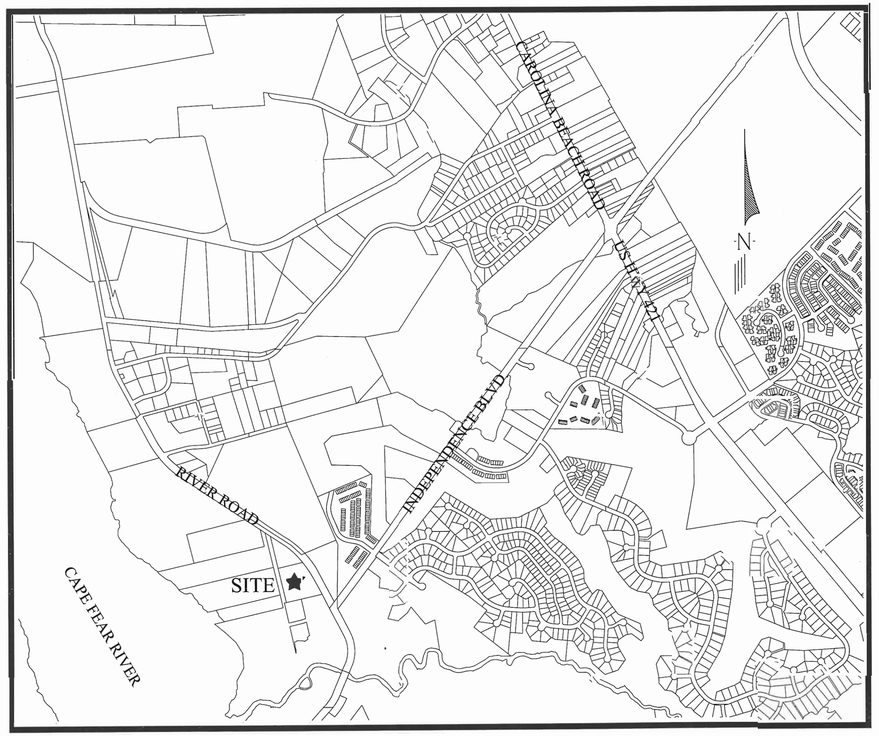
MAJOR SITE PLAN

4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON, NORTH CAROLINA

GENERAL NOTES

1. THE PROPERTY DELINEATED HEREON IS LOCATED IN THE CITY OF WILMINGTON AND IDENTIFIED ON NEW HANOVER COUNTY GIS AS PARID: R07000-002-007-000.
2. THE PERMITTEE WILL BE RESPONSIBLE FOR THE MAINTENANCE OF STORM WATER DETENTION/DRAINAGE FACILITIES AND RESPECTIVE EASEMENTS.
3. BOUNDARY AND TOPOGRAPHIC DATA SHOWN HEREON IS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY ROBERT G. SESSOMS, PLS, P.C. DATED APRIL 23, 2013 EXCEPT FOR SOUTHWEST CORNER RE-SURVEYED MAY 28, 2013. VERTICAL DATUM OF SURVEY IS NAVD 88. HORIZONTAL DATUM OF SURVEY IS NAVD88.
4. EROSION AND SEDIMENT CONTROL STANDARDS SHALL BE PROVIDED IN ACCORDANCE WITH THE NEW HANOVER COUNTY SOIL EROSION AND SEDIMENT CONTROL ORDINANCE.
5. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE DEVELOPER OR HIS AGENT OF ANY LEGAL RESPONSIBILITY WHICH MAY BE REQUIRED BY THE CITY OF WILMINGTON.
6. THE APPROVAL OF THESE PLANS SHALL NOT RELIEVE THE OWNER/DEVELOPER OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL UNDERGROUND FACILITIES PRIOR TO THE CONSTRUCTION INCLUDING TEST HOLES TO PHYSICALLY LOCATE UNDERGROUND UTILITIES AS NECESSARY. RESULTS OF TEST PITS SHALL BE PROVIDED TO THE ENGINEER FOR CONFORMATION PRIOR TO CONSTRUCTION.
8. THESE PLANS MAKE NO REPRESENTATION AS TO SUBSURFACE CONDITIONS AND THE PRESENCE OF SUBSURFACE WATER OR THE NEED FOR SUBSURFACE DRAINAGE FACILITIES.
9. THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES, AS SHOWN HEREON, ARE APPROXIMATE ONLY. NO GUARANTEE IS HEREIN MADE OR IMPLIED THAT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN. IT SHALL BE THE CONTRACTOR'S AND/OR THE OWNER'S RESPONSIBILITY TO CONTACT UTILITY COMPANIES AND TO VERIFY THE TYPE, SIZE, AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO STARTING THE WORK. ANY DISCREPANCIES IN OR FROM THE INFORMATION SHOWN HEREON SHALL BE REPORTED TO URBAN, LTD. PRIOR TO COMMENCING CONSTRUCTION.
10. ALL WORK MUST COMPLY WITH NORTH CAROLINA STATE BUILDING AND HANDICAPPED ACCESSIBILITY COD VOL. 1C.
11. PUBLIC UTILITIES (WATER AND SANITARY SEWER) SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE CAPE FEAR PUBLIC UTILITY AUTHORITY.
12. ALL UTILITIES, BOTH PUBLIC AND PRIVATE, SHALL BE UNDERGROUND.
13. PROJECT SITE DRAINS TO THE CAPE FEAR RIVER, WHICH HAS A WATER CLASSIFICATION OF C-Sw, STREAM INDEX NO. 18-(63) PER NCDENR DWQ NORTH CAROLINA WATERBODIES.
14. THE PROPOSED USE IS NON-RESIDENTIAL.
15. THERE ARE NO WETLANDS ON SITE.
16. THIS PROPERTY IS LOCATED IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, FIRM COMMUNITY PANEL MAP #3720313800J, DATED APRIL 3, 2006.
17. THE PROPERTY IS NOT LOCATED IN A SPECIAL HIGHWAY OVERLAY DISTRICT, THE DAWSON-WOOSTER CORRIDOR, WRIGHTSVILLE AVENUE CORRIDOR, OR SOUTH 17TH STREET/INDEPENDENCE BOULEVARD CORRIDOR.
18. THE PROPERTY MAY BE LOCATED WITHIN A CONSERVATION OVERLAY DISTRICT (COD). IF THE CITY DETERMINES PROPERTY IS LOCATED WITHIN A COD, THEN CONSERVATION RESOURCES AND ITS ASSOCIATED SETBACKS WILL BE PROTECTED IN ACCORDANCE TO THE CITY OF WILMINGTON LAND DEVELOPMENT CODE.
19. SOLID WASTE DISPOSAL WILL BE PROVIDED BY DUMPSTERS.
20. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING SHALL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
21. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING, GRADING OR STAGING OF MATERIAL WILL OCCUR IN THOSE AREAS.
22. NO EQUIPMENT IS ALLOWED ON SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING IS INSTALLED AND APPROVED. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT AND CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION METHODS.
23. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
24. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER.
25. TACTILE WARNING MATS WILL BE INSTALLED ON ALL WHEELCHAIR RAMPS.
26. CONTRACTOR SHALL MAINTAIN ALL-WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.



VICINITY MAP
SCALE : 1"=1000'

500 0 250 500 1000 2000
GRAPHIC SCALE

SHEET INDEX

OWNER/ DEVELOPER

4 SEASONS SITE AND DEMO, INC.
P.O. BOX 15590
WILMINGTON, NC 28408
910-612-2650

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		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
SIGNED _____

No.	DATE	REVISIONS
2	04-11-14	NHC EROSION CONTROL COMMENTS
1	10-04-13	NHC EROSION CONTROL COMMENTS

PLAN DATE
06-28-13
10-04-13
04-11-14

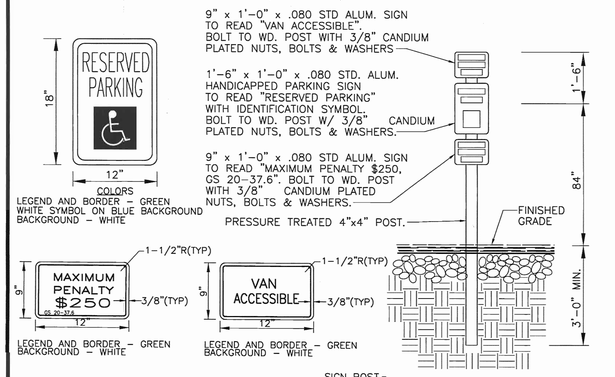
C. LAWRENCE SNEEDEN, JR., P.E.
6217 Head Road
Wilmington, NC 28409
Tel. 910.520.1835
lsneeden@coastalstormwater.com

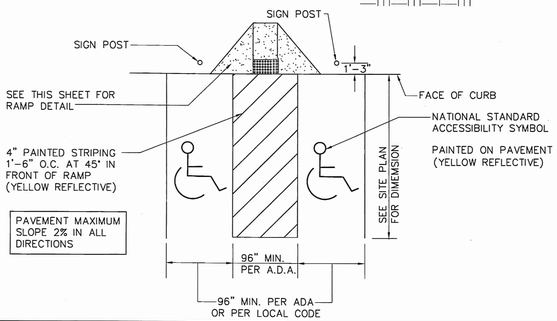
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10972 C. LAWRENCE SNEEDEN, JR.

COVER SHEET
4 SEASONS SITE AND DEMO, INC.
CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA
DATE: May, 2013
SCALE: 1"=30' C.I. =1'

SHEET 1 OF 12
FILE No. 13002

HANDICAP PARKING SIGN DETAIL
(NO SCALE)

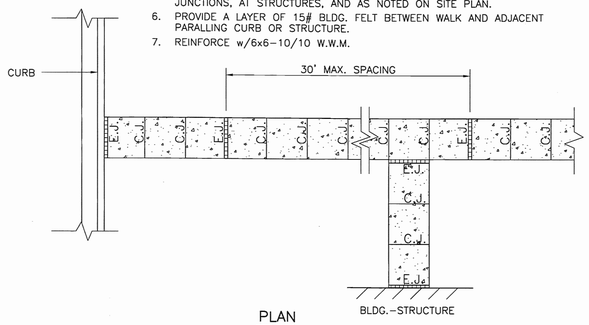




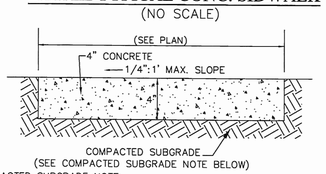
SIDEWALK JOINT DETAILS
(NO SCALE)

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" AT DRIVEWAYS.
4. THICKEN SIDEWALK TO 6" IN LAST 3' WHERE IT ABUTS PAVEMENT WITH NO CURB.
5. 1/2" EXPANSION JOINT (E.J.) REQUIRED AT 30' MAX. AT SIDEWALK JUNCTIONS, AT STRUCTURES, AND AS NOTED ON SITE PLAN.
6. PROVIDE A LAYER OF 15# BLDG. FELT BETWEEN WALK AND ADJACENT PARALLING CURB OR STRUCTURE.
7. REINFORCE w/6x6-10/10 W.W.M.

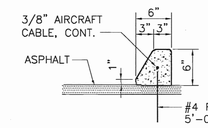


DETAIL TYPICAL CONC. SIDWALK
(NO SCALE)

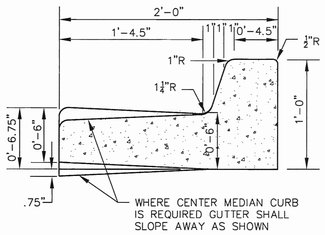


COMPACTED SUBGRADE NOTE:
THE TOP 12" OF SUBGRADE TO BE COMPACTED TO 98% OF MAXIMUM DRY DENSITY PER STANDARD PROCTOR TEST WITHIN ±2% OPTIMUM MOISTURE.

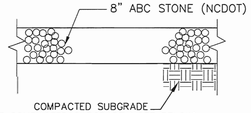
EXTRUDED CURB DETAIL
(NO SCALE)



STANDARD CURB SECTION TYPE "A"
SD 7-01
NOT TO SCALE

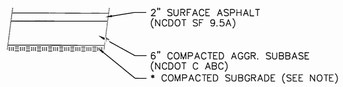


GRAVEL PAVEMENT DETAIL
(NO SCALE)



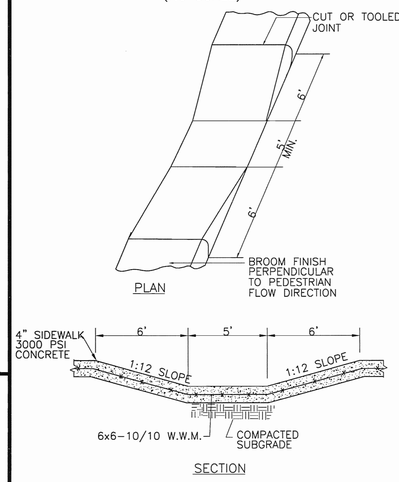
COMPACTED SUBGRADE NOTE:
THE TOP 12" OF SUBGRADE TO BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY PER STANDARD PROCTOR TEST WITHIN ±2% OPTIMUM MOISTURE.

ASPHALT PAVEMENT DETAIL
(NO SCALE)

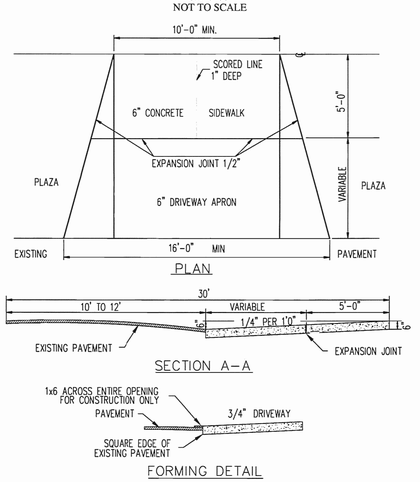


COMPACTED SUBGRADE NOTE:
* THE TOP 12" OF SUBGRADE TO BE COMPACTED TO 98% OF MAXIMUM DRY DENSITY PER STANDARD PROCTOR TEST WITHIN ±2% OPTIMUM MOISTURE.

