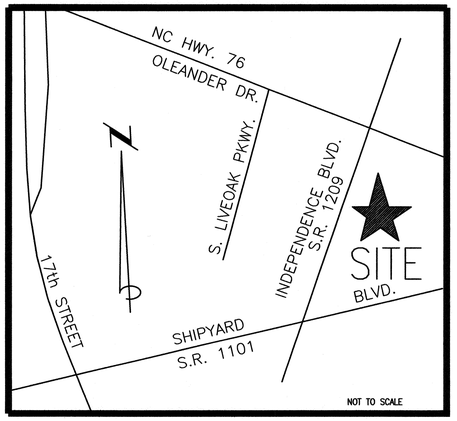


LOCATION MAP

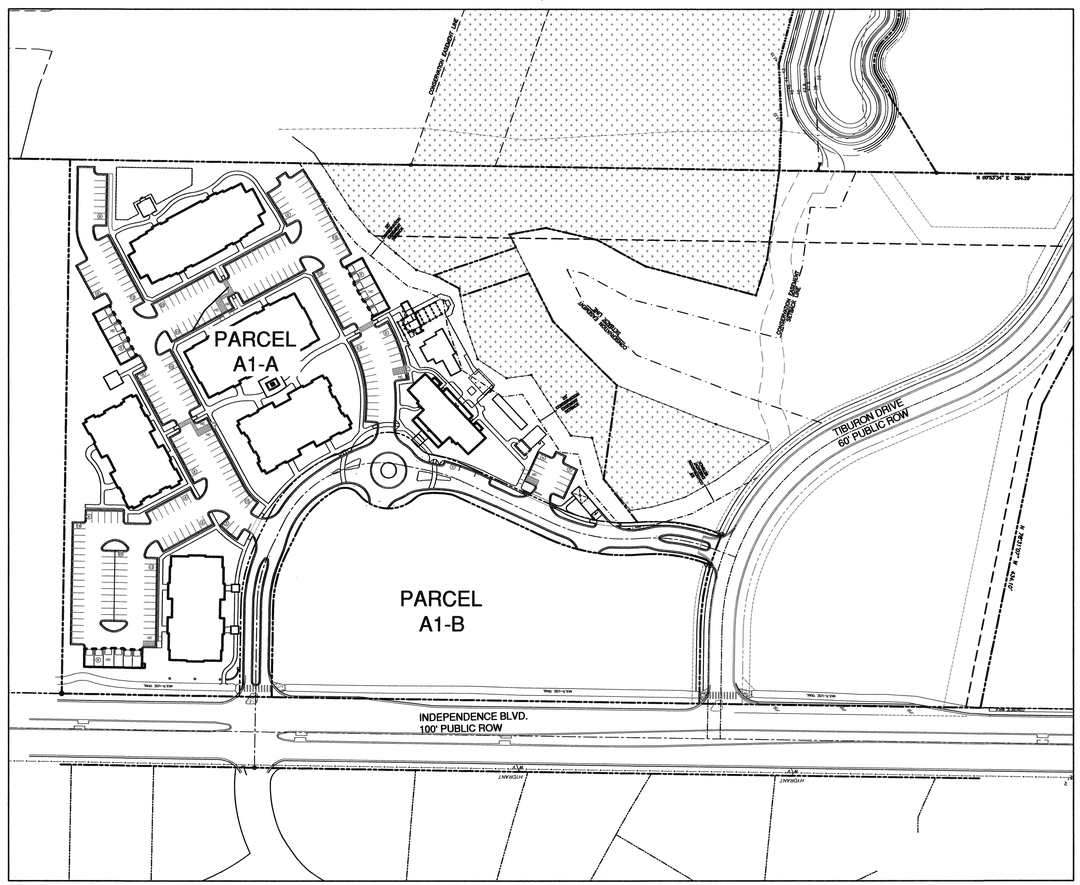
TIBURON PARC APARTMENTS

WILMINGTON, NC
NEW HANOVER COUNTY

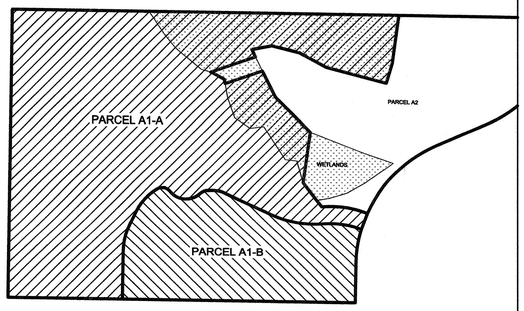
OWNER/DEVELOPER
THE OLEANDER COMPANY, INC.
NELSON MACRAE, PRESIDENT
P.O. BOX 3145
WILMINGTON, NC 28406
910-392-3300

SURVEYOR
HANOVER DESIGN SERVICES, P.A.
1123 FLORAL PARKWAY
WILMINGTON NC 28403
910-343-8002

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
SUITES 300 & 400
WILMINGTON, NC, 28403
PHONE (910) 343-9653
FAX (910) 343-9604
office@nkteng.com
licence #C-0520



SCALE: 1" = 100'



PARCEL BOUNDARY DIVISIONS

NOT TO SCALE

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

NCDENR PWSS WATER PERMIT #:	
WATER CAPACITY:	GPD
DWQ SEWER PERMIT #:	
SEWER CAPACITY:	GPD
SEWER SHED # AND PLANT:	
SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED DRAINAGE PLAN
Date: _____ Permit # _____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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COVER SHEET
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
SUITE 400
WILMINGTON, NC. 28403
PHONE (910) 343-9653
FAX (910) 343-9604
office@nkteng.com
licence #C-0541

HUD/PERMIT SET

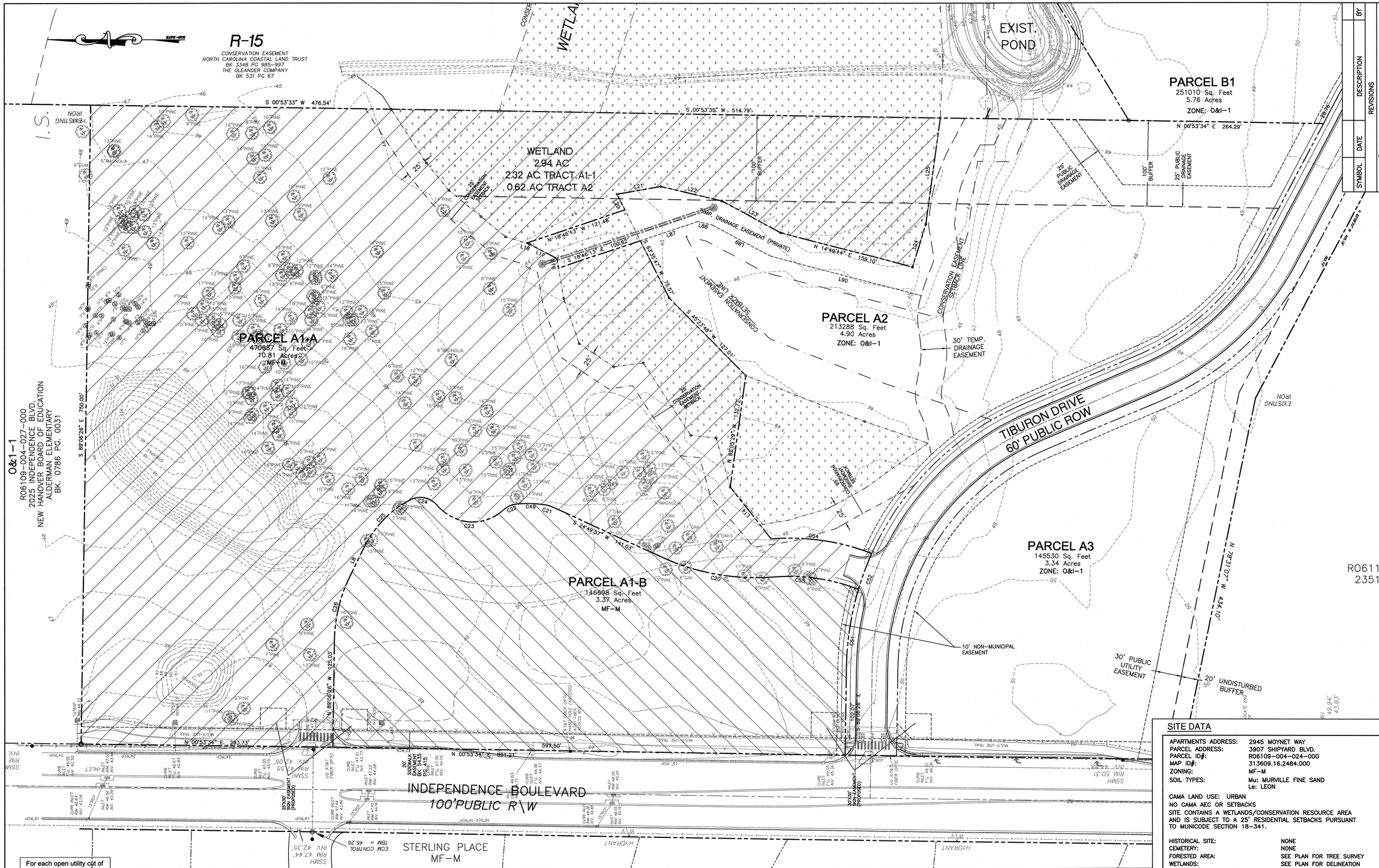
12073

DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

C0

F:\Projects\2012\12073 Midtown Apartments at Tiburon Parc\12073 Plans\dwg\12073.master.3.dwg, 3/7/2013 11:38:52 AM



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NCDENR PWSS WATER PERMIT #:	
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DWQ SEWER PERMIT #:	
SEWER CAPACITY:	GPD
SEWER SHED # AND PLANT:	
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CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED DRAINAGE PLAN
Date: _____ Permit # _____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

SURVEYOR:
TOPOGRAPHIC SURVEY & COMPOSIT MAP BY:
HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS ENGINEERS LAND PLANNERS
319 WALNUT STREET
WILMINGTON, N.C. 28401
PHONE: 910 343-8002
FAX: 910 343-9641

APPLICANT/PREPARER OF PLAN:
NORRIS & TUNSTALL CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
SUITE 300/400
WILMINGTON, NC, 28403
PHONE (910) 343-9653
(910) 343-9604 FAX
LICENCE #C-3641

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

SITE DATA

APARTMENTS ADDRESS:	2945 MOYNET WAY
PARCEL ADDRESS:	3907 SHIPYARD BLVD.
PARCEL ID#:	R06109-004-024-000
MAP ID#:	313609.16.2484.000
ZONING:	MF-M
SOIL TYPES:	Mu: MURVILLE FINE SAND Le: LEON

CAMA LAND USE: URBAN
NO CAMA AEC OR SETBACKS
SITE CONTAINS A WETLANDS/CONSERVATION RESOURCE AREA AND IS SUBJECT TO A 25' RESIDENTIAL SETBACKS PURSUANT TO MUNICODE SECTION 18-341.

HISTORICAL SITE:	NONE
CEMETERY:	NONE
FORESTED AREA:	SEE PLAN FOR TREE SURVEY
WETLANDS:	SEE PLAN FOR DELINEATION
ENDANGERED SPECIES/HABITAT:	NONE REPORTED

NOTES:
1. THE ALDERMAN PRESERVE SIGNIFICANT NATURAL HERITAGE AREA AND FEDERAL AND STATE LISTED SPECIES OF CONCERN ARE PRESENT TO THE EAST OF THIS PROJECT.
2. THE CONSERVATION RESOURCE SHALL BE PERMANENTLY PROTECTED AND SHALL NOT BE CLEARED OF VEGETATION, SHALL BE FREE OF DEVELOPMENT IMPACTS, SHALL REMAIN UNDIVIDED, SHALL BE PERMANENTLY PRESERVED BY A CONSERVATION EASEMENT.

SCALE: 1" = 50'
0 50 100 150

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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INVENTORY SITE PLAN

TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
SUITE 400
WILMINGTON, NC, 28403
PHONE (910) 343-9653
FAX (910) 343-9604
office@nktseng.com
licence #C-3641

HUD/PERMIT SET

12073

DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

I1

LEGEND

	PROPERTY LINE
	DISTURBED AREA LIMITS
50	PROPOSED CONTOUR
	TEMPORARY SILT FENCE
	PROPOSED STORMDRAIN PIPE
BW	PROPOSED WATERLINE
SS	PROPOSED SANITARY SEWER
X 29.00	PROPOSED FINISH GRADE SPOT ELEVATION
	FLARED END SECTION WITH RIP-RAP ENERGY DISSIPATOR
	DROP INLET WITH INLET PROTECTION (DI)
	CURB INLET WITH INLET PROTECTION (CI)
	JUNCTION BOX WITH INLET PROTECTION (JB)
	PROPOSED FIRE HYDRANT
49	EXISTING CONTOUR
15"P 13"PINE	EXISTING TREE TO BE SAVED
13"PINE	EXISTING TREE TO BE REMOVED
	TREE PROTECTION FENCING
	ASPHALT
	CONCRETE
	INTERIOR LANDSCAPING

BUILDING DATA

BUILDING TYPE	# ON SITE	STORIES	HEIGHT	UNITS/BUILDING	UNITS/TOTAL		BLDG. AREA TOTAL	FOOTPRINT TOTAL
TYPE I	1	3	39'±	24	24		25,563 SF	10,955 SF
TYPE II	1	3	38.5'±	24	24		31,875 SF	13,350 SF
TYPE III	2	3	38'±	30	60		51,126 SF	21,460 SF
TYPE IV	1	4	49.5'±	32	32		40,126 SF	13,020 SF
TYPE V	1	2	33'±	5	5		9,330 SF	6,000 SF
GARAGE	3	1	14.5'±				6,321 SF	6,321 SF
MAIL KIOSK	1	1	14.5'±				544 SF	830 SF
POOL HOUSE	1	1	14.5'±				683 SF	1,380 SF
TOTAL	11				145		165,568 SF	73,316 SF

BUILDING TYPE	CONSTUCTION TYPE	1 BR	2 BR	3 BR	TOTAL UNITS	BLDG AREA	FOOT PRINT	APPROX. BLDG. DIMS AT WIDEST POINT
TYPE I	V-B	12	12		24	25,563 SF	10,955 SF	150' X 79'
TYPE II	V-B		12	12	24	31,875 SF	13,350 SF	197' X 75'
TYPE III	V-B	24	6		30	25,563 SF	10,730 SF	142' X 83'
TYPE IV	V-A		32		32	40,126 SF	13,020 SF	177' X 79'
TYPE V		5			5	9,330 SF	6,000 SF	123' X 65'
GARAGE						2,107 SF	2,107 SF	81' X 26'
MAIL KIOSK						544 SF	830 SF	43' X 21'
POOL HOUSE						683 SF BLDG. 697 SF CANOPY	1,380 SF	47.5' X 20' 20' X 34'

WATER/SEWER USAGE

BLDG. TYPE	DOMESTIC GPM*	DOMESTIC GPD*	NCDENR SEWER (15A, 2T RULES GPD)
TYPE I	55 GPM	2160 GPD	24X240 GPD=5760 GPD
TYPE II	60.5 GPM	3600 GPD	12X240 GPD+12X360 GPD=7200 GPD
TYPE III	56.4 GPM	2160 GPD	30X240 GPD=7200 GPD
TYPE IV	74 GPM	3840 GPD	32X240 GPD=7680 GPD
TYPE V	30.8 GPM	1300 GPD	5X240 GPD+2X25 GPD=1250 GPD

*INFORMATION PROVIDED BY PLUMBING ENGINEER

SITE DATA TABLE

USE:	MULIT-FAMILY APARTMENTS
TOTAL SITE AREA:	10.81 ACRES (470,687 SF)
UPLAND AREA:	7.41 ACRES (322,868 SF)
WETLAND AREA:	2.32 ACRES (101,190 SF)
RIGHT-OF-WAY AREA:	1.07 ACRES (46,629 SF)
PARCEL ID#:	R06109-004-024-000
MAP ID#:	313609.16.2484.000
ZONING:	MF-M
CAMA LAND USE:	URBAN
BUILDING SETBACKS: (REQUIRED)	FRONT SETBACK: 35' TYPICAL, (BLDG. #1 39' MIN.) INTERIOR SIDE SETBACK: 20' TYPICAL, (BLDG. #2 24' MIN.) CORNER SIDE SETBACK: 30' REAR SETBACKS: 25' TYPICAL, (BLDG. #3 29' MIN.)
BUILDING SETBACKS: (PROPOSED)	FRONT SETBACK: 47.84' INTERIOR SIDE SETBACK: 24' CORNER SIDE SETBACK: 34' REAR SETBACKS: 29'
MAX. LOT COVERAGE:	30%
PROPOSED LOT COVERAGE:	15.57%
MAX. BUILDING HEIGHT:	96' (HEIGHTS OVER 35' REQUIRE ADDITIONAL SETBACK)
PROPOSED MAX. BUILDING HEIGHT:	49.5'±

PARKING REQUIREMENT

PARKING REQ'D: MULTI-FAMILY — MAX.: 2.5 SPACES PER UNIT; MIN.: 1 BR-1.5 PER UNIT, 2 BR-2 PER UNIT, 3 BR-2.25 PER UNIT

REQUIRED MAX:
(65+68+12)=145X2.5=363

REQUIRED MIN:
1 BR (65X1.5)=98
2 BR (68X2)=136
3 BR (12X2.25)=27
TOTAL=261
HC ACCESSIBLE=6

PROVIDED:
OFF STREET: 245
HC ACCESSIBLE: 7
GARAGE: 18 (INCLUDES 1 HC PER GARAGE)
ON STREET: 3
TOTAL: 273

BICYCLE PARKING:
15 REQD.

