improved spray technology ("Adapco Wingman") to minimize pesticide application and optimize mosquito control.
- Augment the New Jersey light trap network from 27 to 30. Expand as resources allow (see surveillance).
- Increase the number of CDC light traps from 27 to 35. Expand as resources allow (see surveillance).
- Increase CDC trap-nights to 105 per week.
- Reduce adulticide usage (currently less than 2% of County in non-emergency situations).

Indicators of Success

- Reduction in adulticide usage.
- Efficacy tests post treatment indicate 90 – 99% population reduction.
- Efficacy tests posted annually on county web page and in annual reports.
- Aerial application efficacy released within a week or so of the application.
- Post Health Emergency reductions in the parity and infection rates for the target mosquito species (if staff and lab resources available).

G. Water Management:

Current Program

- Hand maintenance/machine maintenance limited to < 200,000 linear ft/yr
- Machine work limited to repair and replacement of existing structures
- No new machine ditching
- Machine maintenance limited to 50,000 ft/year (no more than 50 affected acres), and only when essential for public health or ecological reasons.
- Natural Process (No action/ reversion)
- Culvert repair/ maintenance when tidally restricted
- Stop gap ditch plug

Long-Term Plan Recommendations

- Develop a strategy for managing Suffolk County's 17,000 acres of tidal wetlands, irrespective of Vector Control concern (goal: 12-year implementation window).
- Reversion priorities, allowing natural processes to fill ditches (approx. 4,000 acres; no vector control).
- Candidates for possible restoration/water management (currently routinely larvicided; approx. 4,000 acres). Marsh health is paramount objective.
- Areas requiring more assessment (approx. 9,000 acres); low-impact best management practices are possible.
- The pre-existing policy of "no new ditching" will be continued.
- Less than four percent of the County's tidal wetlands (~ 600 acres) subject to machine ditch maintenance over the next decade.

Indicators of Success

Implementation of Plan recommendations (above).

4) Wetlands Stewardship Program – Accomplishments and Plans

Long-Term Plan Recommendations

- Develop a comprehensive assessment and management plan for the 17,000 acres of tidal wetlands within three years
- Ensure the protection and preservation of functions, values, and health
- Use Vector Control Wetlands Management Plan as foundation (Goodbred Report; primary study area results)
- Inventory/assess wetlands County-wide

- Review and evaluate major wetland restoration projects
- Implement early action demonstration projects
- Develop Long-term strategies

Indicators of Success

- Existence/adoption of strategy
- Acres/subsystems assessed
- Acres /subsystems restored
- Integrated plans implemented

5) Recommended Plan Updates and Amendments

Plan updates and amendments will be made, as needed. Updates may be recommended by involved agencies, the Citizens Advisory Committee, Technical Advisory Committee, and/or Wetlands Stewardship Committee. Updates require review/approval of the Steering Committee.

Appendix 2 to the Statement of Findings: Structure of the Wetlands Stewardship Committee

SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT LONG-TERM PLAN

Wetlands Stewardship Committee (WSC) – Overview *

Membership (Tentative)

Estuary programs

Long Island Sound Study representative
Peconic Estuary Program representative
South Shore Estuary Reserve Program representative

State

New York State Department of Environmental Conservation Region I

New York State Department of Environmental Conservation Bureau of Marine Resources
New York State Department of State

Non-governmental Organizations (NGOs)

Two appointed by County Legislature
Two appointed by County Executive

County

County Legislature – Presiding Officer
County Executive
Suffolk County Department of Environment & Energy - will serve as Chair of Committee

Council on Environmental Quality

Suffolk County Department of Health Services

Suffolk County Department of Public Works

Suffolk County Department of Planning
Suffolk County Department of Parks

Town (only when projects proposed in a Town)

1 Supervisor and 1 Trustee rep

Nature of Committee; Support from Work Group, Agencies, and Contractor

The Stewardship Committee is comprised of policymakers, high-ranking agency officials, and NGOs from agencies and organizations with responsibility for wetlands management. The Committee will meet on a quarterly basis, or as needed to vote on wetlands management projects. The Committee will be supported by professional staff at the Suffolk County Departments of Environment, Health, and Public Works. Suffolk County Capital Program 8730 (Wetlands Planning) is also expected to support the Committee and the Wetlands Stewardship Program ("WSP," see below), via a contracted workplan. A "Wetlands Management Work Group," consisting of technical experts from agencies, NGOs, and academia, will meet more frequently, and will report to the Stewardship Committee. The work group will conduct many of the functions formerly performed by the Long-Term Plan's "Wetlands Subcommittee" (i.e., will guide monitoring, assessment, and project design).