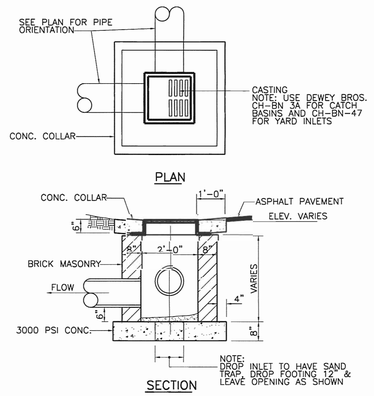
WHEEL CHAIR RAMP DETAIL
(NO SCALE)



DRIVEWAY STREETS WITH NO CURB
SD 8-05
NOT TO SCALE

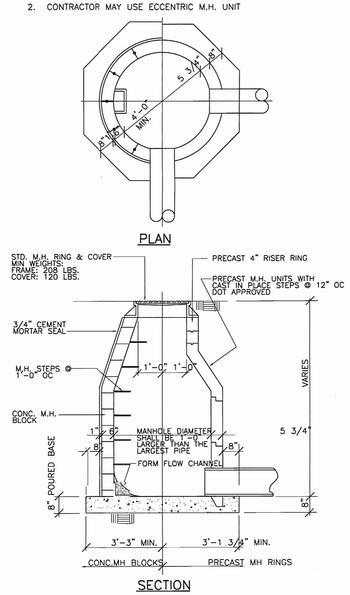


DROP INLET DETAIL
(NO SCALE)



STORM DRAIN MANHOLE DETAIL
(NO SCALE)

NOTE
1. CONTRACTOR MAY USE BRICK WITH MAX. CORBEL 1" PER COURSE
2. CONTRACTOR MAY USE ECCENTRIC M.H. UNIT



SITE TABULATIONS:

Project Address.....4004 River Road
Project Area.....5.00 Acres
Disturbed Area.....5.00 Acres
Current Zoning.....LI
CAMA Land Use Classification.....Urban & Conservation
100-yr Floodplain exists on site.....AE9
Proposed Use.....Commercial

Building Setbacks:
Required:
Front Setback.....50 feet
Rear Setback.....35 feet
Side Setback.....0 feet
Provided:
Front Setback.....98 feet
Rear Setback.....235 feet
Side Setback.....15 feet

Number of Buildings:
Existing.....1
Proposed.....1
Building lot coverage.....3.76%

Building Height:
Max. Height Requirement .....35 feet
Building Height Provided:
Existing Building Height.....18 feet
Proposed Building Height.....20 feet

Dimensional Requirements:
Min. lot area.....none
Min. lot width.....none
Max lot coverage.....N/A

Impervious Surface:
Existing Impervious Area:
Building.....1,580 SF
Asphalt/Gravel.....3,685 SF
Concrete.....70 SF
Proposed Impervious Area:
Building.....6,600 SF
Asphalt/Gravel.....109,435 SF
Concrete.....350 SF
Total Impervious Area.....121,720 SF
Percent Impervious Area:
Before development.....2.45%
After development.....55.89%

Off Street Parking:
Minimum Parking Required.....27
(1 space per 300 sf gfa)
Maximum Parking Required.....41
(1 space per 200 sf gfa)
Total Parking Provided.....28

Water and Sewer Capacity Needs
Proposed Water Flow.....375 gpd
(25 gpd / employee = 25 gpd x 15 employees)
Proposed Sewer Flow.....375 gpd
(25 gpd / employee = 25 gpd x 15 employees)

LEGEND

- ECM — EXISTING CONCRETE MONUMENT
- EXISTING IRON PIPE OR REBAR
- TBM — TEMPORARY BENCH MARK
- EXISTING SAN. SEWER CLEANOUT
- EXISTING SAN. SEWER MANHOLE
- EXISTING WATER METER
- WV — EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT
- 36.51 — EXISTING SPOT ELEVATION
- 36.50 — PROPOSED SPOT ELEVATION
- 18 — EXISTING CONTOUR
- 18 — PROPOSED CONTOUR
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- 1 — PROPOSED STORM STRUCTURE NUMBER
- PROPOSED WATER METER
- PROPOSED SANITARY SEWER CLEANOUT
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE AREA
- LIMITS OF CONSTRUCTION

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

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
SIGNED _____

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

No.	DATE	REVISIONS DESCRIPTION

PLAN DATE
05-31-13
04-11-14

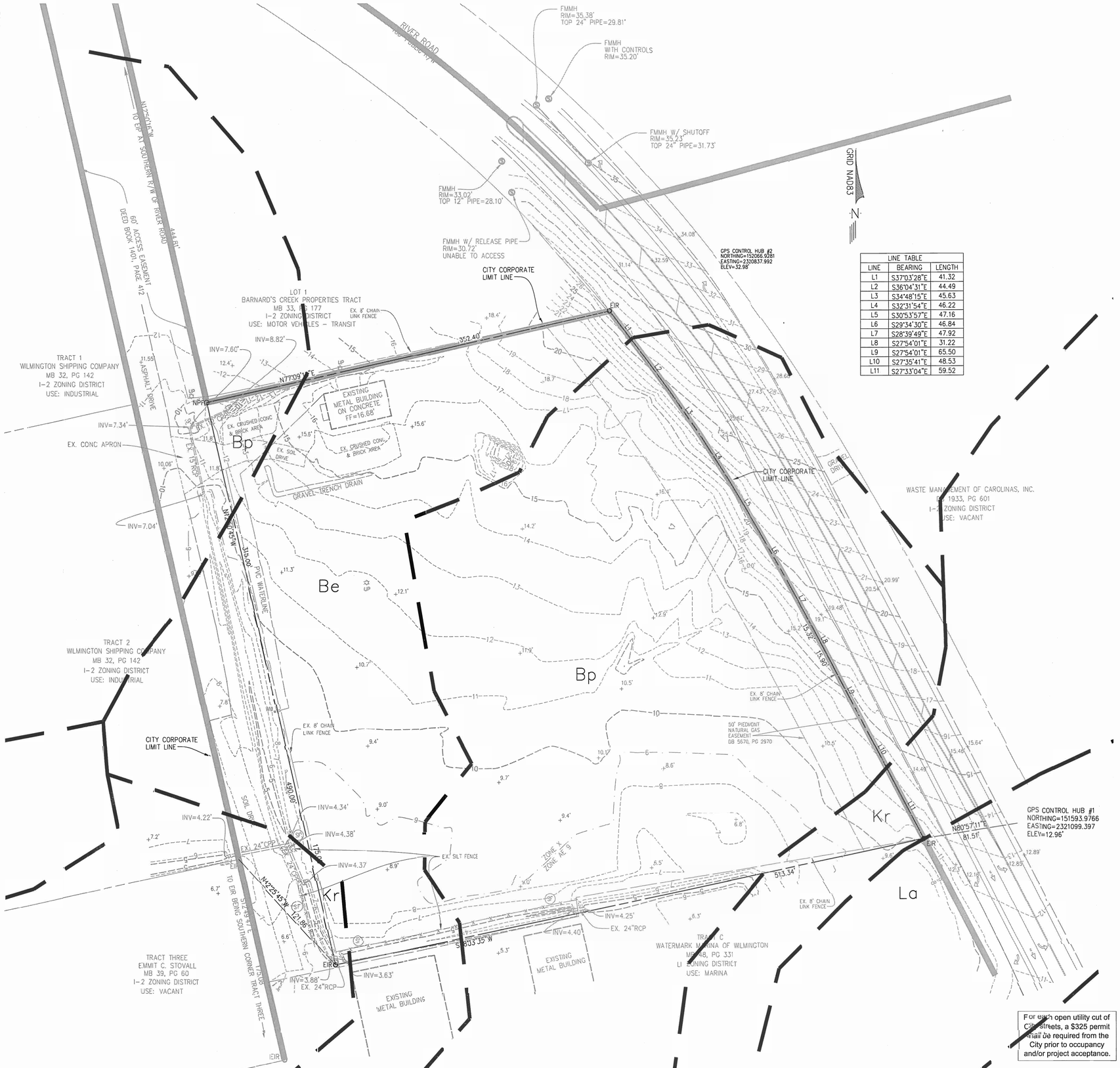
C. LAWRENCE SNEEDEN, JR., P.E.
6217 Head Road
Wilmington, NC 28409
Tel. 910.520.1835
lsneeden@coastalstormwater.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10972 C. LAWRENCE SNEEDEN, JR. 6/11/14

MISCELLANEOUS DETAILS AND NOTES
4 SEASONS SITE AND DEMO, INC.
CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA
DATE: May, 2013
C.I. =N/A
SCALE: N/A

SHEET 2 OF 12

FILE No. 13002



LINE TABLE		
LINE	BEARING	LENGTH
L1	S37°03'28"E	41.32
L2	S36°04'31"E	44.49
L3	S34°48'15"E	45.63
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L5	S30°53'57"E	47.16
L6	S29°34'30"E	46.84
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L8	S27°54'01"E	31.22
L9	S27°54'01"E	65.50
L10	S27°35'41"E	48.53
L11	S27°33'04"E	59.52

SITE INVENTORY NOTES:

1. **PREPARER OF THE PLAN:** *C. LAWRENCE SNEEDEN, JR., P.E.*
2. **APPLICANT NAME:** *4 SEASONS SITE AND DEMO, INC.*
3. **SITE ADDRESS OF THE DEVELOPMENT:** *4004 RIVER ROAD*
4. **PROPERTY OWNER:** *4 SEASONS SITE AND DEMO, INC.*
5. **DEVELOPER:** *4 SEASONS SITE AND DEMO, INC.*
6. **PROPERTY BOUNDARY:** *SEE PLAN*
   TAX PARCEL INFORMATION: *R07000-002-007-000*
7. **PROPERTY ZONING:** *LI*
8. **ADJACENT PROPERTY OWNER INFORMATION:** *SEE PLAN*
9. **VICINITY MAP:** *SEE COVER SHEET*
10. **TOPOGRAPHY:** *SEE PLAN*
11. **100-YEAR FLOOD BOUNDARY:** *AE 9 and X (SEE PLAN)*
12. **EXISTING DITCHES, CREEKS, AND STREAMS:** *SEE PLAN*
13. **SOIL:** *Bp - BORROW PITS, Be - BAYMEADE FINE SAND AND Kr - KUREB SAND*
14. **CAMA AEC:** *N/A*
15. **CAMA LAND CLASSIFICATION:** *URBAN and CONSERVATION*
16. **CONSERVATION RESOURCES:** *None*
    AND ASSOCIATED SETBAKS: *N/A*
17. **HISTORIC OR ARCHAEOLOGICAL SITE:** *N/A*
18. **CEMETERIES, BURIAL SITES/GROUNDS:** *N/A*
19. **FORESTED AREAS, HABITAT, AND DOMINANT SPECIES:** *N/A*
20. **WETLANDS:** *None*
21. **PROTECTED SPIECES OR HABITAT:** *N/A*
22. **EXISTING OR PROPOSED THOROUGHFARES, BIKE ROUTES, PEDESTRIAN SIDEWALKS OR TRAILS AND TRANSIT FACILITIES:** *SEE PLAN*
23. **NO EXISTING TREES ON SITE**

SEE SHEET 2 FOR LEGEND

SCALE : 1"=40'

40 0 20 40 80 160

GRAPHIC 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.

Approved Construction Plan

	Name	Date
Planning		
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Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
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No.	DATE	REVISIONS
		DESCRIPTION

PLAN DATE
05-31-13
04-11-14

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6217 Head Road
Wilmington, NC 28409
Tel. 910.520.1835
lsneeden@coastalstormwater.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10917 C. LAWRENCE SNEEDEN, JR.
6/11/14

EXISTING CONDITIONS AND SITE INVENTORY PLAN

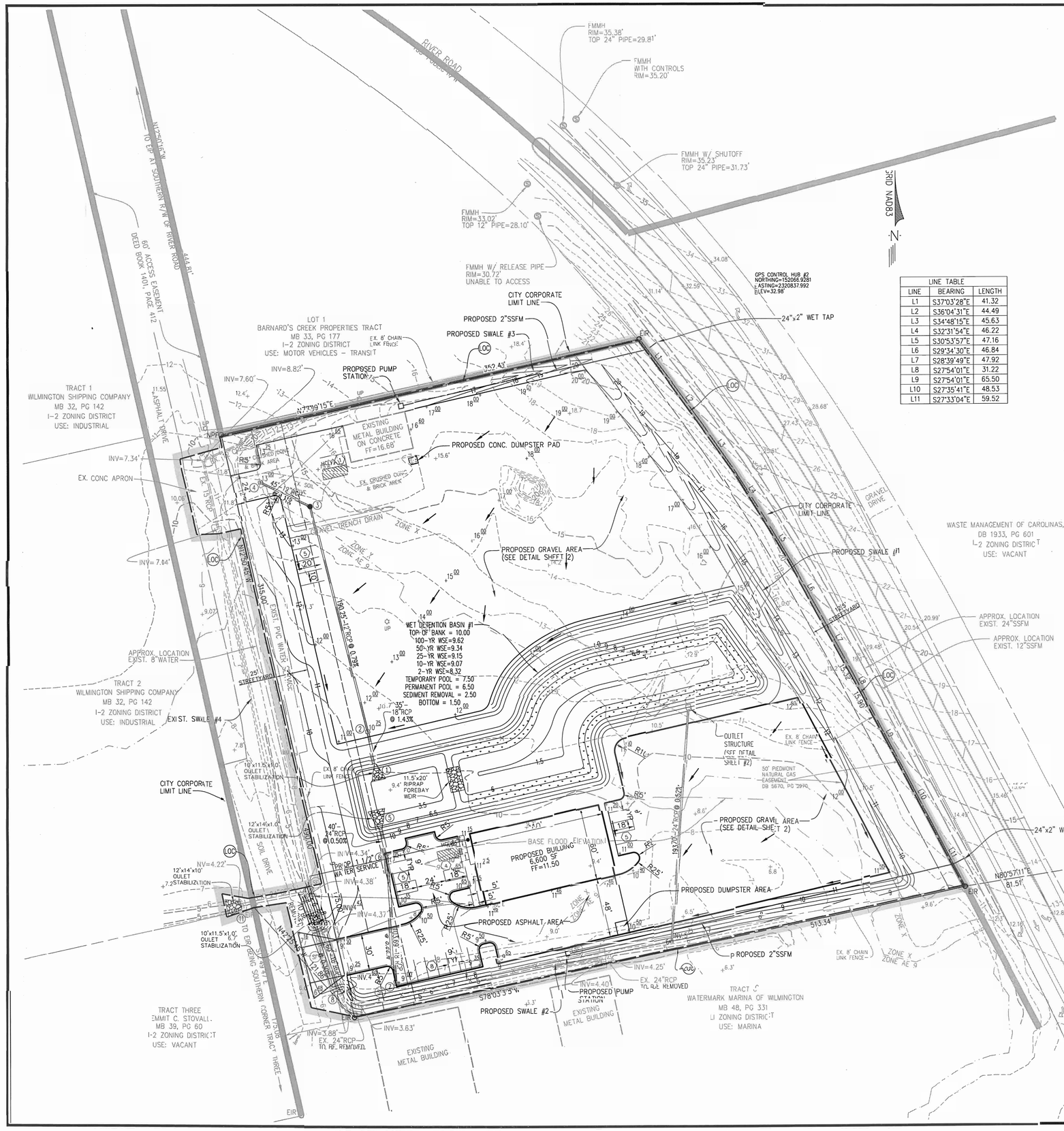
4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: 1"=40' C.I. =1' DATE: May, 2013

SHEET
3
OF
12

FILE No.
13002



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04-11-14

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Wilmington, NC 28409
Tel. 910.520.1835
lsneeden@coastalstormwater.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10912 C. LAWRENCE SNEEDEN, JR.