BICYCLE PARKING:
15 PROVIDED

IMPERVIOUS AREA:

BUILDINGS:	73,316 SF
ASPHALT, CURB AND GUTTER (SITE):	90,850 SF
ASPHALT, CURB AND GUTTER (ROW):	32,634 SF
SIDEWALK/CONCRETE:	29,000 SF
EXISTING MUP:	2,500 SF
TOTAL:	228,300 SF
PROPOSED % IMPERVIOUS:	48.50%

LANDSCAPING REQUIREMENTS (REFER TO LANDSCAPE PLAN)

15 TREES PER DISTURBED ACRE REQUIRED
DISTURBED AREA=8.62 AC X 15=129 TREES
INTERIOR LANDSCAPING: 20% CANOPY COVER OF INTERIOR AREA OF PARKING FACILITY
STREETYARD LANDSCAPING: 18 MULTIPLIER
FOUNDATION PLANTINGS: 12% FACE OF BUILDING X LENGTH

OPEN SPACE: REFER TO SRB PLAN SHEET C4.1
OPEN SPACE REQUIRED: 35% OF TRACT MINUS WETLANDS, 17.5% EITHER ACTIVE OR PASSIVE, 17.5% ACTIVE, PASSIVE, RECREATION, OR OPEN SPACE.

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

NCDENR PWSS WATER PERMIT #: _____
WATER CAPACITY: _____ GPD
DWQ SEWER PERMIT #: _____
SEWER CAPACITY: _____ GPD
SEWER SHED # AND PLANT: _____
SEWER TO FLOW THROUGH NEI: YES or NO (CIRCLE ONE)

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED DRAINAGE PLAN
Date:_____ Permit #_____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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SITE DATA
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
SUITE 400
WILMINGTON, NC, 28403
PHONE (910) 343-9653
FAX (910) 343-9604
office@nktenq.com
licence #C-3641

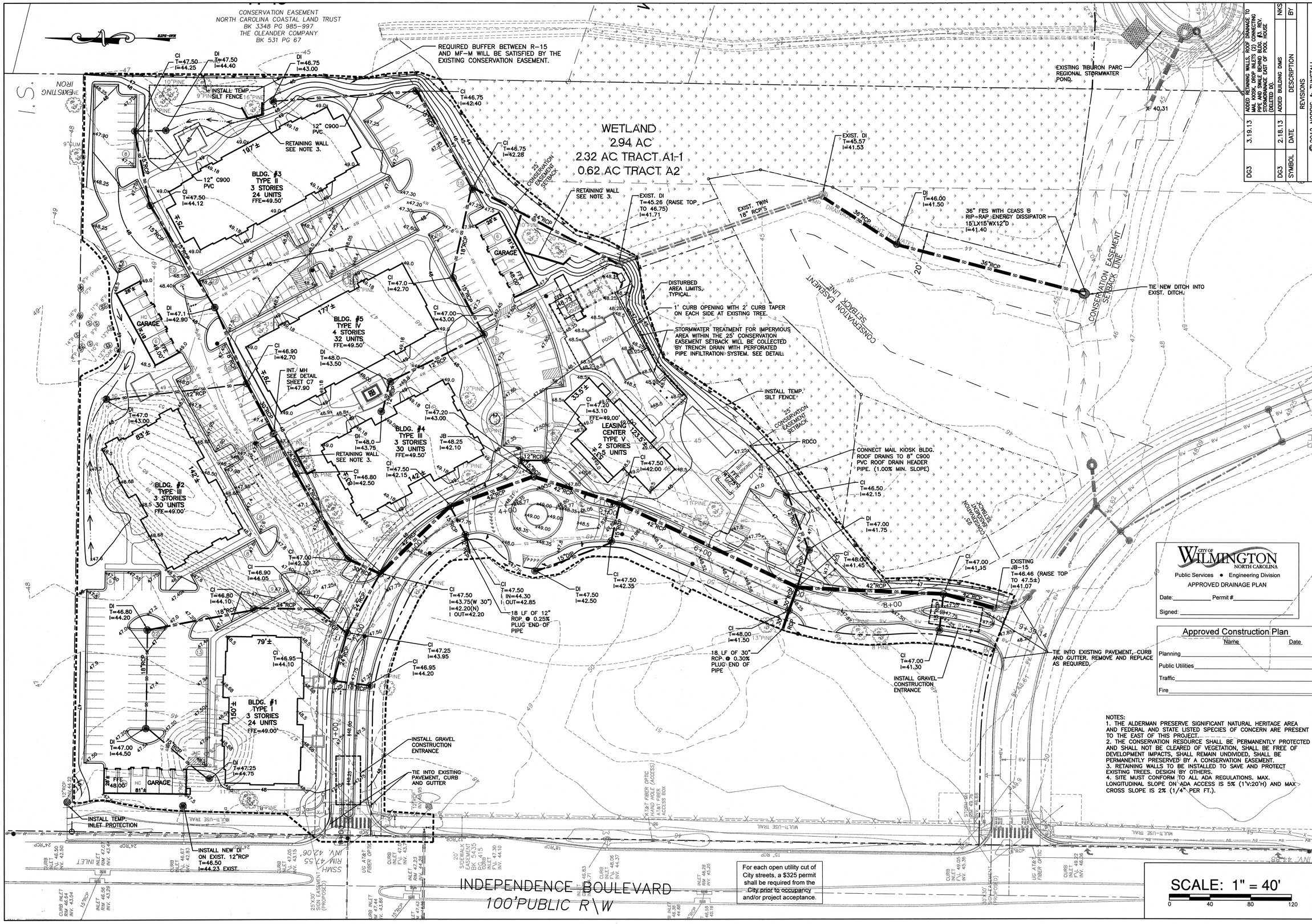
HUD/PERMIT SET

12073

DES. JST
CKD. JPN
DRWN. NKS
DATE 3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

C1



For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED DRAINAGE PLAN
Date:_____ Permit #_____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

NOTES:
1. THE ALDERMAN PRESERVE SIGNIFICANT NATURAL HERITAGE AREA AND FEDERAL AND STATE LISTED SPECIES OF CONCERN ARE PRESENT TO THE EAST OF THIS PROJECT.
2. THE CONSERVATION RESOURCE SHALL BE PERMANENTLY PROTECTED AND SHALL NOT BE CLEARED OF VEGETATION, SHALL BE FREE OF DEVELOPMENT IMPACTS, SHALL REMAIN UNDIVIDED, SHALL BE PERMANENTLY PRESERVED BY A CONSERVATION EASEMENT.
3. RETAINING WALLS TO BE INSTALLED TO SAVE AND PROTECT EXISTING TREES. DESIGN BY OTHERS.
4. SITE MUST CONFORM TO ALL ADA REGULATIONS. MAX. LONGITUDINAL SLOPE ON ADA ACCESS IS 5% (1'V:20'H) AND MAX CROSS SLOPE IS 2% (1/4" PER FT.).

SYMBOL	DATE	DESCRIPTION	BY
DG3	2.18.13	ADDED BUILDING DIMS	NKS
DG3	3.19.13	ADDED RETAINING WALLS, ROOF DRAINAGE TO MAIL KIOSK, DROP INLETS (2) CONNECTING TO EXISTING JB-15, RIP-RAP AT FES & EXIST. STORMDRAINAGE EAST OF POOL HOUSE. (DELETED DI).	

REVISIONS

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GRADING, DRAINAGE AND EROSION CONTROL PLAN
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
SUITE 400
WILMINGTON, NC. 28403
PHONE (910) 343-9653
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office@nteng.com
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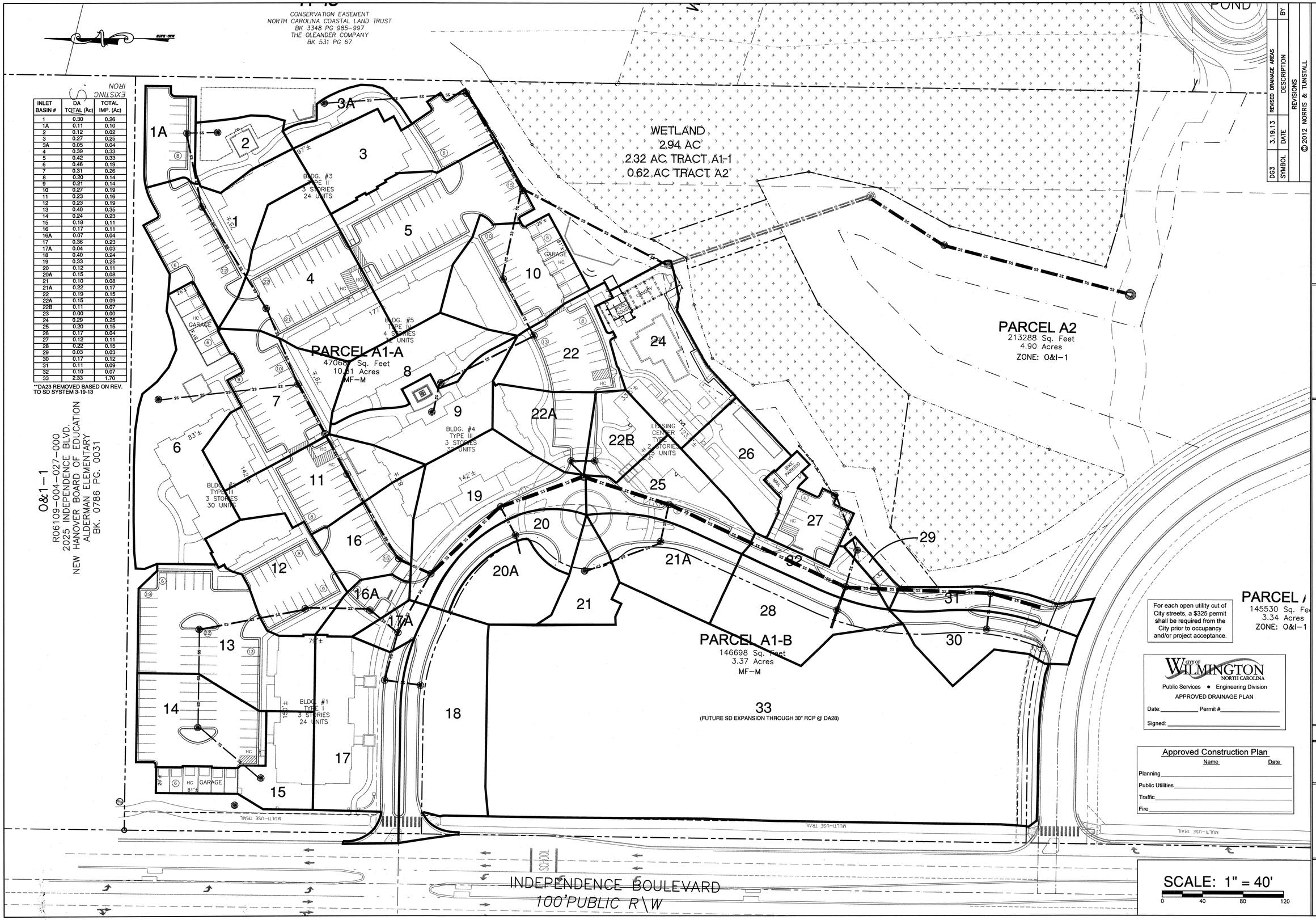
HUD/PERMIT SET

12073

DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN P. TUNSTALL

C2



INLET BASIN #	DA TOTAL (Ac)	TOTAL IMP. (Ac)
1	0.30	0.26
1A	0.11	0.10
2	0.12	0.02
3	0.27	0.25
3A	0.05	0.04
4	0.39	0.33
5	0.42	0.33
6	0.46	0.19
7	0.31	0.26
8	0.20	0.14
9	0.21	0.14
10	0.27	0.19
11	0.23	0.16
12	0.23	0.19
13	0.40	0.35
14	0.24	0.23
15	0.18	0.11
16	0.17	0.11
16A	0.07	0.04
17	0.36	0.23
17A	0.04	0.03
18	0.40	0.24
19	0.33	0.25
20	0.12	0.11
20A	0.15	0.08
21	0.10	0.08
21A	0.22	0.17
22	0.19	0.15
22A	0.15	0.09
22B	0.11	0.07
23	0.00	0.00
24	0.29	0.25
25	0.20	0.15
26	0.17	0.04
27	0.12	0.11
28	0.22	0.15
29	0.03	0.03
30	0.17	0.12
31	0.11	0.09
32	0.10	0.07
33	2.33	1.70

**DA23 REMOVED BASED ON REV. TO SD SYSTEM 3-19-13

O&I-1
R06109-004-027-000
2025 INDEPENDENCE BLVD.
NEW HANOVER BOARD OF EDUCATION
ALDERMAN ELEMENTARY
BK. 0786 PG. 0031

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED DRAINAGE PLAN
Date:_____ Permit #_____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

SYMBOL	DATE	DESCRIPTION	BY
DG3	3.19.13	REVISED DRAINAGE AREAS	

REVISIONS

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DRAINAGE AREA PLAN

TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
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FAX (910) 343-9604
office@nkteng.com
licence #C-3641

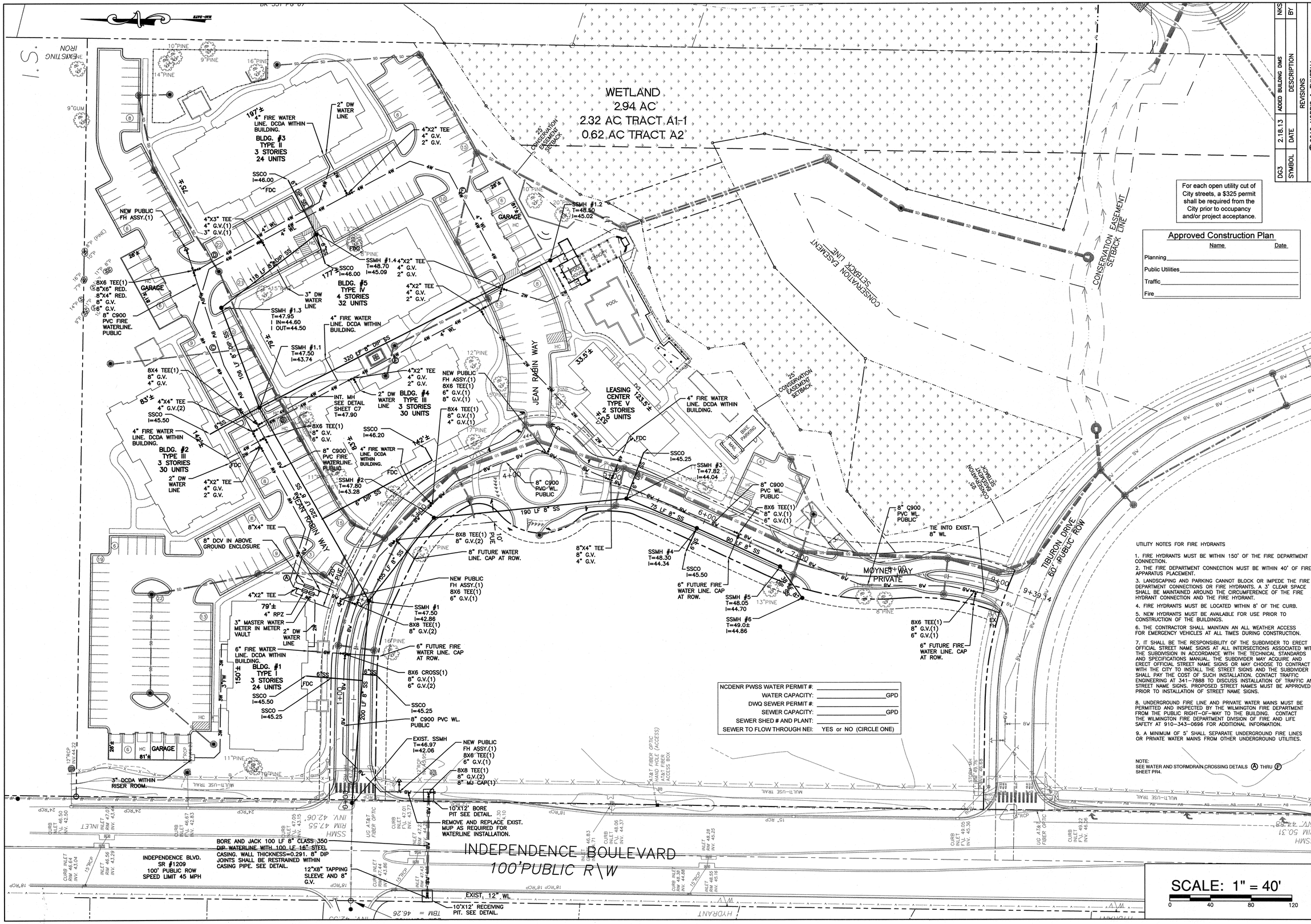
HUD/PERMIT SET

12073

DES. JST
CKD. JPN
DRWN. NKS
DATE 3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

C2.1



UTILITY NOTES FOR FIRE HYDRANTS

1. FIRE HYDRANTS MUST BE WITHIN 150' OF THE FIRE DEPARTMENT CONNECTION.
2. THE FIRE DEPARTMENT CONNECTION MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT.
3. LANDSCAPING AND PARKING CANNOT BLOCK OR IMPEDE THE FIRE DEPARTMENT CONNECTIONS OR FIRE HYDRANTS. A 3' CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE FIRE HYDRANT CONNECTION AND THE FIRE HYDRANT.
4. FIRE HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
5. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDINGS.
6. THE CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
7. IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION IN ACCORDANCE WITH THE TECHNICAL STANDARDS AND SPECIFICATIONS MANUAL. THE SUBDIVIDER MAY ACQUIRE AND ERECT OFFICIAL STREET NAME SIGNS OR MAY CHOOSE TO CONTRACT WITH THE CITY TO INSTALL THE STREET SIGNS AND THE SUBDIVIDER SHALL PAY THE COST OF SUCH INSTALLATION. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
8. UNDERGROUND FIRE LINE AND PRIVATE WATER MAINS MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-343-0696 FOR ADDITIONAL INFORMATION.
9. A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.