Wetlands Stewardship Committee - Charges

- Oversee and make recommendation all major aspects of the Wetlands Stewardship Program.
- Meet to review and make recommendations on all proposed wetlands projects which propose use of Best Management Practices 10 through 15 in Long-Term Plan.

- Review and make recommendations on proposed wetlands projects which propose use of Best Management Practices 5 through 9 in Long-Term Plan, at Committee's discretion.
- Provide review and recommendations on the water management component of the Triennial Long-Term Plan Update. This update shall incorporate results of the Wetlands Stewardship Program.

The WSP is a cooperative effort between the Wetlands Stewardship Committee and various Suffolk County Departments (Environment and Energy as the committee chair, Health Services as Stewardship Program project manager, Public Works as project sponsor, and Planning and Parks as key partners). The WSP is charged with developing indicators of wetlands health, assessing wetland health, establishing preservation and restoration priorities, and designing and implementing pilot projects. The WSP will also coordinate activities among estuary programs.

Within three years, the WSP will develop a Wetlands Stewardship Strategy (WSS) to address the assessment and management needs of all tidal wetlands in Suffolk County (approximately 17,000 acres), not just those wetlands of concern with respect to vector control. Marsh health will be the paramount objective. The scope of WSC activity will generally be limited to tidal wetlands. However, freshwaters and freshwater wetlands which are closely hydrologically connected, and integral to a tidal wetlands subsystem, may be considered on a case-by-case basis. Federal, state, town and village jurisdictions are encouraged to participate in the Stewardship Committee (e.g., in terms of project review), but are not required to do so.

*Working outline, subject to establishment of final membership, by-laws and procedures by Suffolk County Dept. of Environment & Energy

Appendix 3 to the Statement of Findings: Adopting Resolution 1150-2007

Intro. Res. No. 1150-2007 Laid on Table 2/6/2007
Introduced by Deputy Presiding Officer Viloria-Fisher

RESOLUTION NO. 285 -2007, ADOPTING THE SUFFOLK COUNTY VECTOR CONTROL AND WETLANDS MANAGEMENT LONG-TERM PLAN AND A STATE ENVIRONMENTAL QUALITY REVIEW ACT FINDINGS STATEMENT FOR THE FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT

WHEREAS, it is the policy of Suffolk County to reduce or eliminate pesticide usage, to the extent practicable; and

WHEREAS, Suffolk County is committed to preserving and restoring its tidal wetlands, which have been dramatically altered by an extensive vector control grid ditch network which was substantially created in the 1930s; and

WHEREAS, the West Nile Virus threat highlighted the need to further optimize an already effective Vector Control Program, which is essential to protect public health, and also has important ancillary quality of life benefits; and

WHEREAS, in acknowledgement of the need to develop a comprehensive long-term vector control plan to protect public health and welfare, while reducing pesticide usage and enhancing wetlands which may be affected by Vector Control, in Resolution No. 688-2002, this Legislature authorized the development of a Suffolk County Vector Control and Wetlands Management Long-Term Plan (hereinafter "Long-Term Plan," dated October 2006, annexed hereto, incorporated by reference and made a part hereof), designated itself as lead agency under the State Environmental Quality Review Act (hereinafter "SEQRA", N.Y. Environmental Conservation Law Article 8) and its implementing regulations (subject to appropriate coordination), classified the action as Type I, and adopted a Positive Declaration for the Long-Term Plan, causing a Generic Environmental Impact Statement (hereinafter "GEIS") to be prepared; and

WHEREAS, this Legislature adopted the Final Scope for the Generic Environmental Impact Statement, pursuant to Resolution No. 1122-2003; and