SITE LAYOUT GRADING AND DRAINAGE PLAN

4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

DATE: May, 2013
C.I. =1'
SCALE: 1"=40'

SHEET
4
OF
12

FILE No.
13002

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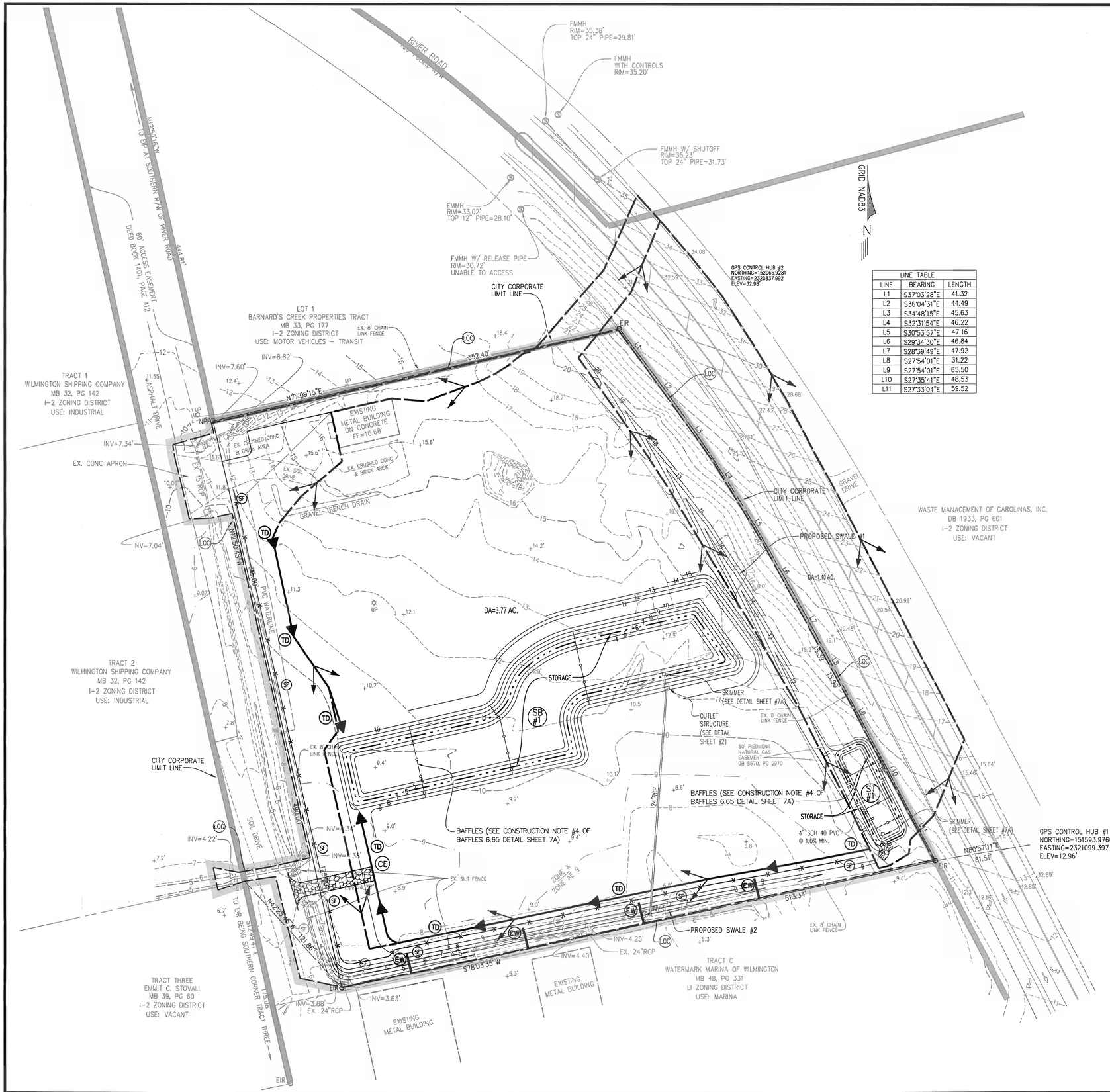

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FOR EROSION CONTROL PURPOSES ONLY

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

No.	DATE	REVISIONS
1	10-04-13	NNC EROSION CONTROL COMMENTS

PLAN DATE
06-28-13
10-04-13
04-11-14

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Wilmington, NC 28409
Tel. 910.520.1835
lsneeden@coastalstormwater.com

NORTH CAROLINA PROFESSIONAL SEAL 10972 ENGINEER C. LAWRENCE SNEEDEN, JR.

EROSION CONTROL PHASE 1 PLAN

4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: 1"=40' C.I. =1' DATE: May, 2013

SHEET
5
OF
12

FILE No.
13002

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GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

FOR EROSION CONTROL PURPOSES ONLY

No.	DATE	REVISIONS
1	10-04-13	WIC EROSION CONTROL COMMENTS

PLAN DATE
06-28-13
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04-11-14

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EROSION CONTROL PHASE 2 PLAN

4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: 1"=40' C.I. =1' DATE: May, 2013

SHEET 6 OF 12

FILE No. 13002

PROJECT DESCRIPTION
The purpose of this project consists of clearing, grading, and construction of a building, asphalt and gravel parking and access, gravel storage area and a stormwater management system. The site consists of one (1) tract totaling 5.00 acres in New Hanover County, North Carolina. Approximately 5.00 acres will be disturbed on this site.

EXISTING SITE CONDITIONS
The site consists of sandy soils (Baymeade Fine Sand and Kureb sand) as well as Borrow Pits with well drained soils. All sediment control measures are placed to utilize the existing condition of the land to minimize sediment runoff.

ADJACENT PROPERTY
The site is bounded by River Road to the northeast; an access easement and industrial uses to the west and industrial uses to the north and south.

OFF-SITE AREAS
Topsoil must be stripped from graded areas and stockpiled for use in final grading and permanent stabilization. The stockpiles may have to be kept off site to stay clear of all construction activity. The stockpile shall be stabilized with temporary vegetation to prevent soil loss and sediment transport from the stockpile itself until needed. Prior to land-disturbing activities, it may become necessary for the contractor to submit a supplementary E&S plan to the owner covering the off-site stockpile area which would have to be approved by the plan approving authority before any off-site activity commences. Any off-site area utilized requires a valid grading permit.

PERMITS:
Prior to initiation grading or other on-site activities on any portion of this lot or parcel, all associated permits required by Federal, State and local laws and regulations shall be obtained and evidence of such permits submitted to the County. The approval of an erosion and sediment control permit shall not relieve the owner or applicant of any applicable local, State or Federal permit requirements.

SOILS
The project area consists of Borrow Pits (Bp), Baymeade Fine Sand (Be) and Kureb Sand (Kr). Both soil types are nearly level, poorly drained soil. Typically, Be surface layer is dark gray fine sand 3 inches thick. The subsurface layer is fine sand 33 inches thick. The subsoil is 22 inches thick. It is strong brown fine sandy loam in the upper part and strong brown loamy fine sand in the lower part. The underlying layer, to a depth of 78 inches, is mottled white and very pale brown fine sand in the upper part and very pale brown fine sand and loamy fine sand in the lower part. Typically, Kr surface layer is dark gray and 3 inches thick. The subsurface layer is light gray sand 23 inches thick. The underlying layer, to a depth of 89 inches, is brownish yellow sand in the upper part and pale brown sand in the lower part.

EROSION AND SEDIMENT CONTROL MEASURES
Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained according to the New Hanover County Erosion and Sediment Control Ordinance and the North Carolina Erosion and Sediment Control Planning and Design Manual.

STRUCTURAL PRACTICES

1. Silt Fence Barrier – 6.62
Silt fence will be installed in phase I & II of the E&S plan.

2. Temporary Construction Entrance – 6.06
A temporary construction entrance with a wash rack shall be installed. During muddy conditions, drivers of construction vehicles will be required to wash their wheels before entering the local roadways.

3. Storm Drain Inlet Protection – 6.51
All storm sewer inlets shall be protected during construction. Sediment-laden water shall be filtered before entering the storm sewer inlets.

4. Temporary Sediment Trap – 6.60
A temporary ponding basin to detain sediment-laden runoff and trap the sediment to protect receiving streams, lakes, drainage systems, and protect adjacent property.

VEGETATIVE PRACTICES

1. Topsoiling from Phase I (Stockpile) – 6.04
Topsoil will be stripped from areas to be graded and stockpiled for later use.

2. Temporary Seeding – 6.10.1
All denuded areas, which will be left dormant for extended periods of time, shall be seeded with fast germinating temporary vegetation immediately following grading. Selection of the seed mixture will depend on the time of year it is applied.

3. Erosion Control Blanket – 3.36 or Mulch – 3.35
Erosion control blankets will be installed over fill slopes, which have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas and will be applied as a second step in the seeding operation.

SEDIMENT CONTROL PROGRAM (PHASE ONE):
The Phase One Erosion Control Plan is intended to establish entrances and perimeter control measures, which include Silt Fence (SF), Stone Construction Entrance (CE), and other controls specified on the plans. All erosion and sediment control measures are to comply with all applicable Federal, State, and local regulations.

1. Pre-construction meeting with developer, contractor and New Hanover County Engineering.

2. Install temporary construction entrances with wash racks. Mud and debris shall be washed from all construction equipment exiting the site. Any dirt carried onto public roadways shall be cleaned at the end of each day by sweeping and scraping before flushing.

3. Install controls in the form of Silt Fence as shown on the E&S Phase One plan. Seed and mulch all earthen controls.

4. Install temporary sediment traps.

5. Upon completion of the installation of the temporary diversions and perimeter controls, the contractor can then clear the site to the limits shown on the E&S Plans.

6. Commence construction of storm drain collection system and begin grading of the site. Contractor shall evaluate site to determine extensive cut and fill areas and shall work these areas to minimize from Phase II the extent of heavy equipment work. Contractor shall strive to bring areas to grade and to stabilize these disturbed areas prior to beginning work in another area.

7. Temporary soil stabilization shall be applied within seven (7) calendar days to denuded areas that may not be at final grade.

8. All slopes shall be seeded and stabilized within 21 days of construction.

9. More stringent measures shall be used to halt erosion if those shown on plan are not effective.

SEDIMENT CONTROL PROGRAM (PHASE TWO):
The Phase Two Sediment Measures are intended to provide controls during the final stages of improvements. It is anticipated that Phase One Controls will remain in place until their removal is required to construct the proposed improvements.

1. Once site grading is brought near to final grade and storm drainage system construction, the remaining Inlet Protection Measures shall be installed.

2. Fill slopes shall be left in a roughened condition to reduce sheet and rill erosion of the slopes. The contractor shall redirect concentrated flow away from the fill slopes by installing earth berms and outletting the runoff to a stabilized outlet or sediment trapping device.

3. In pavement areas, place the aggregate base on the finished subgrade at the earliest possible time. Paving shall begin at the earliest possible time in order to stabilize the site.

4. With the completion of all land disturbing and construction activities and permanent ground stabilization completed the remaining erosion and sediment controls may be removed.

PERMANENT STABILIZATION
All areas disturbed by construction shall be stabilized with permanent seeding immediately following finished grading. Erosion control blankets will be installed over fill slopes, which have been brought to final grade and have been seeded to protect the slopes from rill and gully erosion and to allow seed to germinate properly. Mulch (straw or fiber) will be used on relatively flat areas. In all seeding operations, seed, fertilizer and lime will be applied prior to mulching.

STORMWATER MANAGEMENT
See Stormwater Narrative this sheet.

MAINTENANCE
The following is a program of maintenance for the mechanical controls specified in this narrative and on the plan:

1. The site superintendent or his representative shall conduct a visual inspection of all mechanical controls and newly stabilized areas (i.e. seeded or sodded areas) on a daily basis (especially after a heavy rainfall) to insure that all controls are in place and that none have been damaged. Any damaged control shall be repaired prior to the end of the work day to include reseeding or resodding if necessary.

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. All silt trapping facilities shall be cleaned out at 50% trap capacity and sediment shall be disposed of by spreading on site (or hauling away if not suitable).

4. All seeded areas will be fertilized, reseeded as necessary and mulched according to specifications to maintain a vigorous, dense vegetative cover. All slopes will be stabilized within 21 calendar days. All other area will be stabilized within 15 working days.

5. After all construction operations have ended, and all disturbed areas are stabilized, mechanical sediment controls shall be removed and the ground shall be restored, including establishment of vegetation to its natural or proposed condition.

LAND CONSERVATION NOTES:

1. No disturbed area will remain denuded for more than 7 calendar days unless otherwise authorized by the director or his agent.

2. All erosion and sediment control measures are to be placed prior to or as the first step in grading. First areas to be cleared are to be those required for the perimeter controls.