NOTE:
SEE WATER AND STORMDRAIN CROSSING DETAILS Ⓐ THRU Ⓕ SHEET PR4.

SYMBOL	DATE	DESCRIPTION	BY
DG3	2.18.13	ADDED BUILDING DIMS	NKS

REVISIONS

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UTILITY PLAN
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
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HUD/PERMIT SET

12073

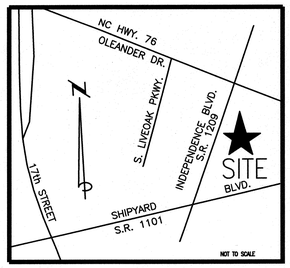
DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

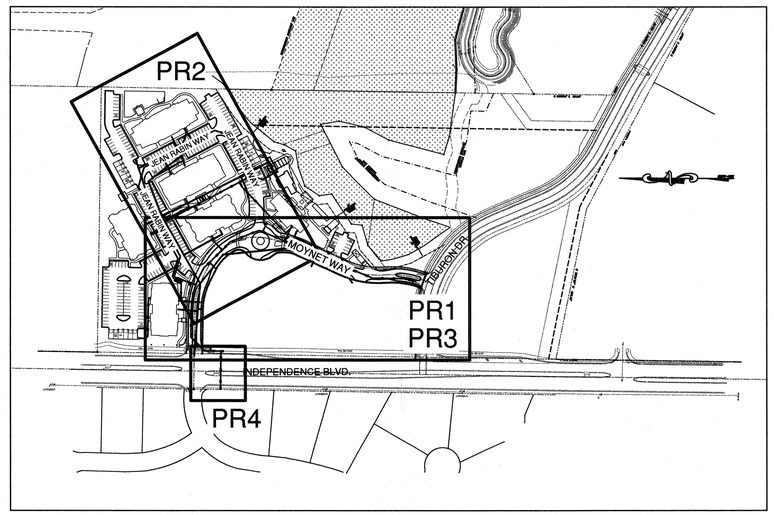
C3

TIBURON PARC APARTMENTS

WILMINGTON, NC
NEW HANOVER COUNTY



LOCATION MAP



SCALE: 1" = 200'

0 200 400 600

OWNER/DEVELOPER

NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

SURVEYOR

HANOVER DESIGN SERVICES, P.A.
1123 FLORAL PARKWAY
WILMINGTON NC 28403
910-343-8002

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.

1127 FLORAL PARKWAY
SUITES 300 & 400
WILMINGTON, NC, 28403

PHONE (910) 343-9653
FAX (910) 343-9604
office@nkteng.com
licence #C-0520

For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

NCDENR PWSS WATER PERMIT #:	
WATER CAPACITY:	GPD
DWQ SEWER PERMIT #:	
SEWER CAPACITY:	GPD
SEWER SHED # AND PLANT:	
SEWER TO FLOW THROUGH NEI:	YES or NO (CIRCLE ONE)

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PR2: SS PLAN AND PROFILE LINE 2 AND 3 JEAN RABIN WAY
PR3: WATER LINE PLAN AND PROFILE MOYNET WAY
PR4: BORE AND JACK PLAN AND PROFILE, WATER/STORM CROSSINGS PROFILES
SD-1: CFPUA WATER MAIN CONSTRUCTION DETAILS (1 OF 2)
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11021

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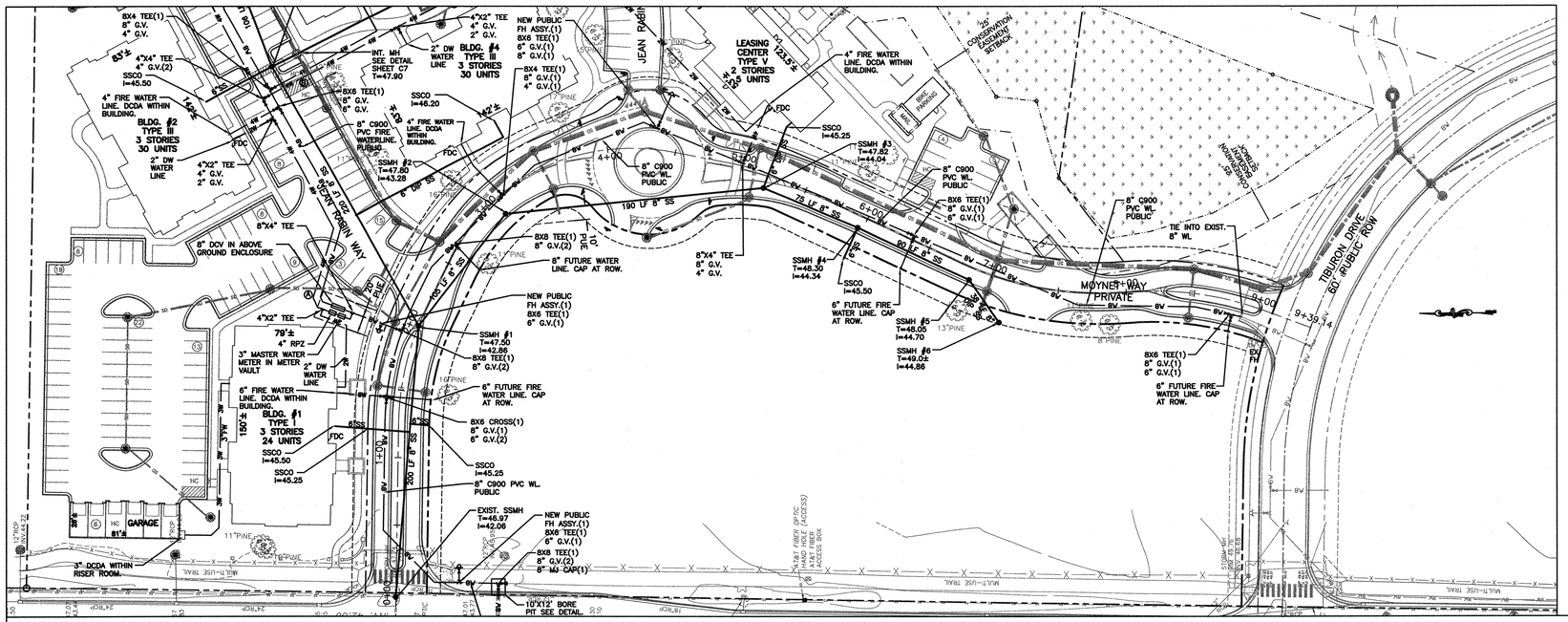

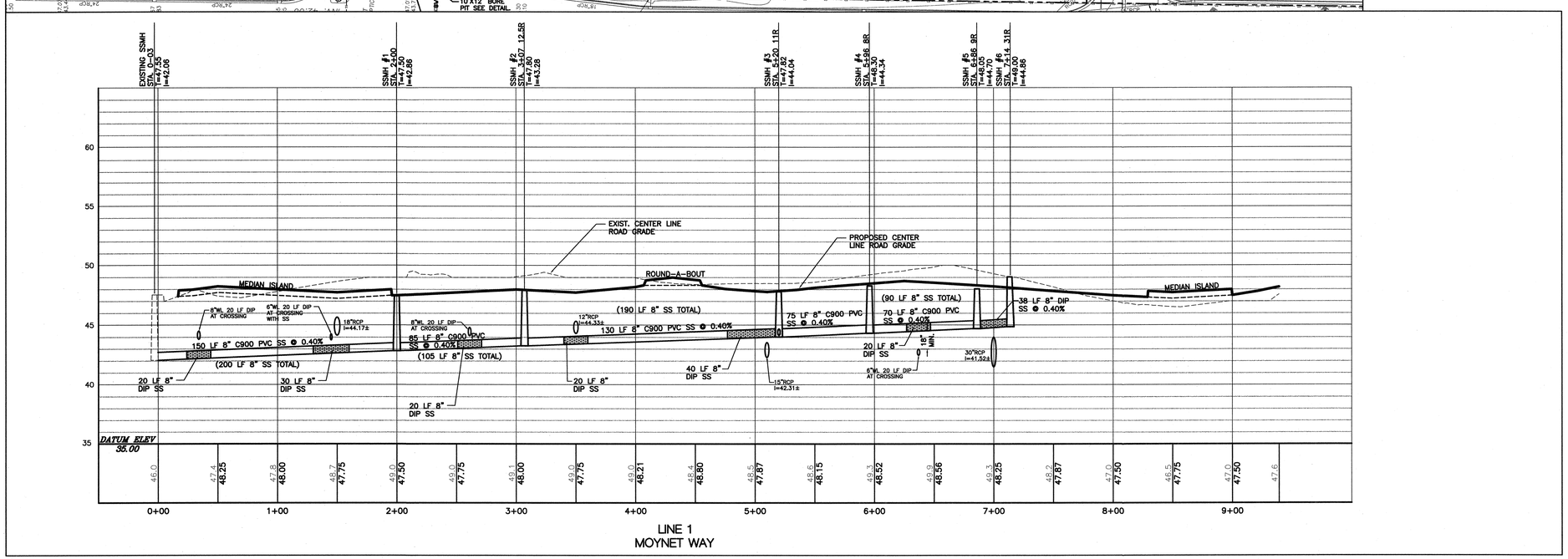

HORIZ. 1" = 50'
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UTILITY NOTES:

1. LATERAL SEPARATION OF SEWERS AND WATER MAINS. WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10 FOOT LATERAL SEPARATION—IN WHICH CASE:

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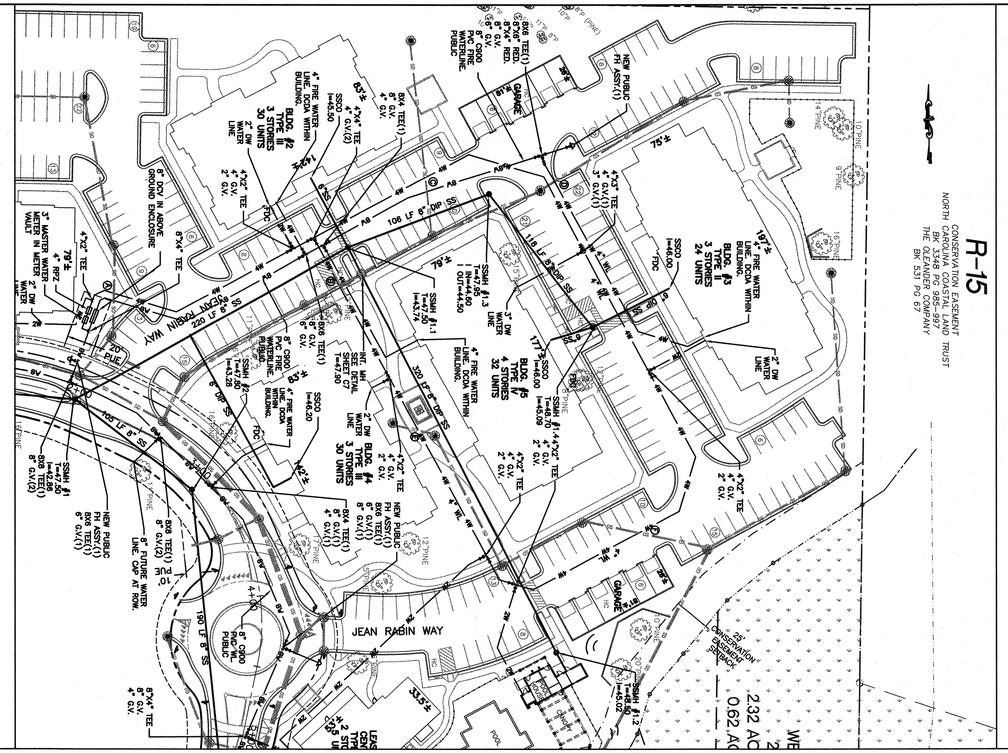

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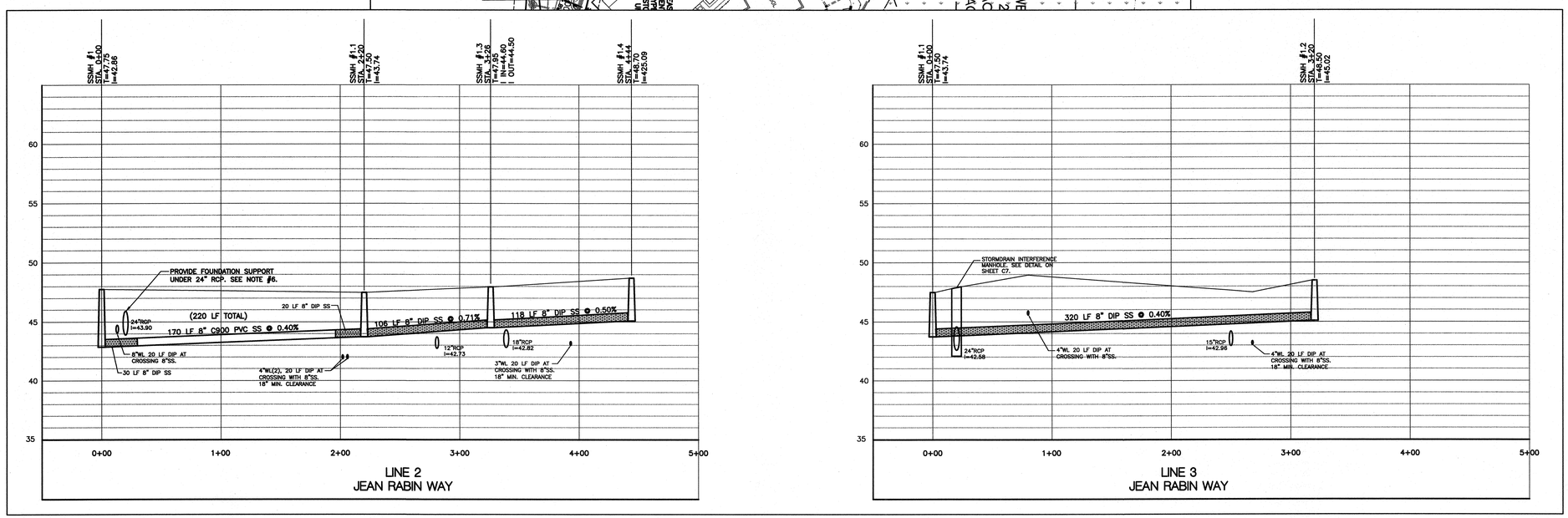