WHEREAS, the Long-Term Plan and GEIS were prepared in a public and open process with extensive input and guidance from Citizens and Technical Advisory Committees, as well as the Council on Environmental Quality (hereinafter the "CEQ"), interested citizens of the County, and Local, State, and Federal agencies; and

WHEREAS, comments from agencies, advisory committees, the public, and the CEQ resulted in multiple voluntary iterations of the Long-Term Plan (including publications in September 2005, May 2006, and October 2006), and, as a result, the Plan has been substantially improved; and

WHEREAS, the Departments of Health Services, Public Works, and Energy and the Environment caused the preparation of a Draft GEIS in accord with the procedures and rules of SEQRA as defined in 6 NYCRR Part 617; and

WHEREAS, pursuant to Chapter 279 of the Suffolk County Charter, the Council on Environmental Quality evaluated the Draft GEIS and found it to be complete according to the standards set forth under SEQRA; and

WHEREAS, the Council on Environmental Quality then solicited public comments on the Draft GEIS, including holding two public hearings; and

WHEREAS, this Legislature, on the advice of the Council of Environmental Quality, found that comments received on the Draft GEIS were substantive in nature, requiring the preparation of Final GEIS, as per Resolution No. 1103-2006; and

WHEREAS, the Suffolk County Departments of Health Services, Public Works, and Energy and the Environment therefore caused the preparation of a Final Generic Environmental Impact Statement in accordance with the procedures and rules of SEQRA as defined in 6NYCRR Part 617; and

WHEREAS, the Final GEIS was filed with the Council on Environmental Quality and made available to the general public; and

WHEREAS, the Council on Environmental Quality forwarded the Long-Term Plan, the Final GEIS, and the Final GEIS Addendum, together with its comments and recommendations and those received from the public with this Legislature, for consideration at the January 29, 2007 meeting of the Environment, Planning and Agriculture Committee of the Suffolk County Legislature, as part of CEQ Resolution No. 08-07; and

WHEREAS, the Suffolk County Departments of Health Services, Public Works, and Energy and the Environment caused the preparation of a draft Findings Statement; now, therefore be it

1st RESOLVED, that the Legislature adopts the Long-Term Plan as an appropriate, comprehensive, long-term wet lands management and vector control plan to protect public health and welfare, while reducing pesticide usage and protecting wetlands; and be it further

2nd RESOLVED, that, pursuant to 6 NYCRR Part 617 and Chapter 279 of the Suffolk County Charter, the Legislature hereby adopts the Statement of Findings annexed hereto, incorporated by reference and made a part hereof, certifies that the requirements of SEQRA have been met, and certifies that, consistent with social, economic and other essential considerations, the proposed Long-Term Plan has been developed from among the reasonable alternatives available, as the choice that avoids or minimizes potential adverse, environmental impacts, to the maximum extent practicable; and be it further

3rd RESOLVED, that the Legislature certifies that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporation, as conditions within the Statement of Findings, where those mitigative measures that have been identified as practicable; and be it further

4th RESOLVED, that the Legislature finds that there is a need for a strategy to address the management needs of the County's 17,000 acres of tidal wetlands, not just the 4,000 acres of tidal wetlands of greatest concern to Vector Control; and be it further

5th RESOLVED, that the Legislature supports the Wetlands Stewardship Committee concept described in the Findings Statement, as a means of coordinating and overseeing future marsh management projects, as well as overseeing development of a strategy to address the management needs of the County's 17,000 acres of tidal wetlands, consistent with applicable laws; and be it further

6th RESOLVED, that the Commissioner of the Suffolk County Department of Environment and Energy, or her designee, is hereby authorized and directed to serve as Chair of the Wetlands Stewardship Committee, and to oversee development and implementation of appropriate procedures and by-laws of that Committee, including membership and voting, which procedures and by-laws shall be consistent with applicable laws; and be it further

7th RESOLVED, that the Suffolk County Department of Environment and Energy will prepare a report on Wetlands Stewardship Committee activities to this Suffolk County Legislature within three years, with said report containing a strategy to address the management needs of the County's 17,000 acres of tidal wetlands.

DATED: March 20, 2007

APPROVED BY:

/s/ Steve Levy
County Executive of Suffolk County

Date: March 22, 2007