3. All storm sewer lines not in the streets are to be mulched and seeded within 5 days after backfill. No more than 500 feet are to be open at any one time.

4. All temporary earth berms, diversions and sediment control dams are to be mulched and seeded for temporary vegetative cover immediately after grading. Straw or hay mulch is required. The same applies to all soil stockpiles.

5. During construction, all storm sewer inlets shall be protected by inlet protection devices, and maintained/ modified as required by construction progress.

6. Any disturbed area not covered by note #1 above and not paved, sodded or built upon by November 1st or disturbed after that date is to be mulched with hay or straw mulch at the rate of two tons per acre and over-seeded no later than March 15th.

7. At the completion of construction project, all temporary sediment and erosion controls shall be removed and all disturbed areas shall be stabilized.

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 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 maximum with the use of extra strength fabric, without wire backing. Stake spacing will be 8 feet maximum 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 the sediment trap 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.
7. Sediment will be remove 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 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. 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. (Land Quality)
9. Flocculants will be used to address turbidity issues. The pumps, tanks, hoses and injection systems will be checked for problems or turbid discharges daily.
10. See NPDES STABILIZATION TIMEFRAMES table for seeding deadlines for water quality.

NPDES STABILIZATION TIMEFRAMES

Site Area Description	Stabilization	Timeframe Exceptions
Perimeter Dikes, swales, ditches and slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones

STORMWATER NARRATIVE

THE SITE IS CLEAR WITH AN EXISTING BUILDING AND GRAVEL PARKING AREA. THE SITE IS BOUNDED BY RIVER ROAD TO THE NORTHEAST; AN ACCESS EASEMENT AND INDUSTRIAL USES TO THE WEST; AND INDUSTRIAL USES TO THE NORTH AND SOUTH. THE SITE IS LOCATED IN A SPECIAL 100-YEAR FLOOD HAZARD AREA. THE SITE HAS SANDY SOILS WITH WELL DRAINED SOILS.

THE PROJECT IS NEW DEVELOPMENT CONSISTING OF CLEARING, GRADING AND THE CONSTRUCTION OF A BUILDING, ASPHALT AND GRAVEL PARKING AND ACCESS, AND GRAVEL STORAGE AREA. THE DISTURBED AREA IS APPROXIMATELY 5.00 ACRES.

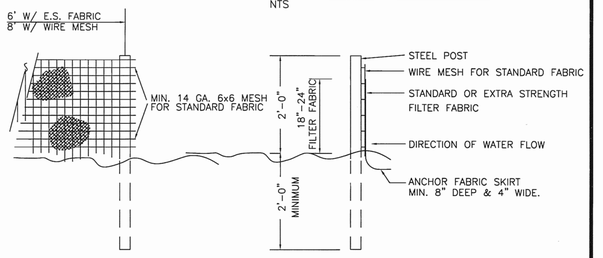
STORMWATER WILL SHEET FLOW AND BE COLLECTED IN A CLOSED CONDUIT SYSTEM AND DISCHARGES TO A PROPOSED WET DETENTION BASIN.

THE WET DETENTION BASIN IS ADEQUATELY ENGINEERED TO CONTROL AND TREAT THE STORMWATER RUNOFF FROM ALL IMPERVIOUS SURFACES GENERATED BY 1" OF RAINFALL. THIS VOLUME WILL DRAW DOWN WITHIN 2-5 DAYS. THE WET DETENTION BASIN ALSO DETAINS THE 2-, 10-, AND 25-YEAR STORM EVENT AT OR BELOW THE PRE-DEVELOPED DISCHARGE RATE.

THE PROJECT DRAINS TO THE CAPE FEAR RIVER BASIN WHICH HAS A C;Sw CLASSIFICATION AND STREAM INDEX NO. 18-(63). THERE IS NO DIRECT DISCHARGE FROM IMPERVIOUS SURFACES TO A WATERCOURSE.

TEMPORARY SEDIMENT FENCE 6.62

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 5' IN HEIGHT AND BE OF THE SELF-FASTENER STEEL ANGLE TYPE.
4. SOIL EXCAVATED FROM TRENCH TO BE PLACED UPSLOPE FROM THE FABRIC BARRIER.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE 6.06

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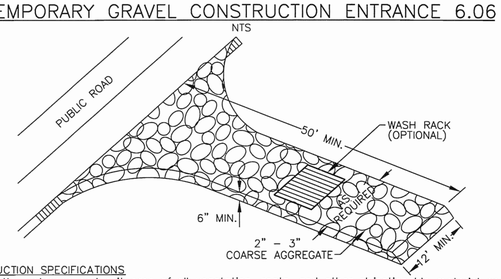

CONSTRUCTION SPECIFICATIONS
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics because they improve stability of the foundation in locations subject to seepage or high water table.

OUTLET STABILIZATION 6.41

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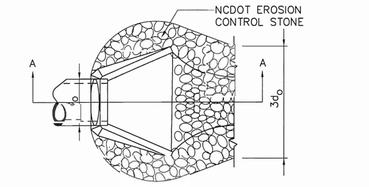
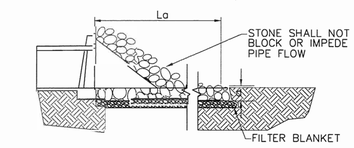


PLAN



SECTION A-A

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

NOTES:
1. La IS THE LENGTH OF THE RIPRAP APRON.
2. W = THE WIDTH OF THE RIPRAP APRON.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
4. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR THE TOP OF THE BANK, WHICHEVER IS LESS.
5. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

OUTLET STABILIZATION DATA

STR. #	Q_{10} (CFS)	La (ft)	W (ft)	d (ft)	PIPE SIZE (inch)
1	11.30	10	11.50	1.00	18
5	9.10	12	14.00	1.00	24
9	6.98	10	11.50	1.00	18
11	9.17	12	14.00	1.00	24

EROSION AND SEDIMENT CONTROL LEGEND

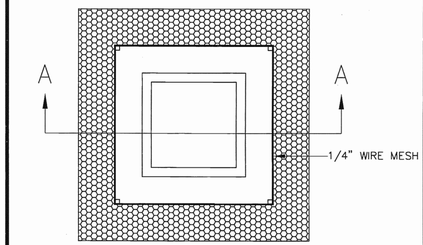
SEE SHEET 2 FOR NON SPECIFIC LEGEND

6.06	CONSTRUCTION ENTRANCE/EXIT	CE	
6.62	SEDIMENT FENCE	SF	
6.51 OR 6.52	STORM DRAIN INLET PROTECTION	IP	
6.41	OUTLET STABILIZATION STRUCTURE	OP	
6.20.1	TEMPORARY DIVERSION	TD	
--	EXCELSIOR WATTLE	EW	
--	DRAINAGE DIVIDE		

INLET PROTECTION 6.51

NTS

(TO BE USED AT DROP/YARD INLETS)



SECTION A-A
MULTI-DIRECTIONAL FLOW

NOTES:
1. SEDIMENT CONTROL STONE SHALL BE #5 OR #57.
2. WIRE MESH SHALL BE HARDWARE CLOTH 19 GAGE MIN. AND SHALL HAVE 1/4" MESH OPENINGS.

TEMPORARY/PERMANENT SEEDING SCHEDULE

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS.
2. RIP THE ENTIRE AREA TO A 6 INCH DEPTH.
3. REMOVE ALL ROCKS, ROOTS AND OTHER OBSTRUCTIONS LEAVING SURFACES SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME AND FERTILIZER UNIFORMLY AND MIX WITH SOIL:
   LIME: 45 LBS. PER 1000 S.F.
   PHOSPHOROUS: 20 LBS PER 1000 S.F.
   FERTILIZER: 17 LBS. PER 1000 S.F.
5. CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM, UNIFORM SEED BED IS PREPARED 4-6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY.
   2 - 3 LBS PER 1000 S.F. (SEE MIXTURE BELOW)
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
   GRAIN STRAW & HAY AT 75 TO 100 LBS PER 1000 S.F.
   WOOD CHIPS AT 500 LBS. PER 1000 S.F.
   JUTE & MESH AS PER MANUFACTURER
8. ASPHALT FOR ANCHORING MULCH SHALL BE TYPE SS-1 EMULSION AND EMULSION AND APPLIED AT A RATE OF 1000 GAL. PER ACRE FOR SLOPE STABILIZATION AND 150 GAL. PER TON OF STRAW FOR ANCHORING STRAW.
9. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE. IF GRASS STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
10. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE, TREATMENT, AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
11. SEED FOR TEMPORARY AND PERMANENT APPLICATIONS SHALL BE:
    20% CARPET GRASS
    24% BERMUDA GRASS
    20% TURF FESCUE
    10% CREEPING RED FESCUE
    24% ANNUAL RYE GRAIN
    *BERMUDA SEED SHALL BE HULLED FOR WARM WEATHER PLANTING. PURITY OF SEED SHALL BE A MIN. OF 98% AND TESTED GERMINATION RATE SHALL BE A MIN. OF 85%.

ALL DISTURBED AREA SHALL BE SEEDED WITHIN 21 DAYS OF THE COMPLETION OF GRADING.
CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS, OTHER SEEDING SCHEDULES MAY BE POSSIBLE.

No.	DATE	DESCRIPTION
		REVISIONS
1	10-04-13	NHC EROSION CONTROL COMMENTS

PLAN DATE
06-28-13
10-04-13
04-11-14

C. LAWRENCE SNEEDEN, JR., P.E.
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Wilmington, NC 28409
Tel. 910.520.1835
lsneeden@coastalstormwater.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10912 C. LAWRENCE SNEEDEN, JR. 6/11/14

EROSION CONTROL DETAILS

4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

DATE: May, 2013
SCALE: N/A
C.I. =N/A

SHEET 7 OF 12

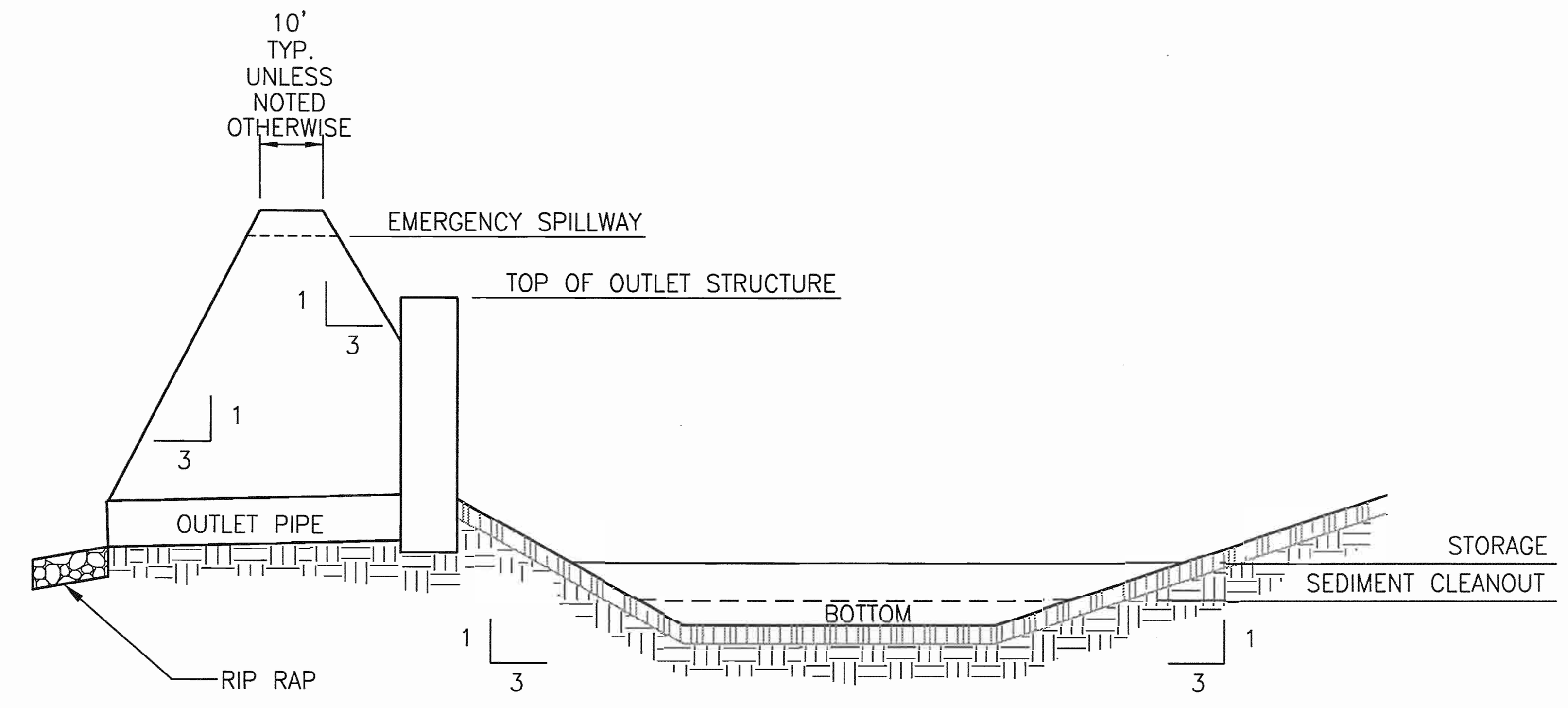
FILE No. 13002

TEMPORARY SEDIMENT BASIN 6.61

NTS

Basin #	Drainage Area (AC)	Disturbed Area (AC)	Volume Required (CF)	Volume Provided (CF)	Q (CFS)	Surface Area Required (SF)	Surface Area Provided (SF)	Bottom Elev. (FT)	Storage Elev. (FT)	Sediment Cleanout (FT)	Outlet Pipe (IN)	Velocity (FPS)
1	3.77	3.68	6,624	27,364	9.54	4,150	13,816	4.00	6.00	5.00	24	3.0

Storage Capacity: 1800 CF/AC
Surface Area: 435 SF/CFS of Q (10-yr) peak inflow
I=7.23 in/hr; C=0.35

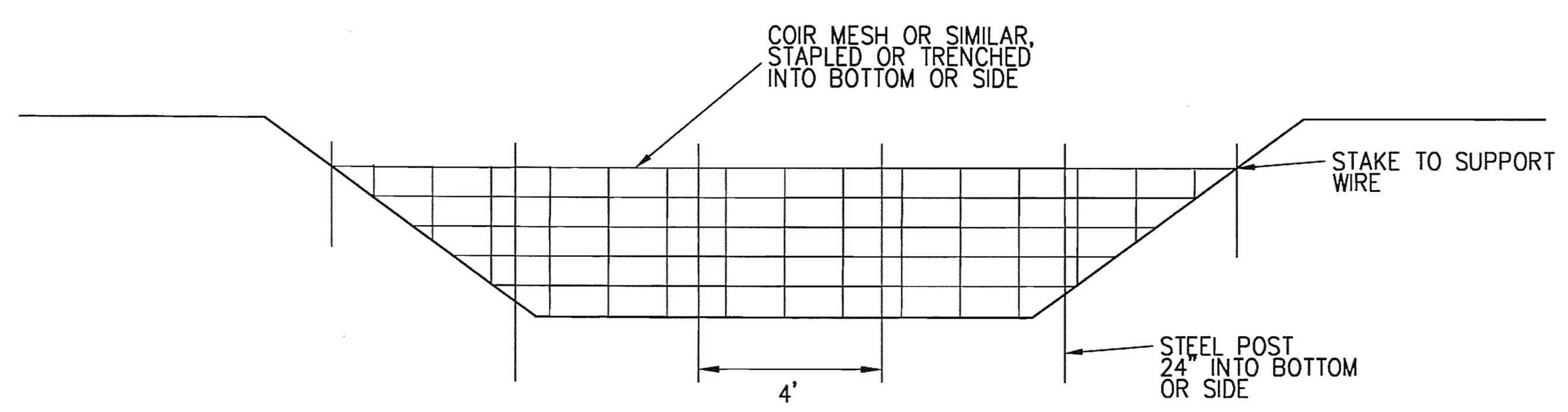


NOTES:

1. CONSTRUCT THE OUTLET STRUCTURE, OUTLET PIPE AND EMBANKMENT WITH EMERGENCY SPILLWAY AS PER THE DESIGN OF THE WET DETENTION BASIN.