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PR2

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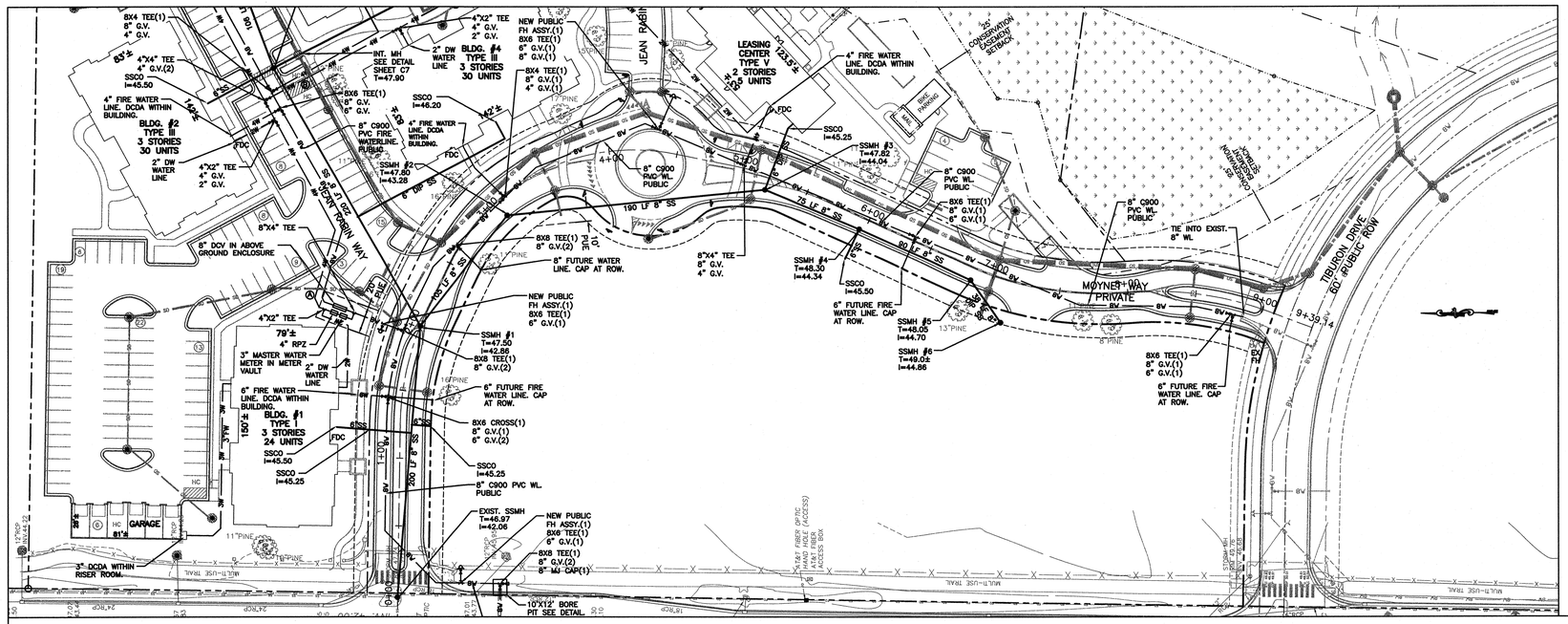

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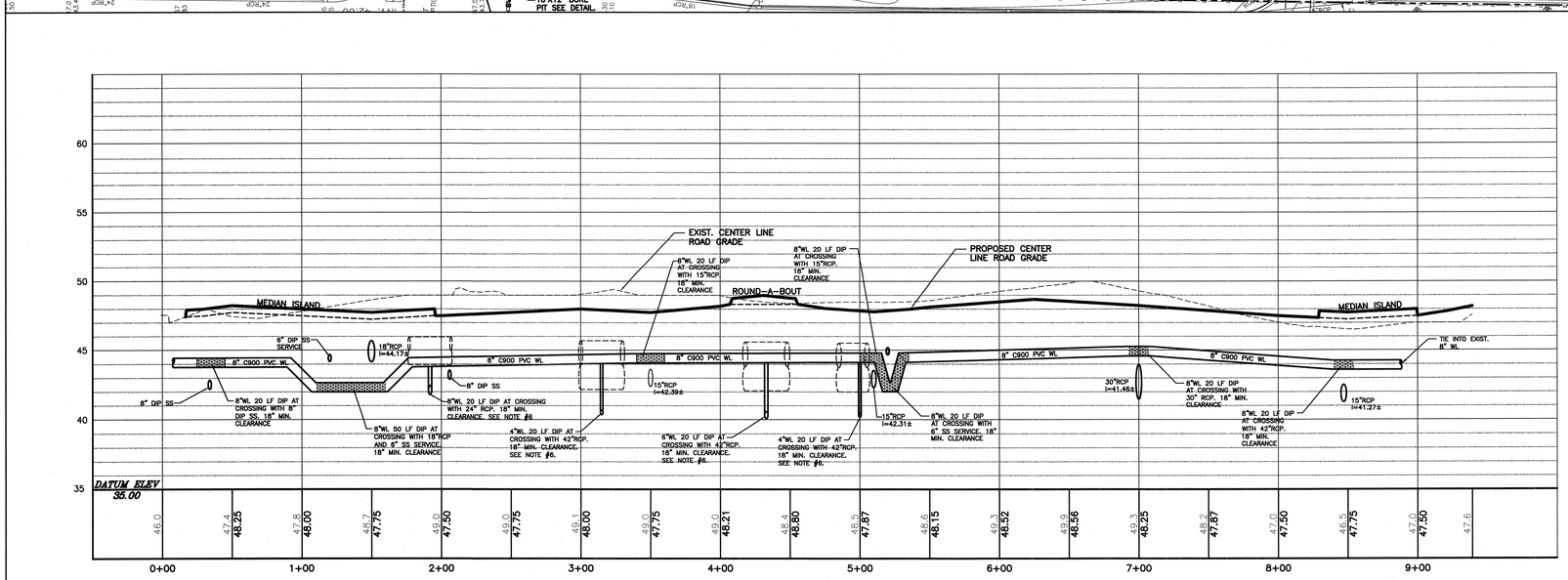

LINE 1
MOYNET WAY

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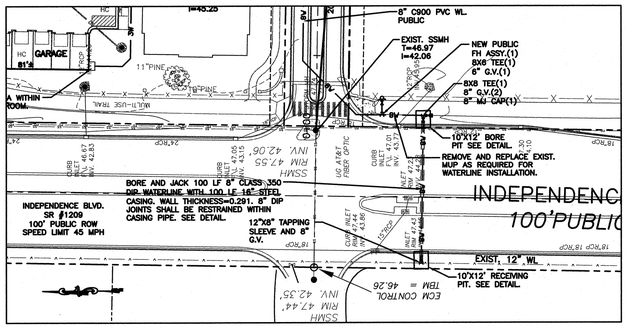

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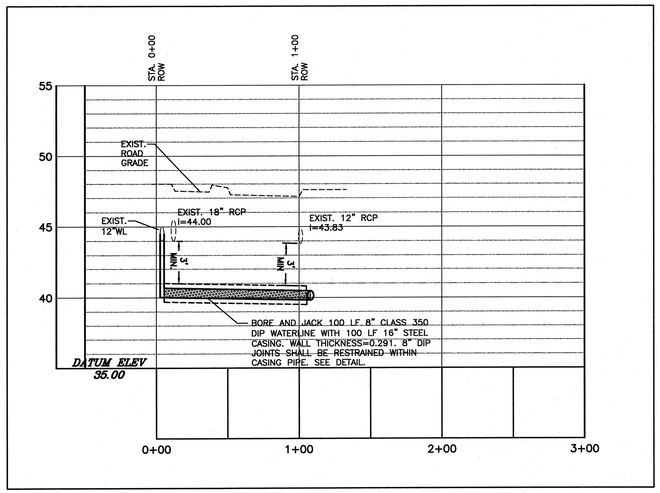
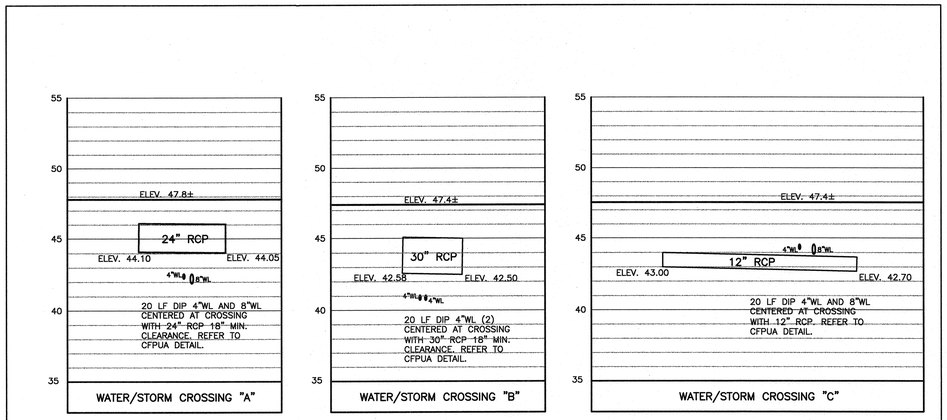
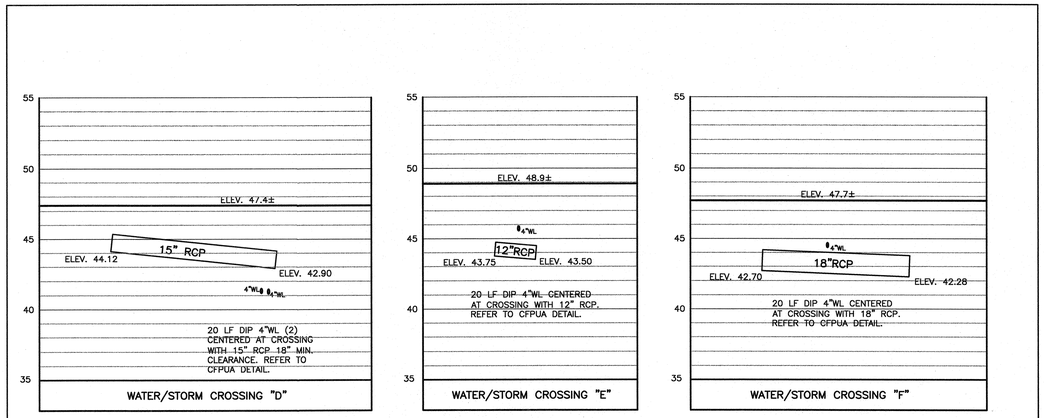


BORE AND JACK PROFILE



SEE SHEET C3 FOR PLAN VIEW



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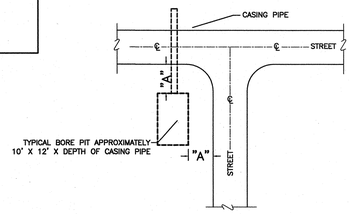
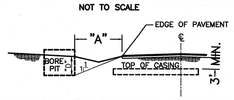


TYPICAL BORE PIT LOCATION FOR BORE AND JACK

NOT TO SCALE



SECTION THRU BORE PIT LOCATION FOR BORE AND JACK

NOT TO SCALE

LAYOUT SCHEDULE (FT.)									
A	5	6	7	8	9	10	11	12
D	5	6	7	8	9	10	11	12

"A" = MINIMUM DISTANCE FROM THE EDGE OF PAVEMENT (EP) IS BASED ON THE DEPTH OF PIT ("D") AND BY A RATIO OF A 1:1 SLOPE. FOLLOW SAFETY REQUIREMENTS BY FENCING OFF OPEN PIT AND WORKING AREA.

PIPE SIZES (O.D.)	WALL THICKNESS
4" – 12-3/4"	0.188
14" – 16"	0.219
18"	0.250
20"	0.281
22"	0.312
24"	0.344
26"	0.375
28" – 30"	0.406
32"	0.438
34" – 36"	0.469
38" – 42"	0.500

NOTES FOR BORE AND JACK:

1. ALL BORING/JACKING MUST BE DONE IN ACCORDANCE WITH NCDOT REGULATIONS.

2. BORE & JACK CASING PIPE UNDER A ROAD SECTION WITH NO DITCHES SHALL EXTEND 10 FT. BEYOND EDGE OF PAVEMENT.

3. BORE & JACK CASING PIPE UNDER ROADS IN FILL SECTIONS SHALL EXTEND 5 FT. BEYOND TOE OF FILL SLOPE.

4. BORE & JACK CASING PIPE UNDER CULVERTS SHALL BE 3 FT. BELOW CULVERT INVERT.

5. SIZE & WALL THICKNESS OF SMOOTH WALL OR SPIRAL WELDED STEEL CASING PIPE FOR BORING & JACKING IS CALLED OUT IN CHART.

6. CARRIER PIPE SHALL BE DIP PER ONWASA SPECIFICATIONS. JOINTS SHALL BE RESTRAINED WITHIN CASING PIPE.

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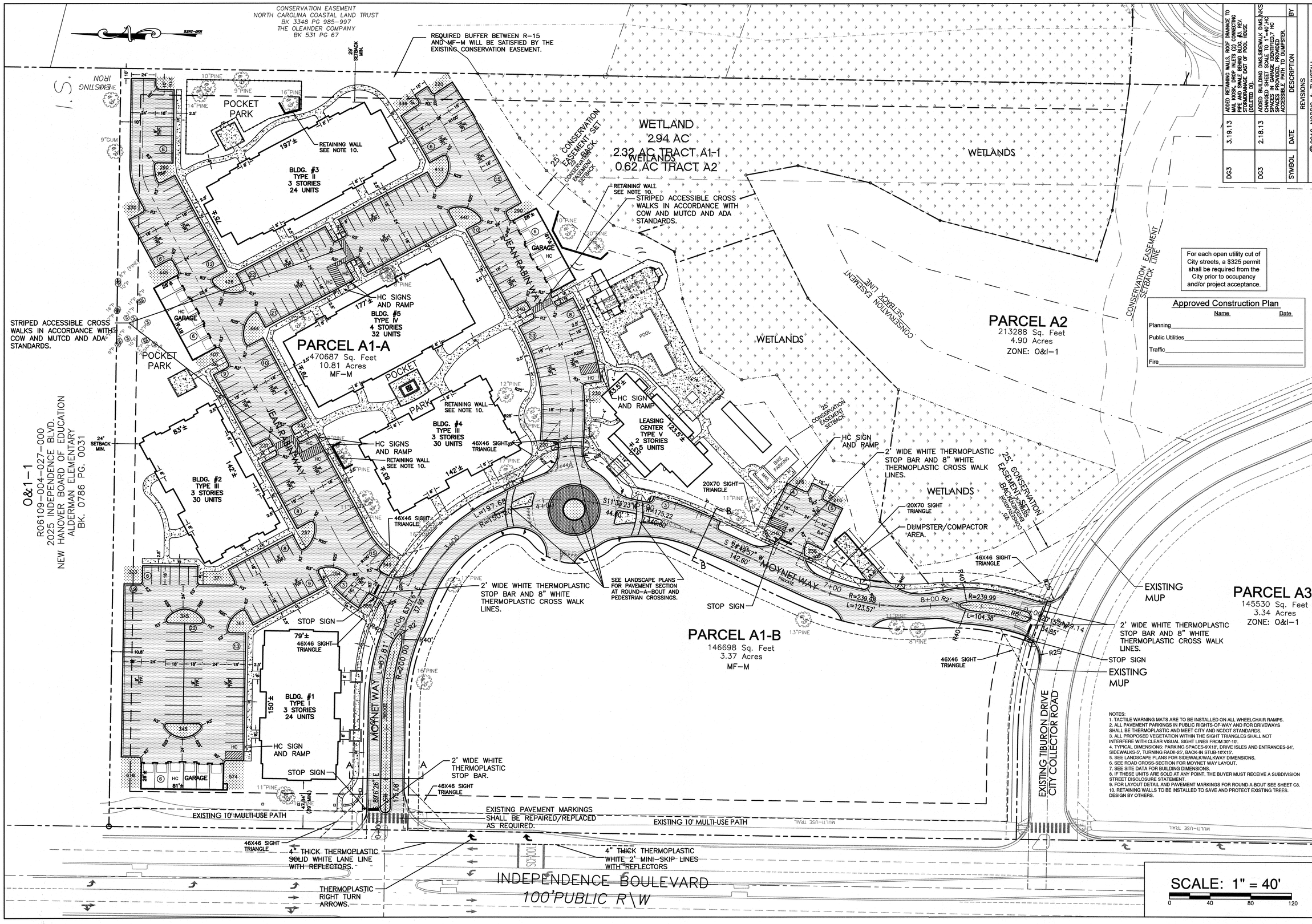
1127 FLORAL PARKWAY SUITES 300 & 400 WILMINGTON, NC. 28403
PHONE (910) 343-0653
FAX (910) 343-9604
licence #C-0520

WATERLINE PLAN AND PROFILE
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, N. C.