BAFFLES 6.65

NTS



CONSTRUCTION NOTES:

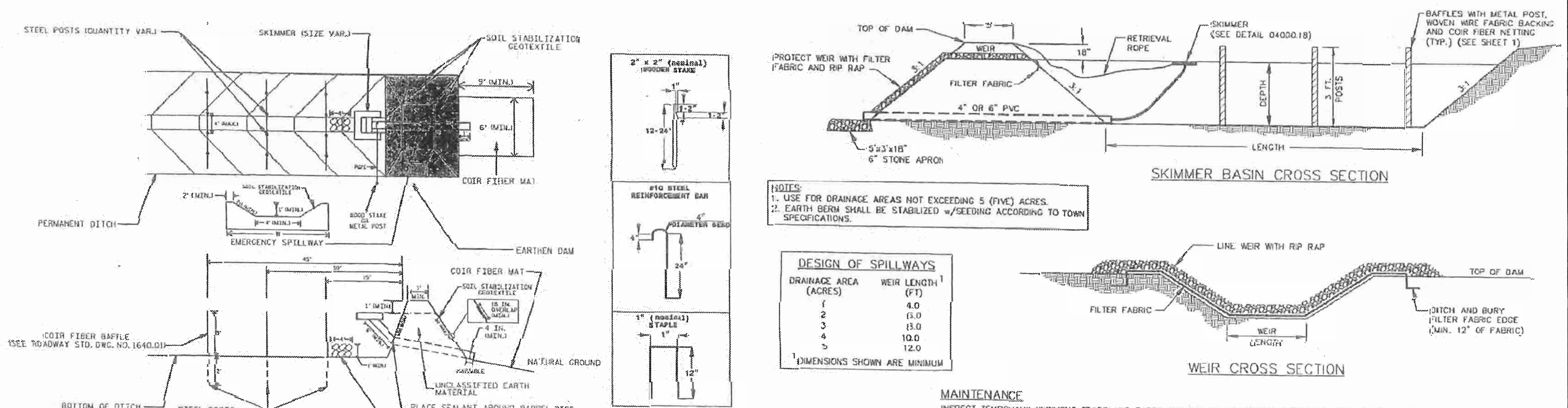
1. GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.
2. INSTALL POSTS ACROSS THE WIDTH OF THE SEDIMENT BASIN.
3. STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24 INCHES, SPACED A MAXIMUM OF 4 FEET APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE AT LEAST 6 INCHES HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE AT LEAST 2 INCHES LOWER THAN THE TOP OF THE BERMS.
4. INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND THE OUTLET DISCHARGE POINT. THE FIRST BAFFLE IS TO BE INSTALLED WITH 35% OF THE PONDS VOLUME UPSTREAM. THE SECOND BAFFLE IS TO BE INSTALLED WITH 60% OF THE PONDS VOLUME UPSTREAM. THE THIRD BAFFLE IS TO BE INSTALLED WITH 85% OF THE PONDS VOLUME UPSTREAM.
5. WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.
6. WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER THE TOP WIRE. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A ROPE AND A SUPPORT STRUCTURE WITH ZIP TIES, WIRE, OR STAPLES.
7. THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8-INCH EROSION CONTROL MATTING STAPLES.
8. DO NOT SPLICE FABRIC. USE A CONTINUOUS PIECE ACROSS THE BASIN.

MAINTENANCE NOTES:

1. INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE IN ANY WAY, REPLACE IT BEFORE NEXT RAIN EVENT.
3. REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.
4. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

SEDIMENT TRAP WITH SURFACE DEWATERING DEVICE DETAILS

NTS



NOTES
1. LIMIT EARTHEN DAM HEIGHT TO 5 FT.
2. DETERMINE EMERGENCY SPILLWAY LENGTH (FT.) USING Q/0.8, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
3. SOIL STABILIZATION GEOTEXTILE FOR EMERGENCY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

NOT TO SCALE

NOTES:
1. USE FOR DRAINAGE AREAS NOT EXCEEDING 5 (FIVE) ACRES.
2. EARTH BERM SHALL BE STABILIZED w/SEEDING ACCORDING TO TOWN SPECIFICATIONS.

DESIGN OF SPILLWAYS

DRAINAGE AREA (ACRES)	WEIR LENGTH[1] (FT)
1	4.0
2	6.0
3	8.0
4	10.0
5	12.0

[1] DIMENSIONS SHOWN ARE MINIMUM

MAINTENANCE

INSPECT TEMPORARY SEDIMENT TRAPS AND EMPTY SKIMMER OF ALL DEBRIS AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN A DESIGNATED DISPOSAL AREA. REPAIR NETTING.

CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.

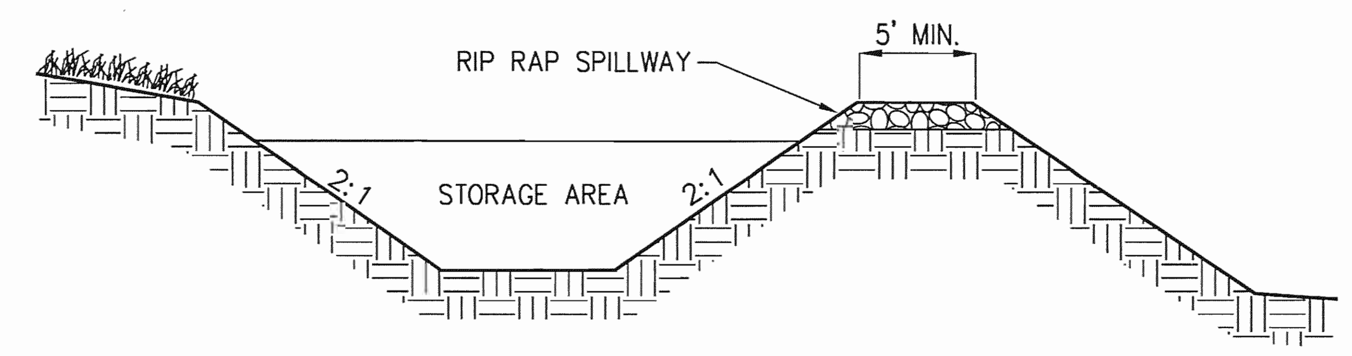
STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND DOWNSTREAM FROM THE TRAP IMMEDIATELY AFTER CONSTRUCTION WITH SEEDING.

TEMPORARY SEDIMENT TRAP 6.60

NTS

TRAP #	DRAINAGE AREA	DISTURBED AREA	VOLUME REQUIRED	VOLUME PROVIDED	Q (CFS)	SURFACE AREA REQUIRED	SURFACE AREA PROVIDED
1	1.4 AC.	0.49 AC.	1,764 CF	3,605 CF	3.54	1,540 SF	2,205 SF

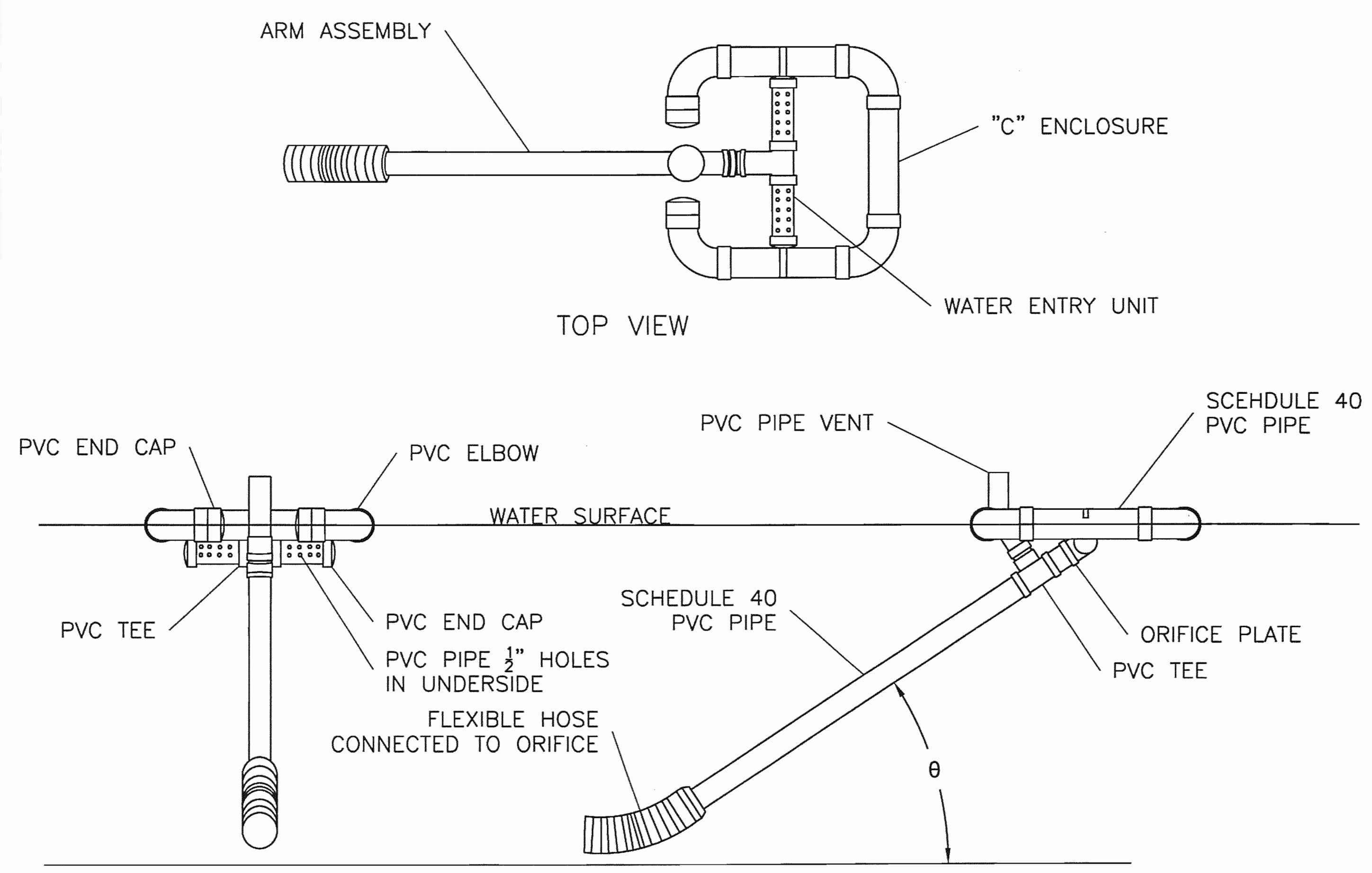
Storage Capacity: 3600 cf/ac; Surface Area: 435 sf/cfs of Q (10-yr) peak inflow; I=7.23 IN/HR; C=0.35



CROSS SECTION

FAIRCLOTH SKIMMER

NTS



Skimmer Size Calcs - Sediment Basin #1				
Volume = Volume of water to be drained above the Permanent Pool Elev.				
Width =	44	ft		
Length =	314	ft		
Depth =	4	ft		
Volume =	55,264	cu.ft.		
Determine Skimmer Size:				
Volume Required =	55,264	cf.		
Draw Down Time=	3	Days		
3 Day Draw Down:	4	in skimmer	From Chart:	60,327 cf.
Determine Orifice Size:				
3 Day Factor:	4,803			
3 Day Area of Orifice = Required Vol/ 3 Day Factor				
=	11.51	sq. in.		
3 Day Diameter of Orifice = (sqrt of (3 day orifice / ?)) x 2				
=	3.83	in		
Use:	4	inch skimmer with	4.0	inch orifice

Skimmer Size Calcs - Sediment Trap #1				
Volume = Volume of water to be drained above the Permanent Pool Elev.				
Width =	26	ft		
Length =	86	ft		
Depth =	2	ft		
Volume =	4,472	cu.ft.		
Determine Skimmer Size:				
Volume Required =	4,472	cf.		
Draw Down Time=	3	Days		
3 Day Draw Down:	1.5	in skimmer	From Chart:	5,184 cf.
Determine Orifice Size:				
3 Day Factor:	2,880			
3 Day Area of Orifice = Required Vol/ 3 Day Factor				
=	1.55	sq. in.		
3 Day Diameter of Orifice = (sqrt of (3 day orifice / ?)) x 2				
=	1.41	in		
Use:	1.5	inch skimmer with	1.50	inch orifice