DATE: 3/8/13
SCALE: 1" = 50' 1" = 5'
DRAWN: NKS
CHECKED: JST
PROJECT NO: 12073

SHEET NO: PR4



NOTES:
1. TACTILE WARNING MATS ARE TO BE INSTALLED ON ALL WHEELCHAIR RAMPS.
2. ALL PAVEMENT PARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS SHALL BE THERMOPLASTIC AND MEET CITY AND NCDOT STANDARDS.
3. ALL PROPOSED VEGETATION WITHIN THE SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30"-10'.
4. TYPICAL DIMENSIONS: PARKING SPACES-9'X18', DRIVE ISLES AND ENTRANCES-24', SIDEWALKS-5', TURNING RADII-25', BACK-IN STUB-10'X15'.
5. SEE LANDSCAPE PLANS FOR SIDEWALK/WALKWAY DIMENSIONS.
6. SEE ROAD CROSS-SECTION FOR MOYNET WAY LAYOUT.
7. SEE SITE DATA FOR BUILDING DIMENSIONS.
8. IF THESE UNITS ARE SOLD AT ANY POINT, THE BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT.
9. FOR LAYOUT DETAIL AND PAVEMENT MARKINGS FOR ROUND-A-BOUT SEE SHEET C8.
10. RETAINING WALLS TO BE INSTALLED TO SAVE AND PROTECT EXISTING TREES. DESIGN BY OTHERS.

SYMBOL	DATE	DESCRIPTION	BY
DG3	3.19.13	ADDED RETAINING WALLS, ROOF DRAINAGE TO MAIL KIOSK, DROP INLETS (2) CONNECTING PIPE AND SWALE BEHIND BLDG. #3. REV. PARKING AND SIDEWALKS EAST OF POOL HOUSE (DELETED 1).	NKS
DG3	2.18.13	ADDED BUILDING DIMS.SIDEWALK DIMS.CHANGED SHEET SCALE TO 1"=40',HC SPACES IN GARAGE IDENTIFIED,7 HC SPACES ADDED TO PARKING, ADDED ACCESSIBLE PATH TO DUMPSTER.	NKS

REVISIONS

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LAYOUT PLAN
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
SUITE 400
WILMINGTON, NC, 28403
PHONE (910) 343-9653
FAX (910) 343-9604
office@nteng.com
licence #C-0641

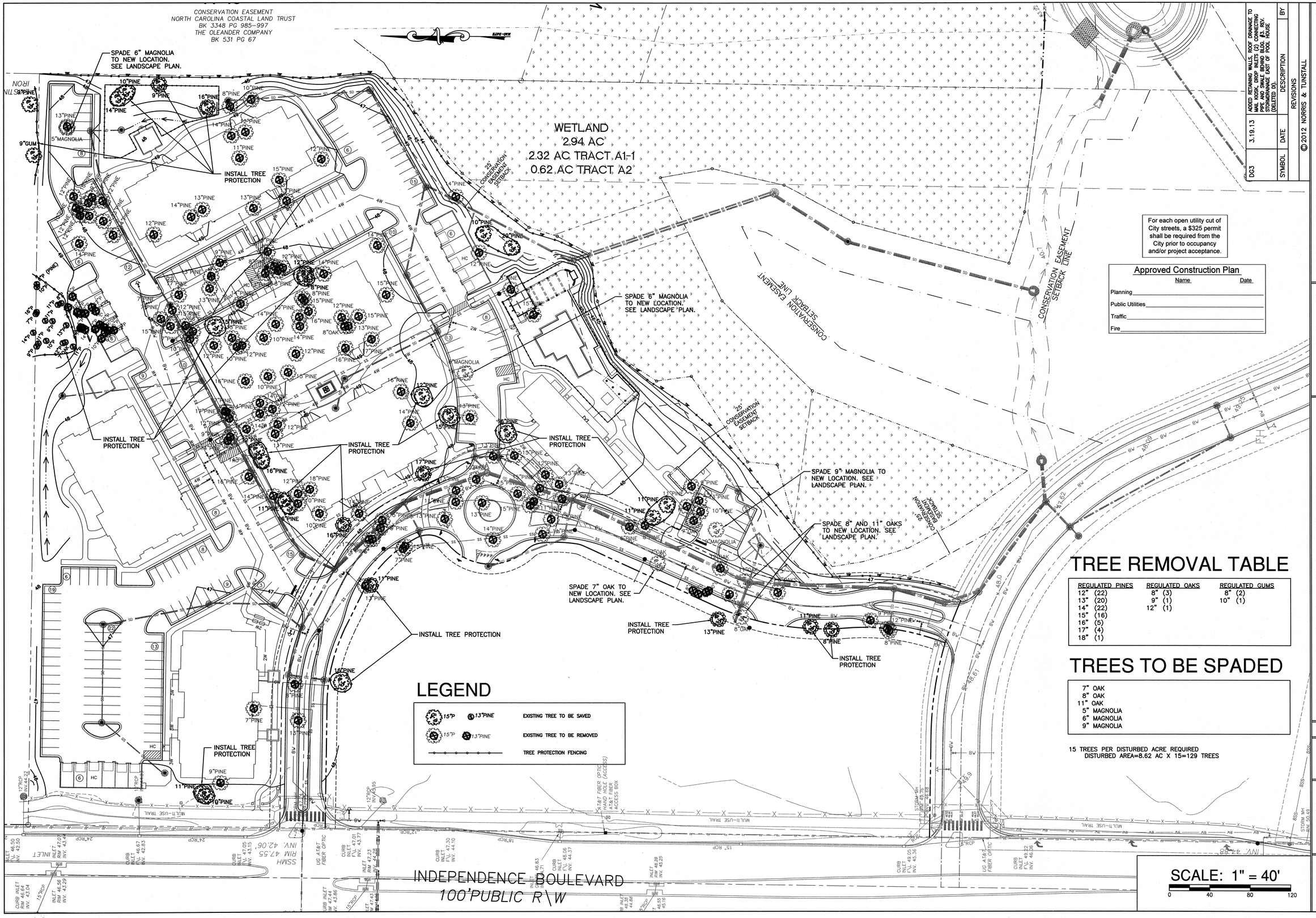
HUD/PERMIT SET

12073

DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19651 JOHN S. TUNSTALL

C4



For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

TREE REMOVAL TABLE

REGULATED PINES	REGULATED OAKS	REGULATED GUMS
12" (22)	8" (3)	8" (2)
13" (20)	9" (1)	10" (1)
14" (22)	12" (1)	
15" (16)		
16" (5)		
17" (4)		
18" (1)		

TREES TO BE SPADED

7" OAK
8" OAK
11" OAK
5" MAGNOLIA
6" MAGNOLIA
9" MAGNOLIA

15 TREES PER DISTURBED ACRE REQUIRED
DISTURBED AREA=8.62 AC X 15=129 TREES

LEGEND

15"P 13"PINE	EXISTING TREE TO BE SAVED
15"P 13"PINE	EXISTING TREE TO BE REMOVED
	TREE PROTECTION FENCING

SYMBOL	DATE	DESCRIPTION	BY
DG3	3.19.13	ADDED RETAINING WALLS, ROOF DRAINAGE TO MAIL KIOSK, DROP INLETS (2) CONNECTING PIPE AND SWALE BEHIND BLDG. #3. REV. STORMDRAINAGE EAST OF POOL HOUSE (DELETED DI).	

REVISIONS

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TREE PLAN
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
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licence #C-3641

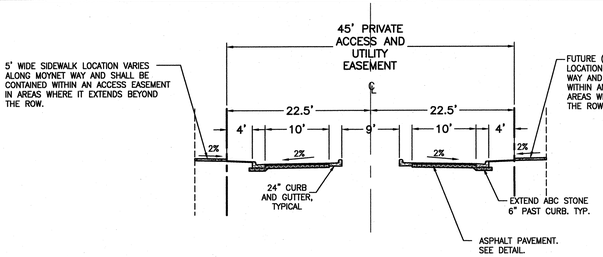
HUD/PERMIT SET

12073

DES. JST
CKD. JPN
DRWN. NKS
DATE 3/8/13

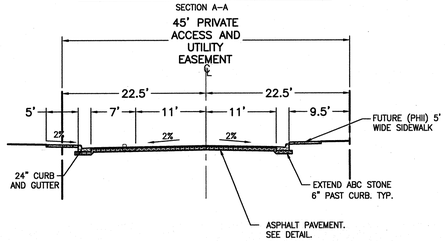
NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

C5



PROPOSED STREET SECTION

SECTION A–A

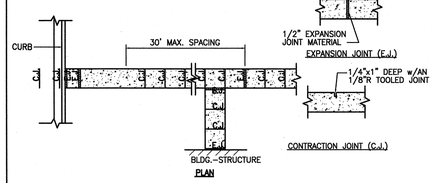


PROPOSED STREET SECTION WITH ON STREET PARKING

SECTION B–B

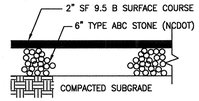
NOT TO SCALE

NOTES:
1. SIDEWALK THICKNESS SHALL BE 4" UNLESS NOTED OTHERWISE.
2. CONTRACTION JOINTS (C.J.) SPACE SAME AS SIDEWALK WIDTH.
3. THICKEN SIDEWALK TO 6" IN DRIVEWAYS.
4. THICKEN SIDEWALK TO 6" IN CROSSWALKS WHERE IT ABUTS PAVEMENT WITH NO CURB.
5. 1/2" EXPANSION JOINT (E.J.) AND SNAP CAP EXPANSION JOINT COVERS ARE REQUIRED AT 50' MAX. AT SIDEWALK JUNCTIONS, AT STRUCTURES, AND AS NOTED ON SITE PLAN.
6. PROVIDE A LAYER OF 15# BLDG. FELT BETWEEN WALK AND ADJACENT PARALLELING CURB OR STRUCTURE.



SIDEWALK JOINT DETAILS

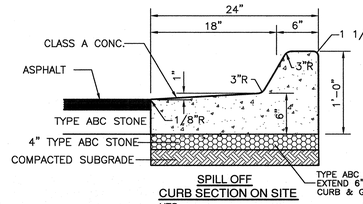
NTS



NOTE: PAVEMENT SECTION MAY VARY DEPENDING UPON FIELD CONDITIONS. CONTRACTOR SHALL COORDINATE w/OWNER & GEOTECHNICAL ENGINEER TO DETERMINE ACTUAL PAVEMENT SECTION.

ASPHALT PAVEMENT SECTION

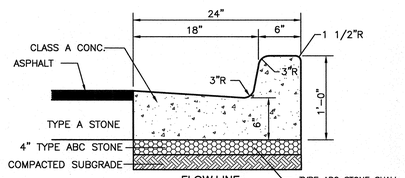
NTS



SPILL OFF CURB SECTION ON SITE

NTS

NOTE: CURB TYPE DEPENDS ON GRADES SHOWN ON GRADING PLAN. GRADES INDICATING FALL AWAY FROM CURB SHALL BE SPILL OFF TYPE CURB. GRADES INDICATING CURB ACCEPTING FLOW SHALL BE FLOW LINE TYPE.



FLOW LINE CURB SECTION ON SITE

NTS

NOTE: CURB TYPE DEPENDS ON GRADES SHOWN ON GRADING PLAN. GRADES INDICATING FALL AWAY FROM CURB SHALL BE SPILL OFF TYPE CURB. GRADES INDICATING CURB ACCEPTING FLOW SHALL BE FLOW LINE TYPE.

CITY OF WILMINGTON STANDARD NOTES

1. CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING ANY DIGGING AT 1–800–632–4949.

2. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING;

3. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS–OF–WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.

4. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.

5. INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING.

6. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT–OF–WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.

7. TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.

8. THE SUBDIVIDER SHALL INSTALL TRAFFIC SIGNALS, TRAFFIC SIGNS, STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION, DEAD–END BARRICADES AND MARKINGS, AND OTHER REQUIRED TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE CITY'S TECHNICAL STANDARDS AND SPECIFICATIONS MANUAL. THE SUBDIVIDER MAY ACQUIRE AND ERECT OFFICIAL STREET NAME SIGNS OR MAY CHOOSE TO CONTRACT WITH THE CITY TO INSTALL THE STREET SIGNS AND THE SUBDIVIDER SHALL PAY THE COST OF SUCH INSTALLATION. CONTACT TRAFFIC ENGINEERING AT 341–7888 TO DISCUSS INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. POSTED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.

9. CONTACT TRAFFIC ENGINEERING AT 341–7888 FOURTY–EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT–OF–WAY.

10. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CONTACT 341–5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.

11. ANY BROKEN OR MISSING SIDEWALK PANELS AND CURBING OR DAMAGE TO THE EXISTING MULTI–USE PATH WILL BE REPAIRED OR REPLACED.

12. CONTACT KAREN DIXON AT 341–7888 TO DISCUSS STREET LIGHTING OPTIONS.

13. PROJECT SHALL COMPLY WITH CFPUA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND THE STATE HAS GIVEN THEIR FINAL APPROVAL. CALL 343–3910 FOR INFORMATION.

14. IF THE CONTRACTOR DESIRES CFPUA WATER FOR CONSTRUCTION HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.

15. ANY IRRIGATION SYSTEM SUPPLIED BY CFPUA WATER SHALL COMPLY WITH CFPUA CROSS CONNECTION CONTROL REGULATIONS. CALL 332–6558 FOR INFORMATION.

16. ANY BACKFLOW PREVENTION DEVICES REQUIRED BY CFPUA WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USCFCCCHR OR ASSE.

17. WHEN PVC WATER MAINS AND/OR POLYETHYLENE SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 INSULATED SINGLE STRAND COPPER WIRE INSTALLED THE ENTIRE LENGTH AND SECURED TO ALL VALVES. THIS WIRE IS TO BE ACCESSIBLE AT ALL FIRE HYDRANTS AND WATER METER BOXES TO AID IN FUTURE LOCATION OF FACILITIES.

18. THE NUMBER AND SPACING OF DRIVEWAYS FOR ALL INTERCONNECTED SITES WILL BE DETERMINED BY THE COMBINED FRONTAGE OF THE INTERCONNECTED PROPERTIES.

19. UNDERGROUND FIRE LINE MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC ROW TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910–343–0696 FOR ADDITIONAL INFORMATION.

SITE WORK NOTES:

1. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIAR WITH FIELD CONSTRUCTION CONDITIONS.

2. CONTRACTOR SHALL COORDINATE WORK WITHIN NCDOT AND LOCAL RIGHT OF WAYS WITH PROPER AUTHORITIES AND SHALL MEET ANY REQUIREMENTS AS TO TRAFFIC CONTROL AND CONNECTION TO EXISTING STREETS.

3. CLEARING AND GRUBBING: REMOVE ALL TREES AS REQUIRED UNLESS OTHERWISE NOTED TO REMAIN, STUMPS, ROOTS, SHRUBBERY, ASPHALT, CONCRETE, STRUCTURES, BURIED UTILITIES, STORAGE TANKS, ETC. WITHIN LIMITS OF CONSTRUCTION.

4. STRIPPING: BEFORE EXCAVATING OR FILLING, REMOVE ALL TOPSOIL, WOOD, LEAVES, AND ANY OTHER UNSUITABLE MATERIAL.

5. MUCKING: REMOVE ANY SOFT, ORGANIC SILT MATERIALS AND EXISTING BURIED CONSTRUCTION DEBRIS AS REQUIRED AND FILL TO SUBGRADE ELEVATIONS WITH A CLEAN SELECT–FILL COMPACTED AS SPECIFIED.

6. DISPOSAL: CLEARED, GRUBBED, STRIPPED OR EXCAVATED SPOIL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES.

7. BORROW MATERIAL: THE CONTRACTOR SHALL FURNISH BORROW MATERIAL REQUIRED FROM OFF SITE AND OBTAIN ALL REQUIRED PERMITS ASSOCIATED WITH BORROW OPERATIONS.

8. FILL AND COMPACTION: AFTER STRIPPING THOSE AREAS DESIGNATED TO RECEIVE FILL SHOULD BE PROOFROLLED. THE TOP 8" OF SUBGRADE SHALL BE COMPACTED TO AT LEAST 98% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. ANY AREA WHICH PUMPS OR RUTS EXCESSIVELY SHOULD BE UNDERCUT AND REPLACED WITH A CLEAN, SILTY OR CLAYEY SAND HAVING A UNIFIED SOIL CLASSIFICATION OF SP, SM, OR SC. FILL MATERIAL 5" OUTSIDE OF BUILDING AREAS SHALL THEN BE PLACED IN LAYERS NOT TO EXCEED 8" AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D–698) WITH THE UPPER 12 INCHES OF SUBGRADE BEING COMPACTED TO 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. FILL MATERIALS WITHIN BUILDING AREAS TO A LINE OUTSIDE THE BUILDING AREAS SHALL BE PLACED IN LAYERS NOT TO EXCEED 8" AND COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D–698) WITH THE UPPER 12 INCHES OF SUBGRADE BEING COMPACTED IN 6 INCH LAYERS TO 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. IN AREAS WHERE NO STRUCTURAL FILL IS TO BE PLACED THE UPPER 12 INCHES OF IN–PLACE SUBGRADE SHOULD BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. IF THE MATERIAL IS TOO DRY TO COMPACT TO THE REQUIRED DENSITY EACH LAYER SHALL BE WETTED IN ACCORDANCE WITH COMPACTION REQUIREMENTS. IF THE MATERIAL IS TOO WET TO SECURE PROPER COMPACTION, IT SHALL BE HARROWED REPEATEDLY OR OTHERWISE AERATED WITH SUITABLE EQUIPMENT UNTIL OPTIMUM MOISTURE CONTENT IS OBTAINED. FILL SHALL BE PLACED IN SUCH A MANNER THAT THE SURFACE WILL DRAIN READILY AT ALL TIMES. SEE STRUCTURAL NOTES AND SOILS REPORT FOR ADDITIONAL REQUIREMENTS.

9. LAYOUT: THE CONTRACTOR SHALL PROVIDE ALL LAYOUT REQUIRED TO CONSTRUCT HIS WORK.

10. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION.

11. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION FROM SURVEY BY HANOVER DESIGN SERVICES, P.A. AND PROVIDED BY OWNER.

12. THE CONTRACTOR SHALL VERIFY DIMENSIONS AT JOBSITE.

13. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF RELOCATION OR DISCONNECTION OF ALL EXISTING UTILITIES WITH APPLICABLE AGENCIES AND AUTHORITIES.

14. ALL PAVEMENT AND BASE MATERIALS AND WORKMANSHIP SHALL CONFORM TO NCDOT STANDARDS.

15. WATER AND SEWER SERVICES SHALL BE INSTALLED TO MEET LOCAL AND STATE PLUMBING CODES. METER AND TAPS SHALL MEET ALL LOCAL REQUIREMENTS.

16. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE.

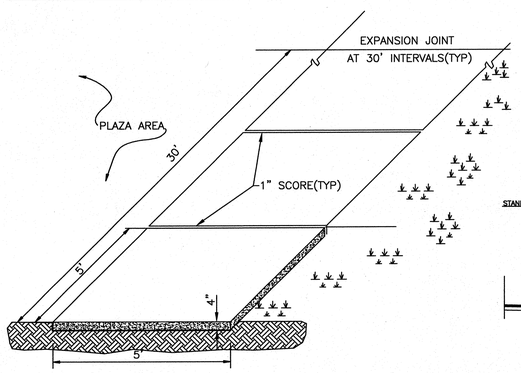
17. SEE SOILS REPORT FOR ADDITIONAL REQUIREMENTS.

18. CONTRACTOR SHALL NOTE THAT EARTHWORK QUANTITIES ARE HIS RESPONSIBILITY. PLANS DO NOT REPRESENT A BALANCED EARTHWORK CONDITION.

19. REINF. CONC. PIPE SHALL BE CLASS III W/RUBBER GASKETED JOINT OR "RAM NECK". INSTALL PER MANUFACTURER'S REQUIREMENTS.

20. USE WHITE LANE MARKING PAINT FOR ALL PAVEMENT MARKINGS. PAINT SHALL BE A CHLORINATED RUBBER ALKYD, FS TT–P–115, TYPE III, FACTORY MIXED, QUICK DRYING, NON–BLEEDING.

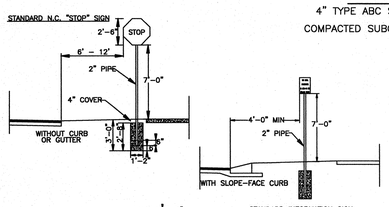
21. REFER TO THE PLUMBING DRAWINGS FOR LOCATION AND INVERTS OF NEW WASTE AND WATER LINES.

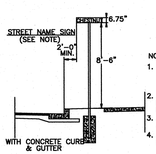


STANDARD SIDEWALK DETAIL

SD 8–15

NOT TO SCALE



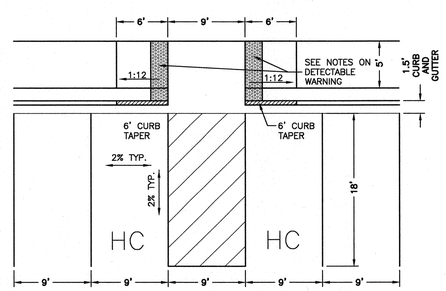


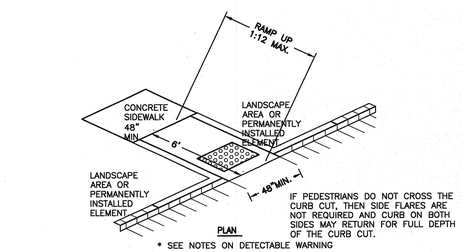
NOTES:
1. STREET NAME SIGNS SHALL BE A MINIMUM OF 8" EXTRUDED ALUMINUM BLADES USING A MINIMUM OF 4" C SERIES LETTERING IN REFLECTIVE SILVER & REFLECTIVE GREEN BACKGROUND.
2. ALL REFLECTIVE SIGNS SHALL BE MADE OF ENGINEERING GRADE OR HIGH INTENSITY GRADE REFLECTIVE SHEETING OR APPROVED EQUIVALENT.
3. ALL SIGNS PLACED IN RIGHT–OF–WAY WILL BE APPROVED BY TRAFFIC ENGINEERING DIVISION.
4. ALL FOOTINGS TYPICAL FOR ALL SIGNS, WHICH NEED TO BE ANCHORED IN CONCRETE.

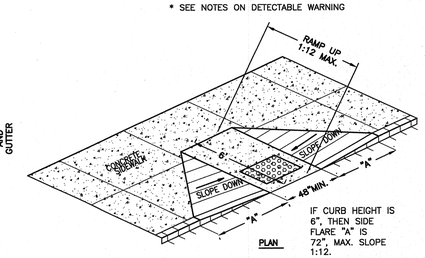
STANDARD SIGN INSTALLATION LOCATION

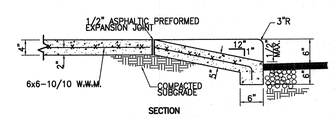
SD 15–03

NOT TO SCALE









SECTION

WHEEL CHAIR RAMP

NOTE:
1. RAMP SHALL HAVE A DETECTABLE WARNING COMPLYING WITH ADA GUIDELINES:

2. THE DETECTABLE WARNINGS AT CURB RAMPS SHALL BE 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND EXTEN THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.

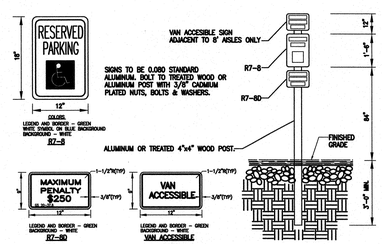
3. MARKED CROSSINGS THAT ARE RAISED TO THE SAME LEVEL AS THE ADJOINING SIDEWALK SHALL BE PRECEDED BY A 24 INCH DEEP DETECTABLE WARNING EXTENDING THE FULL WIDTH OF THE MARKED CROSSING.

4. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN (23 MM), A HEIGHT OF NOMINAL 0.2 IN (5 MM) AND A CENTER–TO–CENTER SPACING OF NOMINAL 2.35 IN (60 MM) AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT–ON–DARK, OR DARK–ON–LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHOULD CONTRAST BY AT LEAST 70% – REFER TO ADA GUIDELINES FOR DEFINITION OF "CONTRAST".

5. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND–ON–CANE CONTACT.

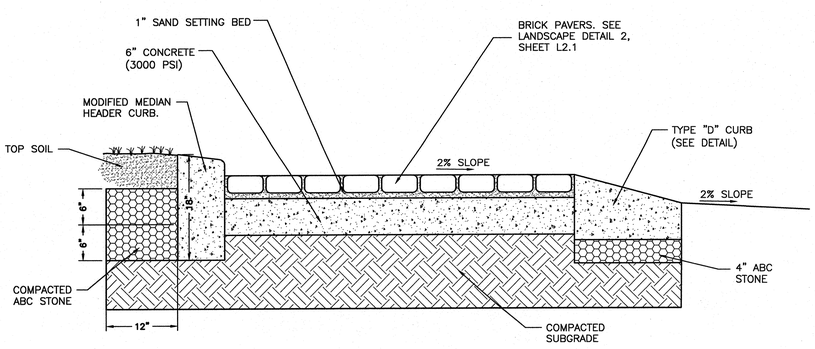
TYPICAL SIDEWALK AND WHEEL CHAIR RAMP DETAIL

NTS



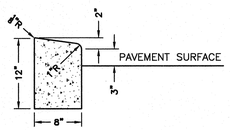
TYPICAL HANDICAPPED SIGN DETAIL

NTS



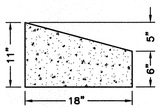
ROUND-A-BOUT SECTION

NTS



MEDIAN HEADER CURB

NTS



CURB SECTION TYPE "D"

NTS

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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NOTES AND DETAILS

TIBURON PARC APARTMENTS

2945 MOYNET WAY

WILMINGTON, NORTH CAROLINA

OWNER:
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WILMINGTON, N.C. 28406
910-392-3300

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licence #C–3641

HUD/PERMIT SET

12073

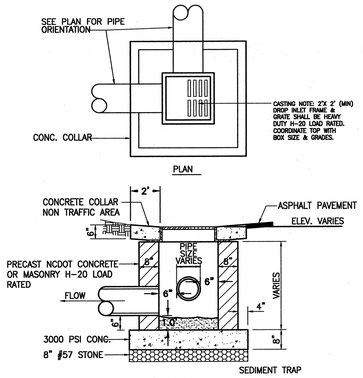
DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

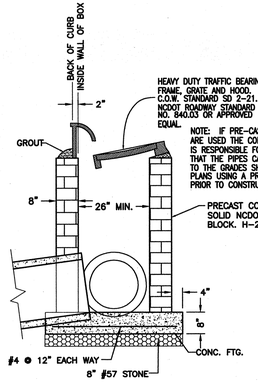
C6



MUST COMPLY WITH CITY OF WILMINGTON STANDARDS

DROP INLET DETAIL

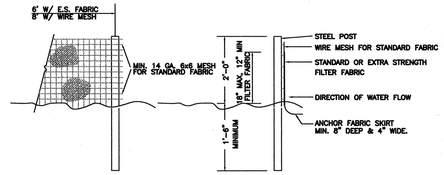
NTS



MUST COMPLY WITH CITY OF WILMINGTON STANDARDS

TYPICAL CATCH BASIN

NTS

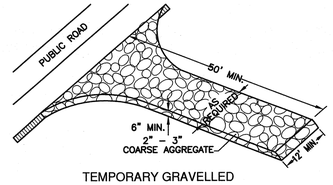


NOTES:

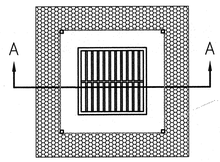
1. SYN. FENCE FABRIC SHALL BE MIN. OF 30" IN WIDTH WITH 30 LB/IN TENSILE STRENGTH FOR STANDARD FABRIC AND 50 LB/IN FOR EXTRA STRENGTH.
2. FABRIC SHALL BE CONTINUOUS LENGTH. IF JOINTS ARE NECESSARY, LAP FABRIC POST TO POST.
3. STEEL POST SHALL BE MIN 4' IN HEIGHT AND BE OF THE SELF-FASTENER STEEL ANGLE TYPE.

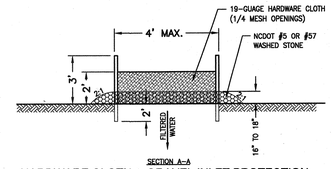
TEMPORARY SILT FENCE

NTS



TEMPORARY GRAVELLED CONSTRUCTION ENTRANCE





HARDWARE CLOTH & GRAVEL INLET PROTECTION

NTS

CONSTRUCTION SEQUENCE:
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5' STEEL POST 2' INTO THE GROUND SURROUNDING THE INLET. SPACE POST EVENLY AROUND THE PERIMETER OF THE INLET. A MAXIMUM OF 4' APART.
3. SURROUND THE POST WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POST AT THE TOP, MIDDLE AND BOTTOM. PLACING A 2' FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NCDOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16" AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUNDCOVER.

MAINTENANCE:
INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

TREE PROTECTION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING TREE PROTECTION FENCING AROUND THE EXISTING TREES BEING SAVED PRIOR TO BEGINNING ANY CONSTRUCTION WORK. THE CONTRACTOR SHALL SAWCUT ANY PERIMETER TREE ROOTS THAT CONFLICT WITH GRADING OPERATIONS. EXISTING TREES WILL BE REMOVED FROM THE SITE AS REQUIRED FOR CONSTRUCTION OF PONDS, ROADWAYS, ROAD IMPROVEMENTS, AND UTILITY INSTALLATION. ALL THE EXISTING VEGETATION AND TREES WILL REMAIN OUTSIDE THE DISTURBED AREA/CONSTRUCTION LIMITS.
2. PROTECTIVE FENCING IS TO BE PROPERLY MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.

3. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS.

4. ANY TREES AND / OR AREAS DESIGNATED TO BE PROTECTED MUST BE PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING AND GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS.

5. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED.

EROSION CONTROL NOTES AND MAINTENANCE PLAN

1. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL, BUT IN NO CASE, LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF-INCH RAINFALL.

2. ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED WASHED OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.

3. SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION AND ROCK PIPE INLET PROTECTION WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS AS DESIGNED. DEBRIS WILL BE REMOVED FROM THE ROCK AND HARDWARE CLOTH TO ALLOW PROPER DRAINAGE. SILT SACKS WILL BE EMPTIED ONCE A WEEK AND AFTER EVERY RAIN EVENT. SEDIMENT WILL BE REMOVED FROM AROUND BEAVER DAMS, DANDY SACKS AND SOCKS ONCE A WEEK AND AFTER EVERY RAIN EVENT.

4. DIVERSION DITCHES WILL BE CLEANED OUT IMMEDIATELY TO REMOVE SEDIMENT OR OBSTRUCTIONS FROM THE FLOW AREA. THE DIVERSION RIDGES WILL ALSO BE REPAIRED. SWALES MUST BE TEMPORARILY STABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.

5. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF FILLED. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL. STAKE SPACING WILL BE 6 FEET MAX. WITH THE USE OF EXTRA STRENGTH FABRIC, WITHOUT WIRE BACKING. STAKE SPACING WILL BE 8 FEET MAX. WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS ARE DESIGNED AT LOW POINTS IN THE SEDIMENT FENCE, THE ROCK WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF-FULL OF SEDIMENT, NO LONGER DRAINS AS DESIGNED OR IS DAMAGED.

6. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED AND KEPT CLEAN WEEKLY.

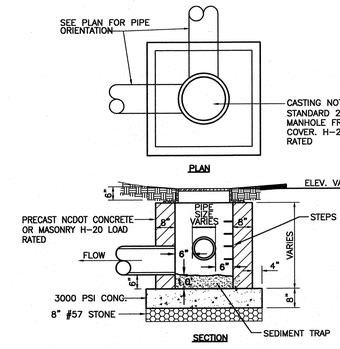
7. SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGN STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR IF THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED FROM BAFFLES WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.

8. LAND QUALITY REQUIRES:
ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED, ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN, TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS.

WATER QUALITY REQUIRES:
ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1' VERTICAL (3:1) AND ALL HIGH QUALITY WATER (HQW) ZONES SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN SEVEN (7) CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN FOURTEEN (14) CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.

9. FLOCCULANTS WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECT SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.

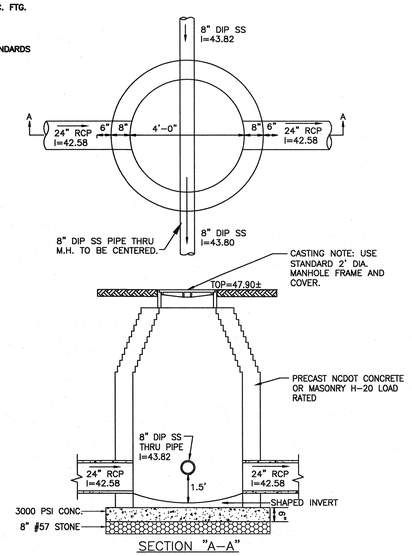
10. BASIN OUTLET STRUCTURES AND SKIMMERS SHALL WITHDRAW WATER FROM THE SURFACE.