EXCELSIOR WATTLE DETAIL

(NTS)

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

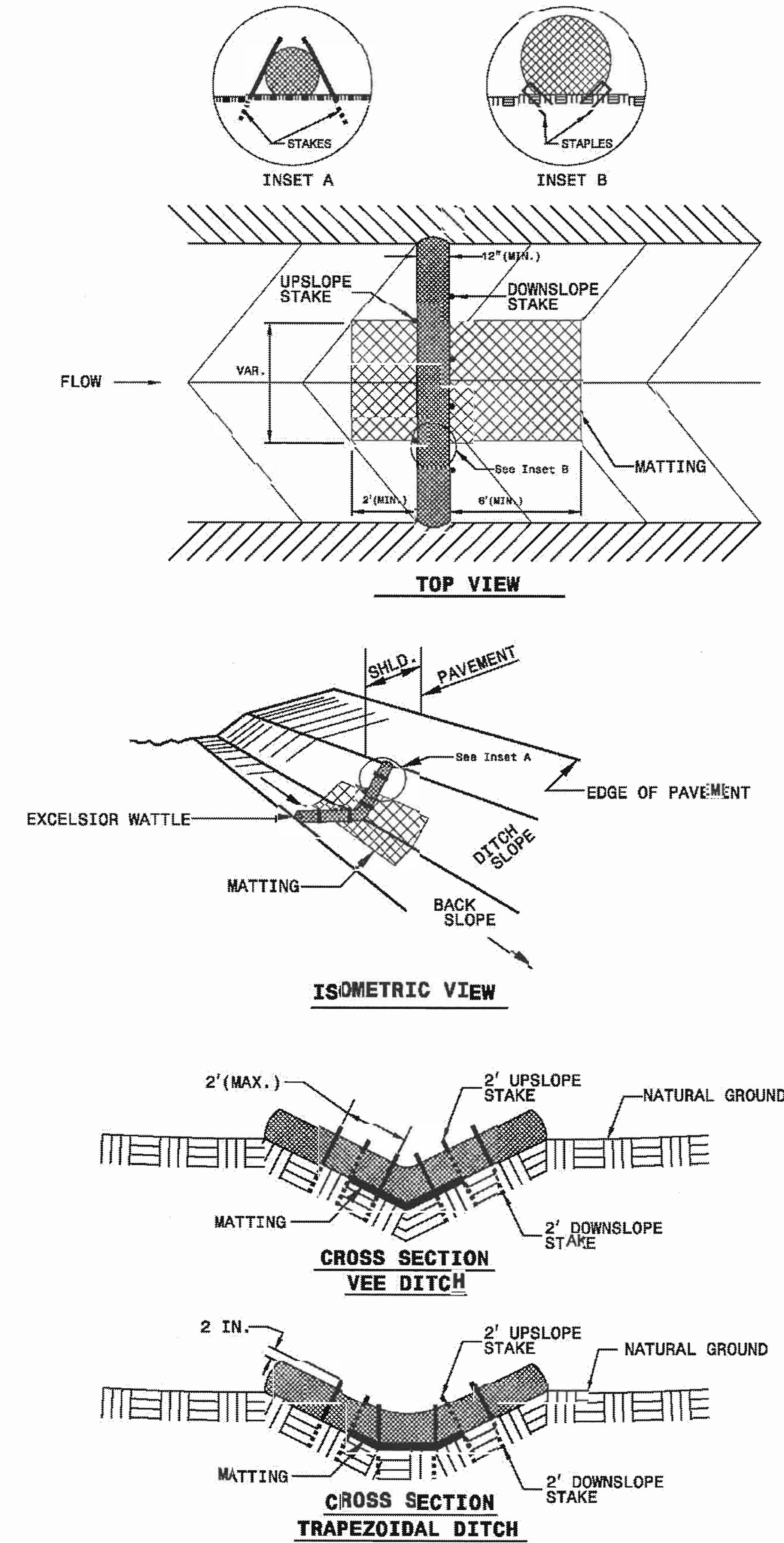
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

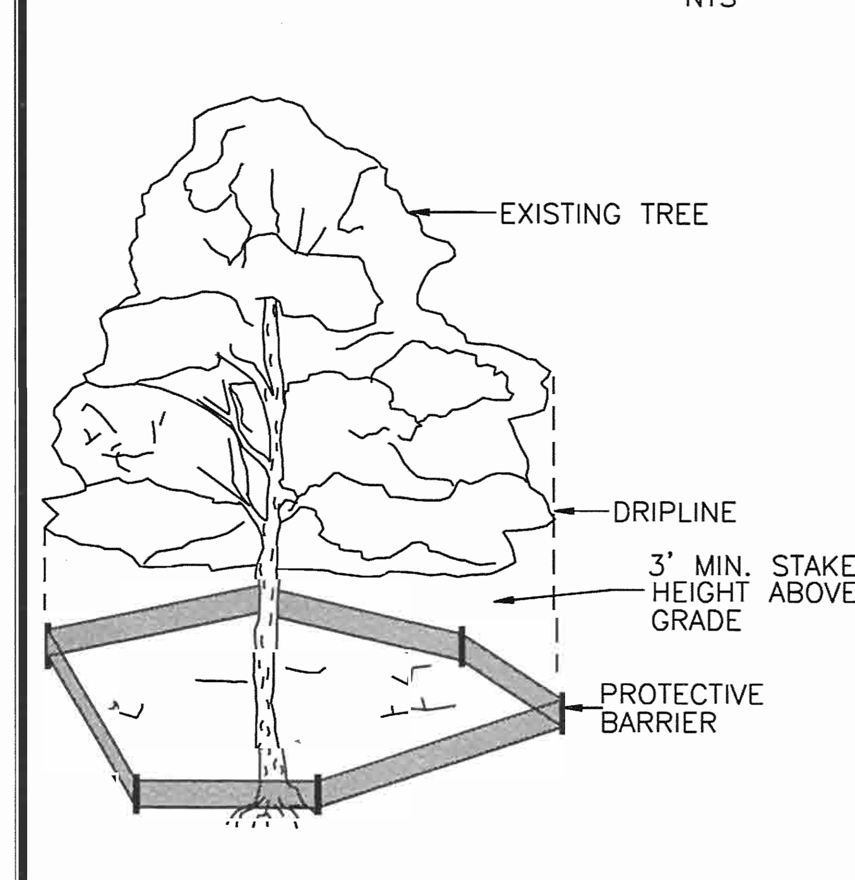
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



TREE PRESERVATION AND PROTECTION 6.05

NTS



NOTES:
1. PLACE BARRIERS TO PREVENT THE APPROACH OF EQUIPMENT WITHIN THE DRIPLINE OF TREES TO BE RETAINED.

2. DO NOT NAIL BOARDS TO TREES DURING BUILDING OPERATIONS.

3. DO NOT CUT TREE ROOTS INSIDE THE TREE DRIPLINE.

4. DO NOT PLACE EQUIPMENT, CONSTRUCTION MATERIALS, TOPSOIL, OR FILL DIRT WITHIN THE LIMIT OF THE DRIPLINE OF TREES TO BE SAVED.

5. IF A TREE MARKED FOR PRESERVATION IS DAMAGED, REMOVE IT AND REPLACE IT WITH A TREE OF THE SAME OR SIMILAR SPECIES, 2-INCH CALIPER OR LARGER, FROM BALLED AND BURLAPED NURSERY STOCK WHEN ACTIVITY IN THE AREA IS COMPLETE.

6. DURING FINAL SITE CLEANUP, REMOVE BARRIERS AROUND TREES.

No.	DATE	DESCRIPTION
2	04-11-14	NHC EROSION CONTROL COMMENTS
1	10-04-13	NHC EROSION CONTROL COMMENTS

REVISIONS

PLAN DATE
06-28-13
10-04-13
04-11-14

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10972 C. LAWRENCE SNEEDEN, JR.

EROSION CONTROL DETAILS

4 SEASONS SITE AND DEMO, INC.

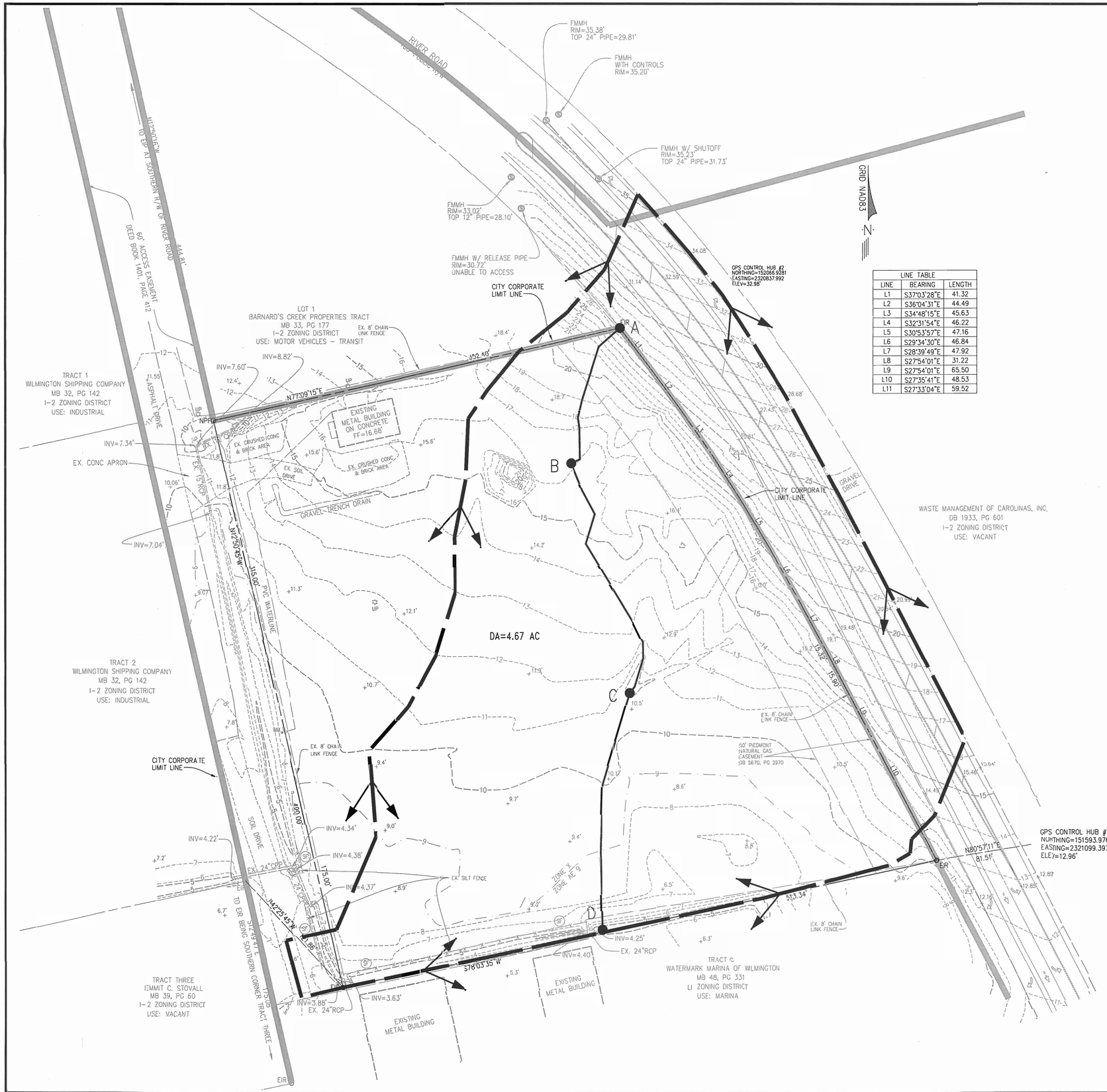
CITY OF WILMINGTON

NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: N/A C.I. =N/A DATE: May, 2013

SHEET 7A OF 12

FILE No. 13002



LINE TABLE		
LINE	BEARING	LENGTH
L1	S37°03'28"E	41.32
L2	S36°04'31"E	44.49
L3	S34°48'15"E	45.63
L4	S32°31'54"E	46.22
L5	S30°53'57"E	47.16
L6	S29°34'30"E	46.84
L7	S28°39'49"E	47.92
L8	S27°54'01"E	31.22
L9	S27°54'01"E	65.50
L10	S27°35'41"E	48.53
L11	S27°33'04"E	59.52

PRE-DEVELOPED TIME OF CONCENTRATION

	SHEET FLOW:	***SEGMENT ID***		**A TO B**
1	SURFACE DESCRIPTION (TABLE 3-1)			Grass
2	MANNING'S ROUGHNESS COEFF., n (TABLE 3-1)			0.15
3	FLOW LENGTH, L (TOTAL L < 300 ft)		ft	130
4	TWO-YR 24-HR RAINFALL, P		in	4.5
5	LAND SLOPE, s		ft/ft	0.1154
6	T = .007(nL)^.8/P^.5s^.4	**COMPUTE T**	**hr**	**0.0843**
	CHANNEL FLOW	***SEGMENT ID***		**B TO C**
7	CROSS SECTIONAL FLOW AREA, a		ft^2	1.38
8	WETTED PERIMETER, pw		ft	3.8
9	HYDRAULIC RADIUS, r = a/pw	COMPUTE r	ft	0.36
10	CHANNEL SLOPE, s		ft/ft	0.0093
11	MANNING'S ROUGHNESS COEFF., n			0.02
12	V = (1.49*r^(2/3)*s^(1/2))/n	COMPUTE V	ft/s	3.66
13	FLOW LENGTH, L		ft	214
14	T = L/(3600*V)	**COMPUTE T**	**hr**	**0.0163**
	SHALLOW CONCENTRATED FLOW:	***SEGMENT ID***		**C TO D**
15	SURFACE DESCRIPTION (PAVED OR UNPAVED)			UNPAVED
16	FLOW LENGTH, L		ft	203
17	WATERCOURSE SLOPE, s		ft/ft	0.0271
18	AVERAGE VELOCITY, V		ft/s	2.7
19	T = L/(3600*V)	**COMPUTE T**	**hr**	**0.0209**
20	***WATERSHED OR SUBAREA, T***	***TOTAL T***	***hr***	***0.1214***
			min	*7*
			use	**min** 5