MUST COMPLY WITH CITY OF WILMINGTON STANDARDS

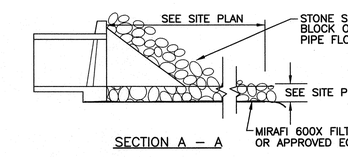
JUNCTION BOX DETAIL

NTS



INTERFERENCE STORM DRAIN MANHOLE

SD 2-05

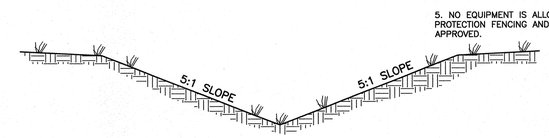


SECTION A – A

NOTE: FILTER FABRIC AND STONE SHALL BE TOED UNDER FLARED END SECTION

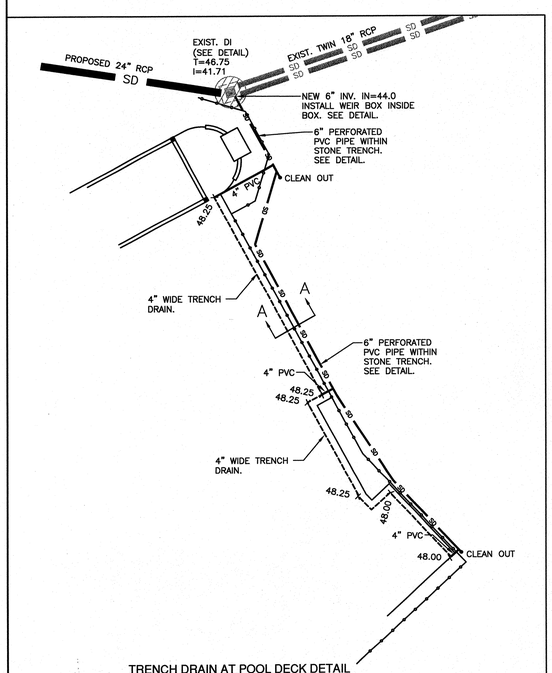
ENERGY DISSIPATOR

NTS



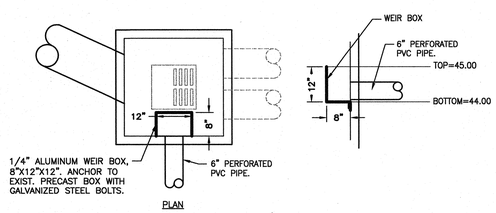
TYPICAL GRASS SWALE

N.T.S.



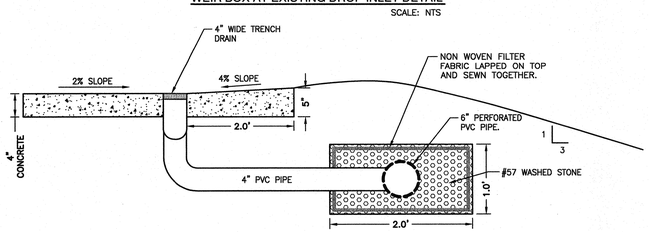
TRENCH DRAIN AT POOL DECK DETAIL

SCALE: 1"=20'



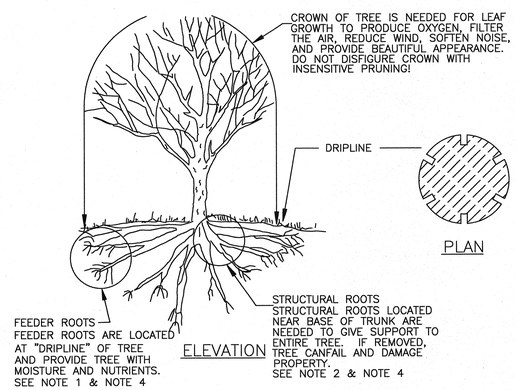
WEIR BOX AT EXISTING DROP INLET DETAIL

SCALE: NTS



TRENCH DRAIN AT POOL DECK SECTION A-A

SCALE: NTS



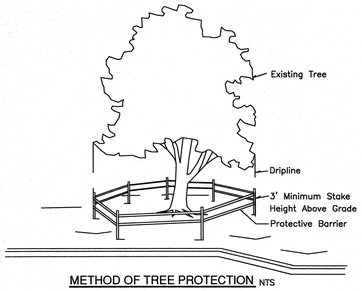
TREE PROTECTION DURING CONSTRUCTION

1. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO HEAVY MATERIALS SHALL BE STORED BENEATH TREES. RESULTS OF COMPACTION CAUSE WATER AND AIR NOT TO REACH THE ROOTS AND THE TREE WILL DIE. THESE "FEEDING ROOTS" OCCUR WELL AWAY FROM THE BASE OF THE TREE TO THE EDGE OF THE OVERHEAD BRANCH CANOPY. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. APROTECTIVE BARRIER SHOULD PREVENT DAMAGE FROM OCCURING DURING CONSTRUCTION.
2. NO CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK. THESE ARE ESSENTIAL IN SUPPORTING THE TREE AND HOLDING IT UPRIGHT IN HIGH WINDS. REMOVAL OF THESE ROOTS ALONG ONE SIDE IS OFTEN DONE BECAUSE OF A WALK, PAVING OR BUILDING WHICH IS BEING CONSTRUCTED.
3. AVOID CUT AND FILL WITHIN DIAMETER OF TREE CROWN DURING EXCAVATION.

METHOD OF TREE PROTECTION DURING CONSTRUCTION

SD 15-09

nts



METHOD OF TREE PROTECTION NTS

CLEARLY mark the trees to be saved prior to construction and erect a protective barrier at the dripline.

Dripline—The area of soil directly beneath the tree extending out to the tips of the outermost branches.

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED DRAINAGE PLAN
Date:_____ Permit #_____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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NOTES AND DETAILS

TIBURON PARC APARTMENTS

2945 MOYNET WAY

WILMINGTON, NORTH CAROLINA

OWNER:
NELSON MACRAE
MIDTOWN ONE, LLC
P.O. BOX 3145
WILMINGTON, N.C. 28406
910-392-3300

NORRIS & TUNSTALL
CONSULTING ENGINEERS, INC.
1127 FLORAL PARKWAY
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office@nktseng.com
licence #C-3641

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DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

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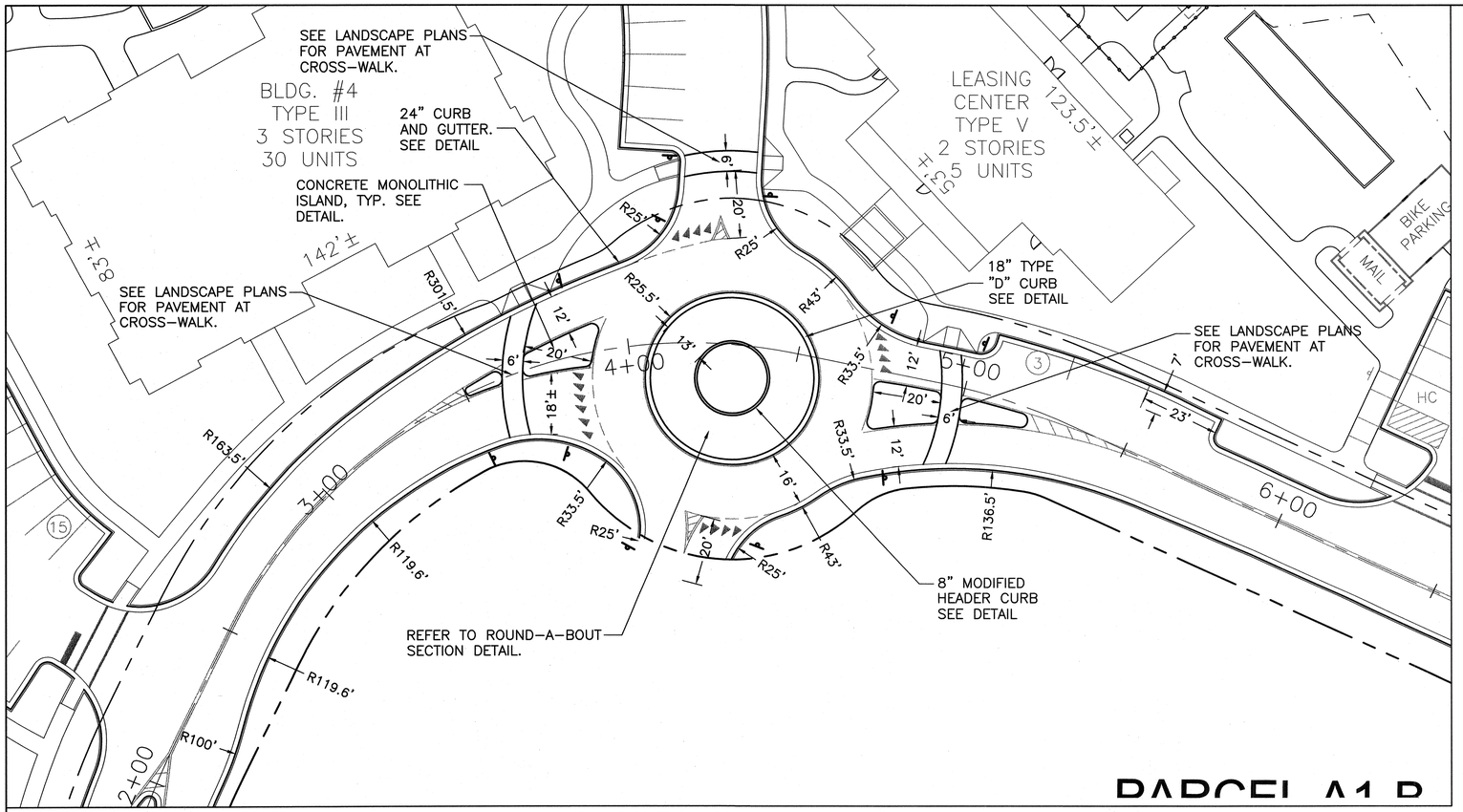
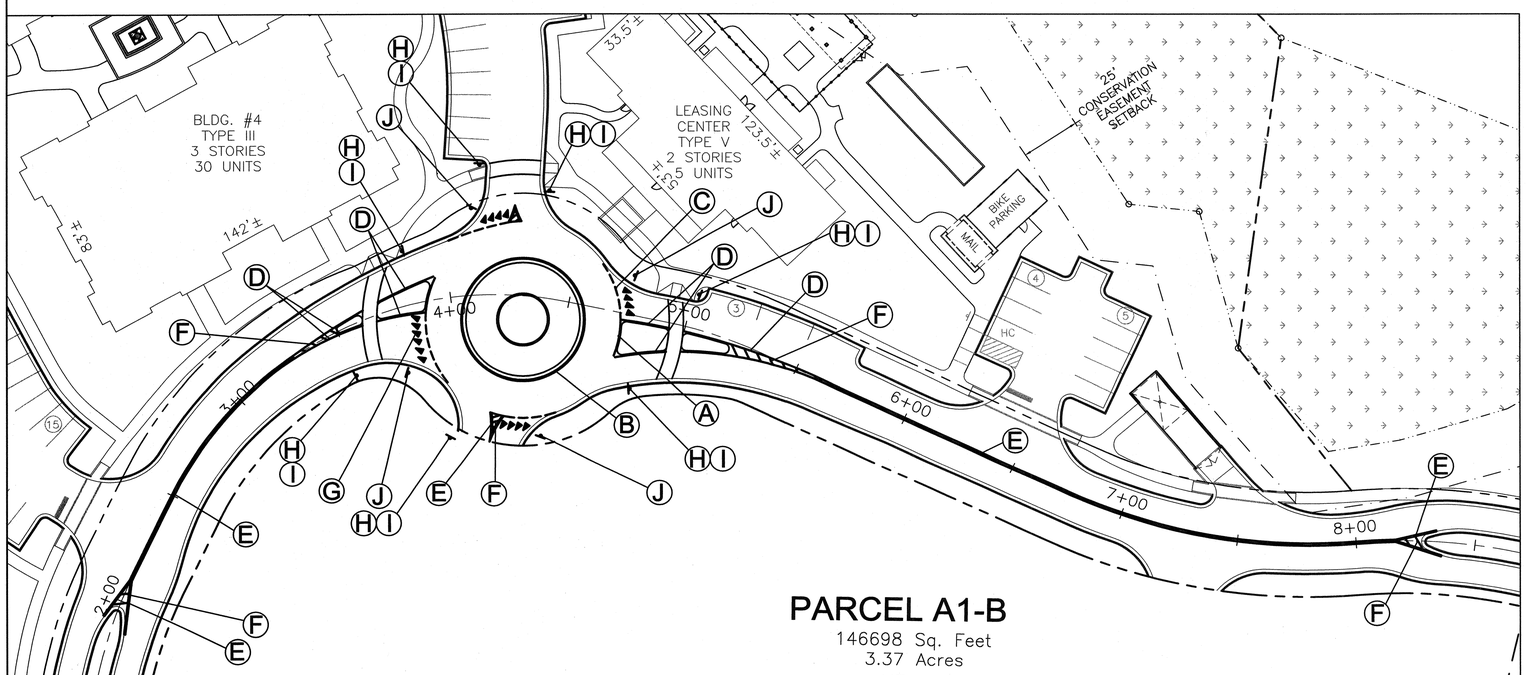


PARCEL A1-B

ROUND-A-BOUT LAYOUT DETAIL PLAN
SCALE: 1"=20'



PARCEL A1-B
146698 Sq. Feet
3.37 Acres

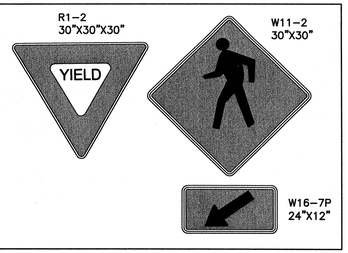
ROUND-A-BOUT PAVEMENT MARKING PLAN
SCALE: 1"=30'

Approved Construction Plan

	Name	Date
Planning		
Public Utilities		
Traffic		
Fire		

LEGEND

- (A) 4" WHITE EDGE LINE
- (B) 4" YELLOW EDGE LINE
- (C) 4" 2 FT. WHITE MINI SKIP WITH 4 FT. GAP
- (D) 4" YELLOW SINGLE CENTER LINE
- (E) 4" YELLOW DOUBLE CENTER LINE
- (F) 8" YELLOW DIAGONAL LINE
- (G) WHITE TRIANGLES
- (H) W11-2
- (I) W16-7P
- (J) R1-2



NOTES:

1. All pavement markings shall be to NCDOT Standards.
2. All pavement markings shall be thermoplastic.

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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ROUND-A-BOUT DETAILS
TIBURON PARC APARTMENTS
2945 MOYNET WAY
WILMINGTON, NORTH CAROLINA

OWNER:
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MIDTOWN ONE, LLC
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WILMINGTON, N.C. 28406
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licence #C-3641

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12073

DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

C8

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** LINE TYPES AND OFFSETS

CONTINUOUS LINES

EDGE LINE — YELLOW OR WHITE — 4"/6"

LANE LINE — WHITE — 4"/6"

CENTER LINE — YELLOW — 4"/6"

GORE LINE — WHITE — 8"/12"

DIAGONAL LINE — YELLOW OR WHITE — 12" 45 MPH OR HIGHER; 8" LESS THAN 45 MPH

CROSSWALK LINE — WHITE — 8" TRANSVERSE, 24" LONGITUDINAL

RxR LINE — WHITE — 16"

STOP OR TRANSVERSE BAR — WHITE — 24"

10'-30'/SP SKIP LINE

UNLESS OTHERWISED SHOWN, USE 10'-30'/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES.

10' 30' 4"/6" YELLOW OR WHITE

2'-6'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 2'-6'/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND MINI-SKIPS USED FOR BICYCLE LANE LINES.

2' 6' 4"/6" YELLOW OR WHITE

3'-3'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 3'-3'/SP MINI-SKIPS FOR THE WHITE EDGE LINE EXTENSIONS AT ROUNDABOUTS.

3' 3' 12" WHITE

3'-9'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 3'-9'/SP MINI-SKIPS FOR MINI-SKIP LANE LINES AND LINE EXTENSIONS THROUGH TAPERS.

3' 9' 4"/6" WHITE

GENERAL NOTES:

1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.

2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.

3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

SHEET 1 OF 2 **1205.01**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** TURN LANES

DIRECT TAPER TURN LANE

END OF TAPER — WHITE 3'-9'/SP MINI-SKIP LINE — TAPER — 10'

TURN LANE BAYS < 125 FT.

WHITE LANE LINE — WHITE 3'-9'/SP MINI-SKIP LINE — TAPER — TURN LANE BAY — ARROW CENTERED IN TURN LANE BAY

TURN LANE BAYS 125 - 250 FT.

WHITE LANE LINE — WHITE 3'-9'/SP MINI-SKIP LINE — TAPER — 60' — TURN LANE BAY

TURN LANE BAYS 250 FT. OR GREATER

WHITE LANE LINES — CENTER BETWEEN FIRST AND LAST ARROWS — 250' — WHITE 3'-9'/SP MINI-SKIP LINE — TAPER — 60' — TURN LANE BAY

LEFT TURN LANE DEVELOPED FROM TWO-WAY TURN LANE

WHITE LANE LINE, ½ LENGTH OF BAY — CENTER BETWEEN FIRST AND LAST ARROWS — WHITE 3'-9'/SP MINI-SKIP LINE — TWO-WAY LEFT TURN LANE — 60' — TURN LANE BAY — 160'

DOUBLE TURN LANES

SAME PAVEMENT MARKING LINES, NUMBER OF ARROWS, AND ARROW SPACING APPLY AS FOR THE VARIOUS TURN LANE BAY LENGTHS SHOWN ABOVE

WHITE LANE LINE, ½ LENGHT OF BAY, UP TO 125' MAX. — WHITE LANE LINE, LENGHT OF BAY, UP TO 250' MAX. — WHITE SKIP LANE LINE — WHITE 3'-9'/SP MINI-SKIP LINE — WHITE 2'-6'/SP MINI-SKIP LINE — 60' — TURN LANE BAY — CENTER BETWEEN FIRST AND LAST ARROWS — TAPER

GENERAL NOTES:

1- USE THE GUIDANCE SHOWN ABOVE IN CONJUNCTION WITH THE INTERSECTION GUIDANCE SHOWN ON ROADWAY STANDARD DRAWING 1205.04.

2- THE NUMBER OF ARROWS SHOWN IS THE MINIMUM REQUIRED. USE ADDITIONAL ARROWS AS DIRECTED BY THE ENGINEER.

LEGEND: PAVEMENT MARKING SYMBOL

SHEET 1 OF 1 **1205.05**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **RAISED PAVEMENT MARKERS** INSTALLATION SPACING

GENERAL NOTES:

1- MARKERS ARE GENERALLY NOT REQUIRED ALONG EDGE LINES EXCEPT IF DESIGNATED IN THE PLANS OR DIRECTED BY THE ENGINEER. WHEN THEY ARE REQUIRED, SPACE THEM ON 20 FT. CENTERS, AND OFFSET 2 INCHES FROM THE EDGE LINE ON THE TRAFFIC SIDE.

2- PLACE CRYSTAL/RED MARKERS AT INTERSECTIONS AND INTERCHANGES WHERE WRONG-WAY MOVEMENTS ARE POSSIBLE. POSITION THE RED SIDE OF THE MARKER TO FACE "WRONG-WAY" TRAFFIC. WHEN USED, PLACE CRYSTAL/RED MARKERS ALONG THE ENTIRE LENGTH OF THE PROJECT.

3- DO NOT PLACE PAVEMENT MARKERS CLOSER THAN 3 INCHES TO A PAVEMENT CONSTRUCTION JOINT (AS FEASIBLE), EXCEPT WHEN PLACED BETWEEN DOUBLE YELLOW CENTER LINES, AND ALONG YELLOW SKIP LINES ON TWO-LANE, TWO-WAY ROADWAYS WHERE PASSING IS ALLOWED IN BOTH DIRECTIONS.

4- DO NOT PLACE PAVEMENT MARKERS DIRECTLY ON PAVEMENT MARKING LINES.

5- PLACE PAVEMENT MARKERS USED IN CONJUNCTION WITH DOUBLE YELLOW CENTER LINES MID-WAY BETWEEN THE LINES. PROVIDE A GAP BETWEEN THE LINES AND THE MARKER TO REDUCE OVERSPRAYING THE MARKER DURING REPAINTING OPERATIONS.

6- MARKERS ARE NOT REQUIRED ALONG MINI-SKIP LINES IN TAPERS.

PAVEMENT MARKER SPACING CHART

TYPE OF PAVEMENT MARKING	TYPICAL SPACING (FT)
SKIP LINES AND CENTER LINES ALONG THRU LANES-	
ALONG TANGENT SECTIONS AND HORIZONTAL CURVES LESS THAN 6°	80
HORIZONTAL CURVES ≥ 6°	40
TURN LANES-	
MINI-SKIP LINES	24
SKIP LINES	40
SOLID LINES	20
CENTER LINES	40
MINI-SKIP LINES AT LANE DROP APPROACHES	24
TWO-WAY RAMP CENTER LINES	40
GORE LINES	20
PAINTED ISLANDS-	
WHITE	20
YELLOW	40
RAISED MEDIAN ISLANDS	40
WRONG WAY RAMP ARROW	5
TAPERS	40
NARROW BRIDGES-	
EDGE LINE	20
CENTER LINE	40
ONE LANE BRIDGES-	
EDGE LINE	20
WORK ZONE APPLICATIONS	
2-LANE, 2-WAY ON-SITE DIVERSION	20 FT. FOR CENTER LINE
ALL OTHER DIVERSIONS	½ NORMAL SPACING

SHEET 1 OF 3 **1250.01**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** LINE TYPES AND OFFSETS

EDGE LINE OFFSET DETAIL

2" MAX., REFER ALSO TO TABLE 1 — E.O.T. — WHITE OR YELLOW EDGE LINE

CENTER LINE OFFSET DETAIL

YELLOW CENTER LINE — YELLOW CENTER LINE — 3" 3" 4"

LANE LINE OFFSET DETAIL

2" TOWARDS LEFT SIDE OF TRAVELWAY — WHITE LANE LINE

TABLE 1

EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UN-PAVED SHOULDERS

WIDTH (W) OF TRAVEL PAVEMENT	MAX. EDGE LINE OFFSET FROM E.O.T.	MINIMUM LANE WIDTH (M)
18' - 18'	2"	8' - 8'
19'	4"	9'
20'	6"	9.5'
21'	8"	10'
22'	10"	10'
23'	10"	10.5'
24'	1'	11'
25'	2'	11'
26'	2'	12'
30'	3'	12'
32'	4'	12'

LEGEND

W = WIDTH OF TRAVEL LANE

E.O.T.= EDGE OF TRAVEL

DIRECTION OF TRAFFIC FLOW

TWO-WAY UNDIVIDED ROADWAY

SEE EDGE LINE OFFSET DETAIL — SEE CENTER LINE OFFSET DETAIL

TWO-WAY UNDIVIDED ROADWAY WITH TWO-WAY LEFT TURN LANE

SEE EDGE LINE OFFSET DETAIL — SEE CENTER LINE OFFSET DETAIL

MULTI-LANE ROADWAY

SEE EDGE LINE OFFSET DETAIL — SEE LANE LINE OFFSET DETAIL

SHEET 2 OF 2 **1205.01**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** PEDESTRIAN CROSSWALKS

HI-VISIBILITY CROSSWALK

SIDEWALK — DETECTABLE WARNING DOMES — CURB RAMP — 4' X 4' CLEAR SPACE — 24" WHITE CROSSWALK LINE — 24" GAP — 10' MIN. WIDTH

STANDARD CROSSWALK

STORMBAR — 4' MIN. TO CROSSWALK — 8' MIN. PEDESTRIAN CROSSWALK — 8" WHITE CROSSWALK LINES — 4' MIN. — EDGE OF TRAVEL TO CROSSWALK LINE — SIDEWALK — CURB RAMPS — 4' X 4' CLEAR SPACE

1- THE MINIMUM WIDTH OF STANDARD CROSSWALKS IS 6 FEET. THE MINIMUM WIDTH OF HI-VISIBILITY CROSSWALKS IS 10 FEET.

2- SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.

3- BEYOND THE CURB FACE, A CLEAR SPACE OF 4' X 4' FEET MINIMUM SHALL BE PROVIDED WITHIN THE WIDTH OF THE CROSSWALK.

4- PLACE STOP BARS A MINIMUM OF 4 FEET FROM NEAREST CROSSWALK LINE. STOP BARS AT SIGNALIZED INTERSECTIONS SHOULD BE COORDINATED WITH THE SIGNAL DESIGN SECTION OR AS DIRECTED BY THE ENGINEER.

5- CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS.

LEGEND

DIRECTION OF TRAFFIC FLOW

CURB RAMP WITH DETECTABLE WARNING DOMES

SHEET 1 OF 1 **1205.07**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **RAISED PAVEMENT MARKERS** INSTALLATION SPACING

10'-30'/SP SKIP LINE

80' — REFER TO SPACING CHART FOR SPACING REDUCTIONS — 15' 15' — 10' WHITE SKIP

3'-9'/SP MINI-SKIP LINE

24' — MARKER CENTERED BETWEEN MINI-SKIP LINES

LEGEND

CRYSTAL/RED PAVEMENT MARKER

YELLOW/YELLOW PAVEMENT MARKER

DIRECTION OF TRAFFIC FLOW

GORE LINES

20' — MARKERS OFFSET 2" FROM GORE LINES

YELLOW CENTER LINES

REFER TO SPACING CHART FOR SPACING REDUCTIONS — 80' 80' — 15' 15' 15' 15' 15' 15'

MARKERS CENTERED BETWEEN DOUBLE CENTER LINES

CENTER LINES FOR-
TWO-LANE, TWO-WAY ROADWAYS
UNDIVIDED ROADWAYS
TWO-WAY LEFT TURN LANES

DETAIL OF PAVEMENT MARKER PLACEMENT

SNOWPLOWABLE RAISED PAVEMENT MARKERS — 6"

RAISED REFLECTIVE PAVEMENT MARKERS — 6" — MARKERS CENTERED BETWEEN DOUBLE CENTER LINES — MARKERS CENTERED BETWEEN SKIP LINES

SHEET 2 OF 3 **1250.01**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** INTERSECTIONS

TWO-LANE, TWO-WAY ROADWAY

STOP BAR, SEE NOTE 1 — WHITE 2'-6'/SP MINI-SKIP LINE, SEE NOTE 3 — 10' TYP.

TWO-LANE, TWO-WAY ROADWAY WITH TWO-WAY LEFT TURN LANE

STOP BAR, SEE NOTE 1 — WHITE 2'-6'/SP MINI-SKIP LINE, SEE NOTE 3 — YELLOW 2'-6'/SP MINI-SKIP LINE — 10' TYP. — 160'

UNDIVIDED MULTI-LANE ROADWAY

STOP BAR, SEE NOTE 1 — WHITE 2'-6'/SP MINI-SKIP LINE, SEE NOTE 3 — 150' — 60' — 10' TYP. — WHITE 2'-6'/SP MINI-SKIP LINES, SEE NOTE 2

DIVIDED MULTI-LANE ROADWAY WITH TURN BAY

MONOLITHIC ISLANDS MAY BE OUTLINED WITH EDGE LINES — STOP BAR, SEE NOTE 1 — WHITE 2'-6'/SP MINI-SKIP LINE, SEE NOTE 3 — YELLOW 2'-6'/SP MINI-SKIP LINE — MEDIAN — 150' — 60' — CONTINUE EDGE LINE AROUND MEDIAN — WHITE 2'-6'/SP MINI-SKIP LINE — REFER TO STD. 1205.05 FOR TURN LANE MARKING GUIDANCE

DIVIDED MULTI-LANE ROADWAY WITH WIDE MEDIAN CROSSOVER

STOP BAR, SEE NOTE 1 — WHITE 2'-6'/SP MINI-SKIP LINE, SEE NOTE 3 — YELLOW 2'-6'/SP MINI-SKIP LINES — CONTINUE EDGE LINE AROUND MEDIAN — MEDIAN — >30' REF. — 150' — 60'

USE DOUBLE YELLOW CENTER LINE AND ARROW SYMBOLS IN MEDIAN CROSSOVER WHEN WIDTH OF MEDIAN EXCEEDS 30 FT, OTHERWISE THEY ARE NOT REQUIRED.

GENERAL NOTES:

1- PLACEMENT OF STOP BARS AT NON-SIGNALIZED INTERSECTIONS IS OPTIONAL AND USED WHERE IT IS IMPORTANT TO INDICATE THE POINT WHICH VEHICLES ARE REQUIRED TO STOP. PLACE STOP BARS NO LESS THAN 4 FEET AND NO MORE THAN 30 FEET FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY. USE 10 FEET AS THE TYPICAL SETBACK DISTANCE OR AS DIRECTED BY THE ENGINEER.

2- MINI-SKIP LANE LINE EXTENSIONS SHOULD BE USED AT INTERSECTIONS THAT HAVE REDUCED VISIBILITY CONDITIONS SUCH AS OFFSET, SKEWED, OR CURVED ROADWAYS.

3- MINI-SKIP EDGE LINE EXTENSIONS MAY BE PLACED THROUGH INTERSECTIONS AND MAJOR DRIVEWAYS.

4- REFER TO ROADWAY STANDARD DRAWINGS 1205.01, 1205.02, 1205.05, 1205.08 AND 1205.09 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

LEGEND

STOP SIGN — STATIONARY SIGN — DIRECTION OF TRAFFIC FLOW — PAVEMENT MARKING SYMBOLS — OPTIONAL

SHEET 2 OF 2 **1205.04**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **CONCRETE ISLANDS**

SHOWING EXPANSION JOINT

VAR. — ½" RADIUS — ¼" — JOINT FILLER — JOINT SEALER

SHOWING GROOVED JOINT

VAR. — ½" RADIUS — ¼" — JOINT SEALER

PARTIAL LONGITUDINAL SECTIONS OF PAVED ISLANDS

NOTE:

WHEN MONOLITHIC CONCRETE ISLAND IS ON TOP OF SURFACE COURSE, DRIVE 40d SPIKES INTO SURFACE UNDER MONOLITHIC CONCRETE ISLAND. STAGGER SPIKES ON 2' CENTERS EACH WAY.

IN THE CONCRETE PAVEMENT (ISLAND) AND CONCRETE ISLAND (MONOLITHIC) PLACE ½" EXPANSION JOINTS AT 30' INTERVALS AND GROOVED JOINTS 1" DEEP AT 10' INTERVALS BETWEEN EXPANSION JOINTS.

LINE UP THE JOINTS IN THE CONCRETE PAVEMENT (ISLAND) WITH THE JOINTS IN THE CURB OR CURB AND GUTTER. FILL AND SEAL THE TOP ½" OF THE EXPANSION JOINTS AND THE ENTIRE DEPTH OF GROOVED JOINTS WITH JOINT SEALER.

FOR JOINTS IN THE CURB AND/OR CURB AND GUTTER, SEE STANDARD NO. 846.01

5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) ON ASPHALT CONCRETE PAVEMENT

(USE ON ISLAND 4' WIDE OR GREATER)

VARIABLE — 40d SPIKE — 0.02 SLOPE — 9" — 2" RADIUS — 1¾" RADIUS — BASE COURSE — SURFACE COURSE — VAR.

SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH. KEY IN ON THE LAST LAYER OF PAVEMENT SURFACE COURSE

5" MONOLITHIC CONCRETE ISLAND (KEYED IN) ON ASPHALT CONCRETE PAVEMENT

(USE ON ISLAND LESS THAN 4' WIDE)

VARIABLE — 0.02 SLOPE — 9" — SURFACE COURSE — BASE COURSE BINDER COURSE OR EXISTING PAVEMENT — 2" RADIUS — 1¾" RADIUS

5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED) ON CONCRETE PAVEMENT

VARIABLE — ½" x 6" LONG DIA. DEFORM BARS ON 24" C STAGGERED — 0.02 SLOPE — 9" — 1¾" RADIUS — 2" RADIUS

PAVED CONCRETE ISLAND

VARIABLE — JOINT SEALER — JOINT FILLER — 4" CONC. COVER — 0.02 SLOPE — CURB AND GUTTER AS CALLED FOR ON PLANS. — SURFACING — 4" BASE COURSE

SHEET 1 OF 1 **852.01**

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR **RAISED PAVEMENT MARKERS** INSTALLATION SPACING

AUXILIARY TURN LANES

20' SPACING ALONG LANE LINES PLACED INSIDE OF THE TURN-LANE.

YELLOW PAINTED ISLANDS

40' SPACING ALONG DOUBLE YELLOW CENTER LINES

WHITE PAINTED ISLANDS

20' SPACING ALONG WHITE LINES

LEGEND

DIRECTION OF TRAFFIC FLOW

CRYSTAL/RED PAVEMENT MARKER

YELLOW/YELLOW PAVEMENT MARKER

PAVEMENT MARKING SYMBOL

SHEET 3 OF 3 **1250.01**

NOTES AND DETAILS

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HUD/PERMIT SET

12073

DES.	JST
CKD.	JPN
DRWN.	NKS
DATE	3/8/13

NORTH CAROLINA PROFESSIONAL SEAL 19851 ENGINEER JOHN S. TUNSTALL

Approved Construction Plan

Name Date

Planning

Public Utilities

Traffic

Fire

C9