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

NO.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE: 06-28-13, 04-11-14

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10972 C. LAWRENCE SNEEDEN, JR. 4-11-14

PRE-DEVELOPED DRAINAGE DIVIDE

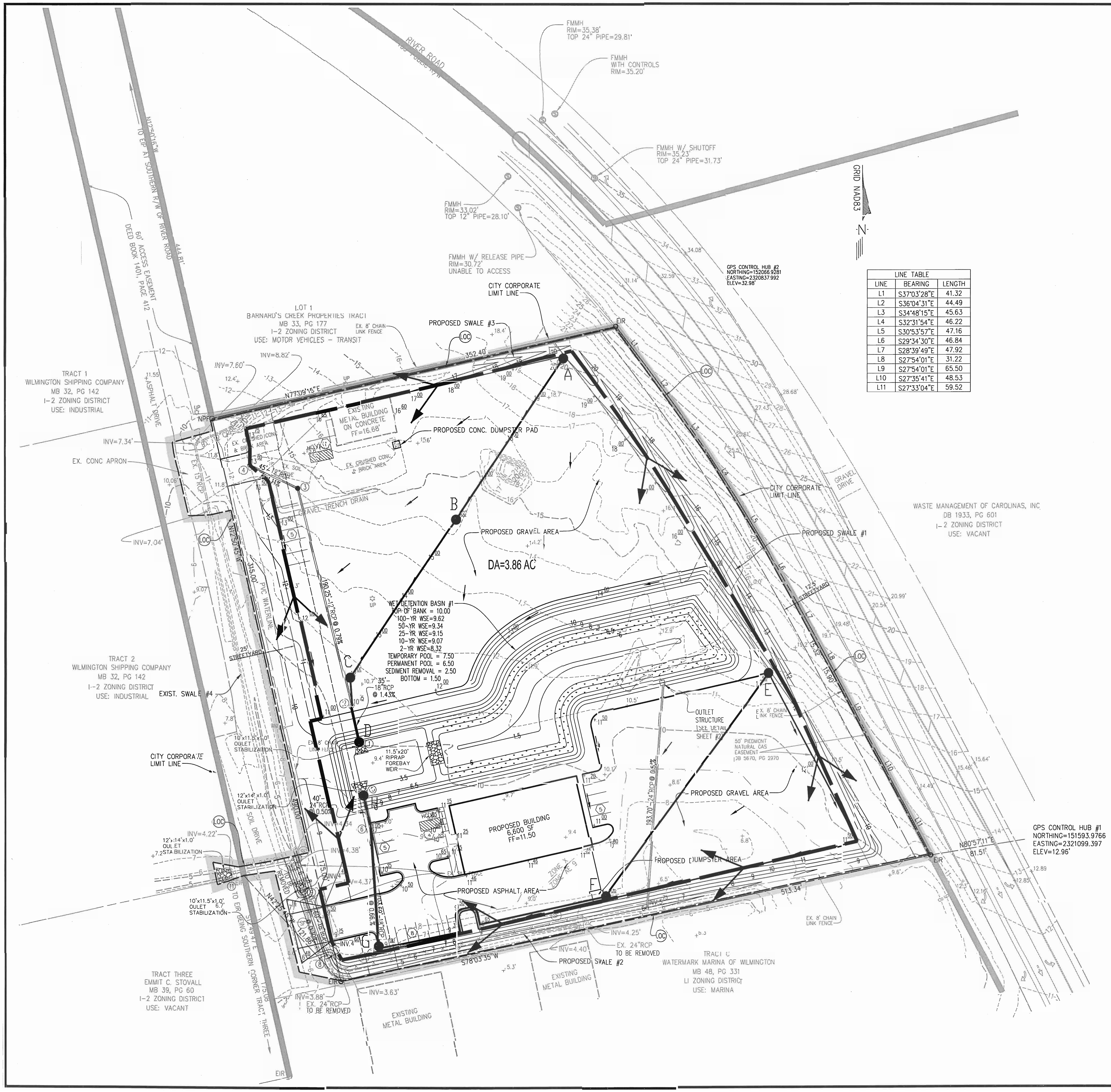
4 SEASONS SITE AND DEMC, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: 1"=40' C.I. =1' DATE: May, 2013

SHEET 8 OF 12

FILE No. 13002



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L7	S28°39'49"E	47.92
L8	S27°54'01"E	31.22
L9	S27°54'01"E	65.50
L10	S27°35'41"E	48.53
L11	S27°33'04"E	59.52

POSTDEVELOPED TIME OF CONCENTRATION

SHEET FLOW:		*SEGMENT ID*		**A TO B**
1	SURFACE DESCRIPTION			Gravel
2	MANNING'S ROUGHNESS COEFF., n			0.011
3	FLOW LENGTH, L (TOTAL L < 300 ft)		ft	150
4	TWO-YR 24-HR RAINFALL, P		in	4.5
5	LAND SLOPE, s		ft/ft	0.0267
6	T = .007(nL)^.8/P^.5s^.4	**COMPUTE T**	**hr**	**0.0210**
SHALLOW CONCENTRATED FLOW:		*SEGMENT ID*		**B TO C**
7	SURFACE DESCRIPTION (PAVED OR UNPAVED)			PAVED
8	FLOW LENGTH, L		ft	174
9	WATERCOURSE SLOPE, s		ft/ft	0.0230
10	AVERAGE VELOCITY, V		ft/s	3
11	T = L/(3600*V)	**COMPUTE T**	**hr**	**0.0161**
PIPE FLOW		*SEGMENT ID*		**C TO D**
12	FLOW LENGTH, L		ft	53
13	T = L/(3600*V) note: 3ft./sec velocity	**COMPUTE T**	**hr**	**0.0049**
14	***WATERSHED OR SUBAREA, T***	***TOTAL T***	***hr***	***0.0420***

use 5 min.

POSTDEVELOPED TIME OF CONCENTRATION

SHEET FLOW:		*SEGMENT ID*		**E TO F**
1	SURFACE DESCRIPTION			Gravel
2	MANNING'S ROUGHNESS COEFF., n			0.011
3	FLOW LENGTH, L (TOTAL L < 300 ft)		ft	233
4	TWO-YR 24-HR RAINFALL, P		in	4.5
5	LAND SLOPE, s		ft/ft	0.0086
6	T = .007(nL)^.8/P^.5s^.4	**COMPUTE T**	**hr**	**0.0470**
SHALLOW CONCENTRATED FLOW:		*SEGMENT ID*		**F TO G**
7	SURFACE DESCRIPTION (PAVED OR UNPAVED)			PAVED
8	FLOW LENGTH, L		ft	224
9	WATERCOURSE SLOPE, s		ft/ft	0.0067
10	AVERAGE VELOCITY, V		ft/s	2
11	T = L/(3600*V)	**COMPUTE T**	**hr**	**0.0311**
PIPE FLOW		*SEGMENT ID*		**G TO H**
12	FLOW LENGTH, L		ft	127
13	T = L/(3600*V) note: 3ft./sec velocity	**COMPUTE T**	**hr**	**0.0118**
14	***WATERSHED OR SUBAREA, T***	***TOTAL T***	***hr***	***0.0898***

use 5 min.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

No.	DATE	DESCRIPTION
		REVISIONS

PLAN DATE
06-28-13
04-11-14

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10972 C. LAWRENCE SNEEDEN, JR.
6/11/14

POST-DEVELOPED DRAINAGE DIVIDE

4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON

NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: 1"=40' C.I. =1' DATE: May, 2013

SHEET
9
OF
12

FILE No.
13002

STORM SEWER DESIGN COMPUTATIONS

Project: 4 Seasons Site and Demo Inc.

From Point	To Point	Drainage Area	C Factor	C x A Increment	C x A Cumm.	Inlet Time Min.	Rain Fall In/Hr	Runoff Q C.F.S.	Invert Elev. Upper End	Invert Elev. Lower End	Length FT.	Slope %	Dia. IN.	Capacity Q C.F.S.	VEL. F.P.S.	Flow Time MIN.	Remarks
4	3	0.11	0.9	0.10	0.10	5.00	8.15	0.81	9.00	8.50	45.0	1.11%	12	3.77	3.82	0.20	NCDOT Std. 840.14
3	2	0.00	0.9	0.00	0.10	5.00	8.15	0.81	8.50	7.00	190.3	0.79%	12	3.17	3.37	0.94	NCDOT Std. 840.52
2	1	1.43	0.9	1.29	1.39	5.00	8.15	11.30	7.00	6.50	35.0	1.43%	18	12.59	8.06	0.07	NCDOT Std. 840.14
*																	
7	6	1.14	0.9	1.03	1.03	5.00	8.15	8.36	6.90	6.20	103.7	0.68%	18	8.65	5.58	0.31	NCDOT Std. 840.02
6	5	0.10	0.9	0.09	1.12	5.00	8.15	9.10	6.20	6.00	40.0	0.50%	24	16.04	5.27	0.13	NCDOT Std. 840.02

HYDRAULIC GRADE LINE COMPUTATIONS

Project: 4 Seasons Site and Demo Inc.

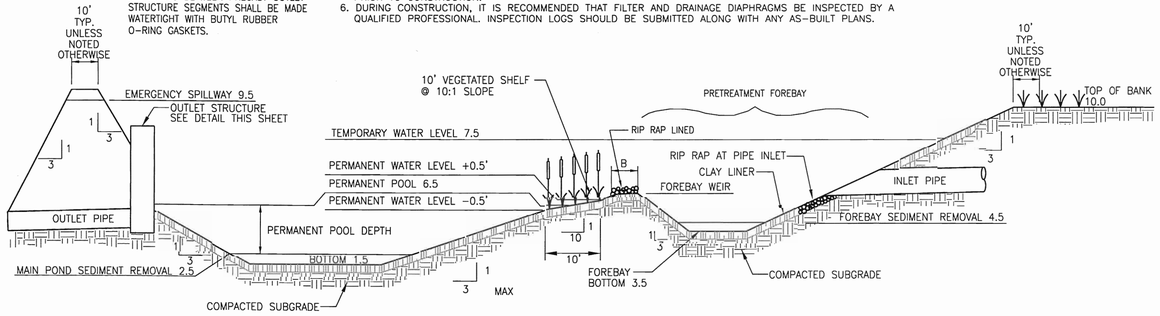
INLET STATION (1)	UPSTREAM INLET	Outlet Water Surface Elev. (2)	Do in (3)	Qo cfs (4)	Lo ft (5)	Sfo % (6)	Hf ft (7)	JUNCTION LOSS Vo (8)	Ho (9)	Qi (10)	Vi (11)	QiVi (12)	2 Vi /2g	Hi (13)	Angle (14)	Hd (15)	Ht (16)	1.3 Ht1 (17)	0.5 Ht (18)	FINAL H (19)	Inlet Water Surface Elev. (20)	RIM ELEV. (21)
1																			Starting Elevation		7.50	
2		7.50	18.00	11.30	35.00	1.15	0.40	6.39	0.16					0.01		0.00	0.16	0.21	0.11	0.51	8.01	10.75
	3		12.00							0.81	1.03	0.83	0.02		1.15							
3		8.01	12.00	0.81	190.25	0.05	0.10	1.03	0.00					0.00		0.00	0.00	0.01	0.00	0.10	8.11	12.00
	0									0.81	0.00	0.00	0.00		0.00							
5																			Starting Elevation		7.50	
6		7.50	24.00	9.10	40.00	0.16	0.06	2.90	0.03					0.12		0.02	0.18	0.23	0.11	0.18	7.68	10.05
	7		18.00							8.36	4.73	39.57	0.35		8.99							
7		7.70	18.00	8.36	103.69	0.63	0.65	4.73	0.09					0.00		0.00	0.09	0.11	0.06	0.71	8.41	9.00
	0									8.36	0.00	0.00	0.00		0.00							

WET DETENTION BASIN DETAIL

NOT TO SCALE

WET DETENTION BASIN NOTES:
1. RESTORE BASIN TO DESIGN SIZE AND SHAPE UPON COMPLETION OF CONSTRUCTION AND STABILIZATION OF SITE.
2. SEED FOR SLOPES SHALL BE 20% CARPET GRASS, 24% BERMUDA, 20% TURF FESCUE, 10% CREEPING RED FESCUE, AND 24% RYE. SEED AT RATE OF 2-3 LBS. PER 1000 SF.
3. THE VEGETATED SHELF SHALL BE PLANTED WITH A COMBINATION OF TWO OF THE FOLLOWING ON 3' CENTERS.
   1. SAWGRASS
   2. FOXTAIL
   3. SWEET FLAG
4. BASIN WILL BE DRAINED BY PUMPING INTO OUTLET STRUCTURE.
5. A GEOTECHNICAL ENGINEERING STUDY IS REQUIRED TO STUDY THE STABILITY OF THE PROPOSED EMBANKMENT PRIOR TO CONSTRUCTION.
6. DURING CONSTRUCTION, IT IS RECOMMENDED THAT FILTER AND DRAINAGE DIAPHRAGMS BE INSPECTED BY A QUALIFIED PROFESSIONAL. INSPECTION LOGS SHOULD BE SUBMITTED ALONG WITH ANY AS-BUILT PLANS.

NOTE: ALL JOINTS BETWEEN PRECAST OUTLET STRUCTURE SEGMENTS SHALL BE MADE WATERTIGHT WITH BUTYL RUBBER O-RING GASKETS.



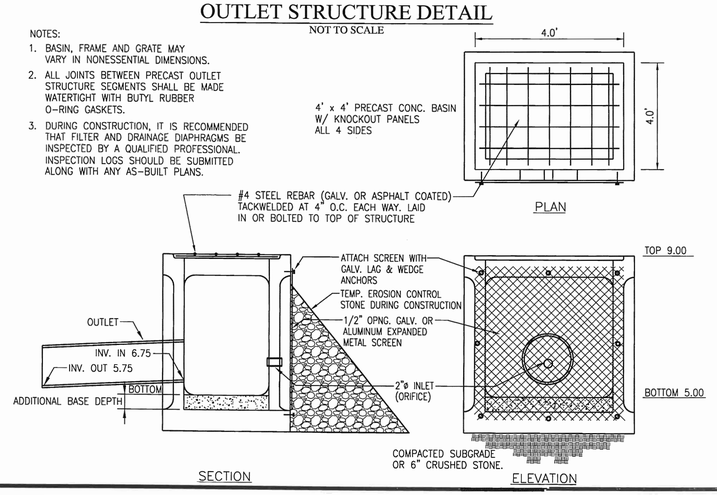
CONSTRUCTION SEQUENCE FOR WET DETENTION BASIN

1. PRIOR TO CONSTRUCTION OF WET DETENTION BASIN AN EROSION AND SEDIMENT CONTROL PERMIT MUST BE OBTAINED AND MEASURES INSTALLED. IF WET DETENTION BASIN IS USED FOR EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION, THE BASIN MUST BE CLEANED OUT PRIOR TO USE AS A WET DETENTION BASIN.
2. CLEAR, GRUB, AND STRIP THE AREA UNDER EMBANKMENT OF ALL VEGETATION AND ROOT MAT.
3. EXCAVATE BASIN.
4. CONSTRUCT EMBANKMENTS WITH CLEAN SELECT FILL MATERIAL.
5. INSTALL OUTLET STRUCTURE AND OUTLET PIPE.
6. INSTALL EMERGENCY SPILLWAY.
7. INSTALL OUTLET PROTECTION AT INLET OF BASIN.
8. DIVERT SURFACE WATER AWAY FROM BARE SURFACES.
9. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS IMMEDIATELY AFTER CONSTRUCTION.

OUTLET STRUCTURE DETAIL

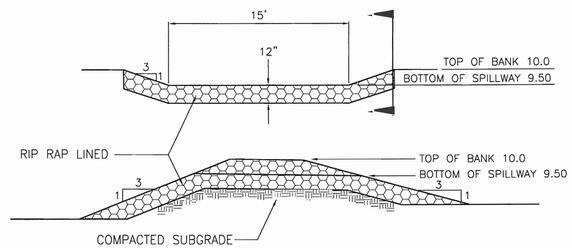
NOT TO SCALE

NOTES:
1. BASIN, FRAME AND GRATE MAY VARY IN NONESSENTIAL DIMENSIONS.
2. ALL JOINTS BETWEEN PRECAST OUTLET STRUCTURE SEGMENTS SHALL BE MADE WATERTIGHT WITH BUTYL RUBBER O-RING GASKETS.
3. DURING CONSTRUCTION, IT IS RECOMMENDED THAT FILTER AND DRAINAGE DIAPHRAGMS BE INSPECTED BY A QUALIFIED PROFESSIONAL. INSPECTION LOGS SHOULD BE SUBMITTED ALONG WITH ANY AS-BUILT PLANS.



EMERGENCY SPILLWAY DETAIL

NOT TO SCALE



SWALE DATA

LOCATION	Q_{10} (cfs) SEE THIS SHEET	BOTTOM WIDTH (ft.)	SIDE SLOPE LEFT	SIDE SLOPE RIGHT	CHANNEL SLOPE (%)	MANNINGS COEF. n	DEPTH (ft.)	VELOCITY (ft/s)	TYPE OF SWALE LINING
SWALE #1	6.07	0	3:1	3:1	2.00%	0.030	0.76	3.51	TALL FESCUE
SWALE #2	0.68	0	3:1	3:1	1.00%	0.030	0.38	1.55	TALL FESCUE
SWALE #3	5.34	0	3:1	3:1	3.82%	0.030	0.76	4.32	TALL FESCUE
SWALE #4	6.59	0	3:1	3:1	0.88%	0.030	0.38	2.65	TALL FESCUE

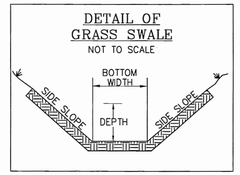
SWALE #1:
Q = CxAxi = 0.60 x 1.40 x 7.23 = 6.07 cfs

SWALE #2:
Q = CxAxi = 0.35 x 0.27 x 7.23 = 0.68 cfs

SWALE #3:
Q = CxAxi = 0.60 x 1.23 x 7.23 = 5.34 cfs

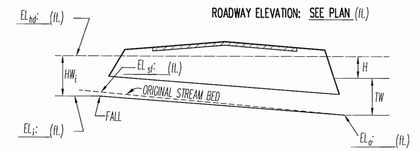
SWALE #4:
Q = CxAxi = 0.60 x 1.52 x 7.23 = 6.59 cfs

DETAIL OF GRASS SWALE
NOT TO SCALE



CULVERT CALCULATIONS

ROADWAY ELEVATION: SEE PLAN (ft.)



CULVERT DISCRIPTION: PIPE	MATERIAL - SHAPE - SIZE - ENTRANCE	EL_i	EL_o	L_o(ft)	S (%)	TOTAL FLOW Q_{25} (cfs)	FLOW PER BARREL Q/N (1)	HEADWATER CALCULATIONS: INLET CONTROL HW_i/D (2)	INLET CONTROL HW_i	INLET CONTROL FALL (3)	INLET CONTROL EL_{hi} (4)	OUTLET CONTROL TW (5)	OUTLET CONTROL d_c	OUTLET CONTROL $\frac{d_c+D}{2}$	OUTLET CONTROL h_o (6)	OUTLET CONTROL k_e	OUTLET CONTROL H (7)	OUTLET CONTROL EL_{ho} (8)	CONTROL HEADWATER ELEVATION	OUTLET VELOCITY	COMMENTS
8 to 9	RCP - CIRCULAR - 18"	4.60	4.42	60.00	0.30	6.81	-	1.05	1.58	-	6.00	-	1.00	1.25	1.25	0.5	0.55	6.04	6.04	3.85	OUTLET CONTROL
10 to 11	RCP - CIRCULAR - 24"	4.34	4.22	50.00	0.24	9.17	-	0.78	1.56	-	5.78	-	1.10	1.55	1.55	0.5	0.40	6.05	6.05	2.92	OUTLET CONTROL

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

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
SIGNED _____

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

No.	DATE	DESCRIPTION
2	04-11-14	NHC EROSION CONTROL COMMENTS
1	10-04-13	NHC EROSION CONTROL COMMENTS

REVISIONS

PLAN DATE: 10-04-13, 04-11-14

C. LAWRENCE SNEEDEN, JR., P.E.
5217 Head Road
Wilmington, NC 28409
Tel. 910.520.1835
lsneeden@coastalstormwater.com

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10972 C. LAWRENCE SNEEDEN, JR. 6/11/14

STORMWATER DETAILS AND CALCULATIONS

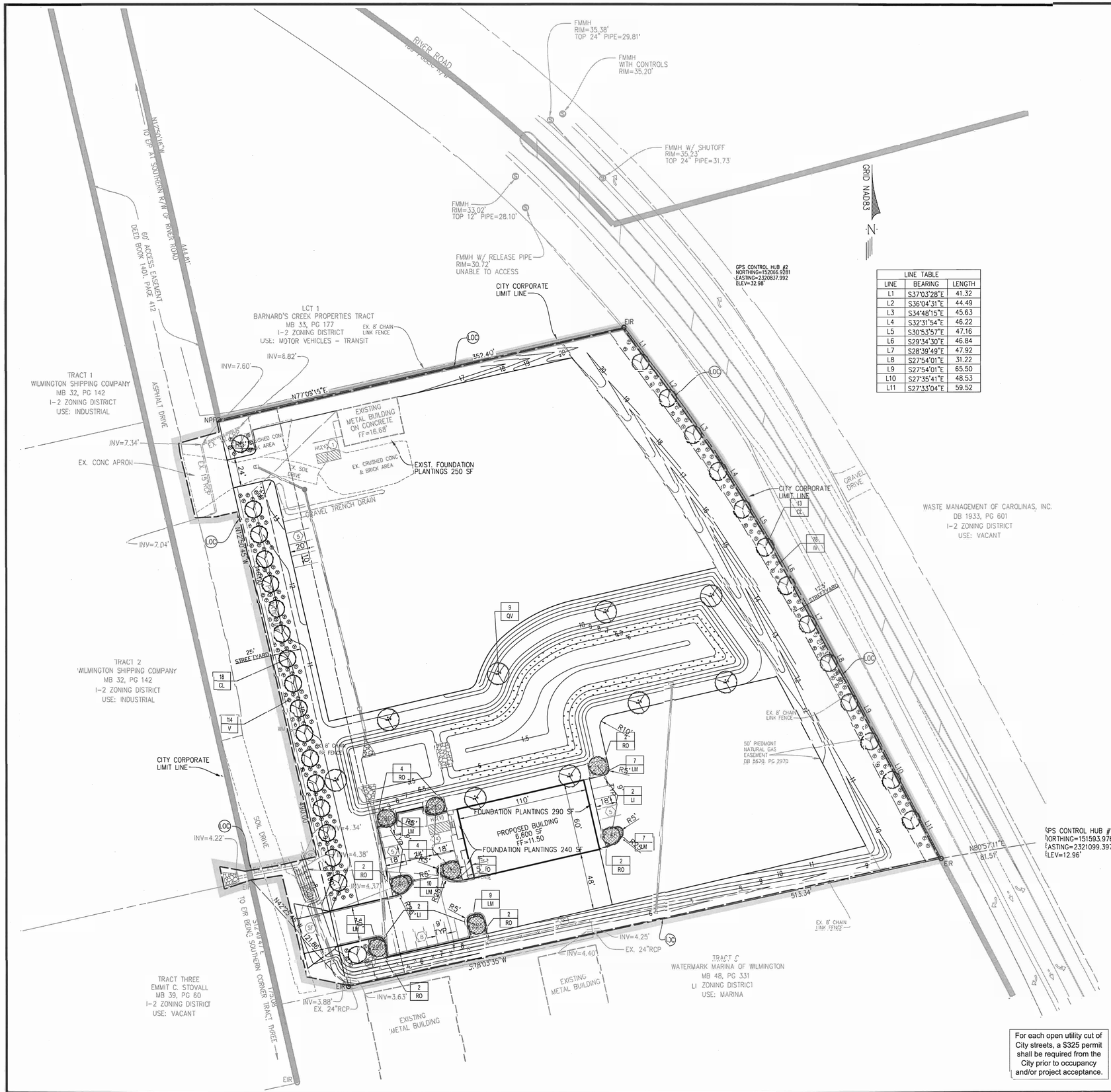
4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: N/A | C.I. =N/A | DATE: May, 2013

SHEET 10 OF 12

FILE No. 13002



FOR LANDSCAPE PURPOSES ONLY

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
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DATE _____ PERMIT # _____
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No.	DATE	REVISIONS

PLAN DATE
06-28-13
04-11-14

C. LAWRENCE SNEEDEN, JR., P.E.
5217 Head Road
Wilmington, NC 28409
Tel. 910.520.1835
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 0672 C. LAWRENCE SNEEDEN, JR. 6/11/14

LANDSCAPE PLAN

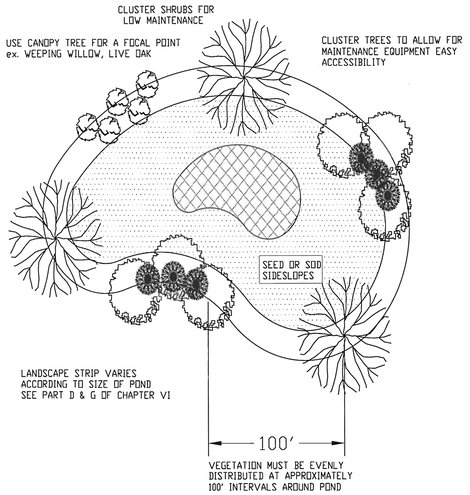
4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

SCALE: 1"=40' C.I. =1' DATE: May, 2013

SHEET
11
OF
12

FILE No.
13002



Notes:
1. If possible, locate pond where vegetation exists.
2. Suggest minimal clearing to conserve visual quality of site and minimize the additional of tree planting. An irregular shape provides a more natural appearance.
3. Landscape strip shall be a maximum slope of 7:1 in order to plant vegetation.
4. Provide a minimum of 3 inches of mulch around all vegetation.

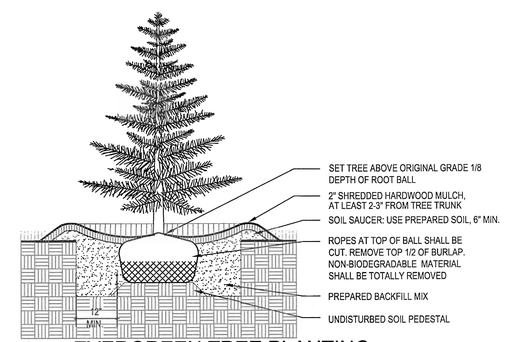
TYPICAL STORM WATER FACILITY LANDSCAPING PLAN

SD 15-16

NOT TO SCALE

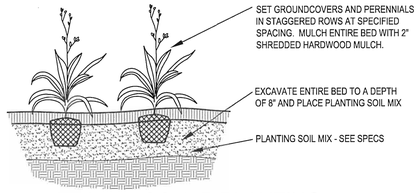
STORMWATER FACILITY LANDSCAPING CALCULATION

BASIN #	TOP OF BANK LINEAR FOOTAGE	VEGETATION CLUSTERS REQUIRED	VEGETATION CLUSTERS PROVIDED	TYPE OF CLUSTER PROVIDED
1	872	872 / 100 = 8.72	9	CANOPY TREE



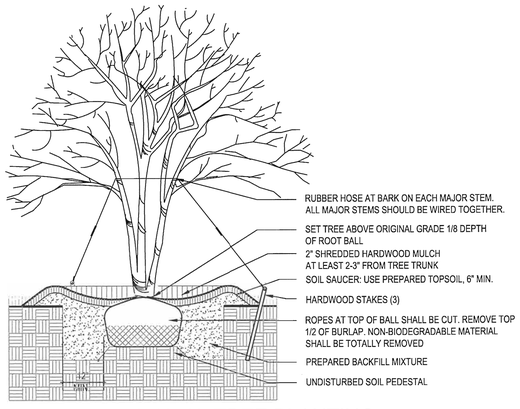
5 EVERGREEN TREE PLANTING

NTS



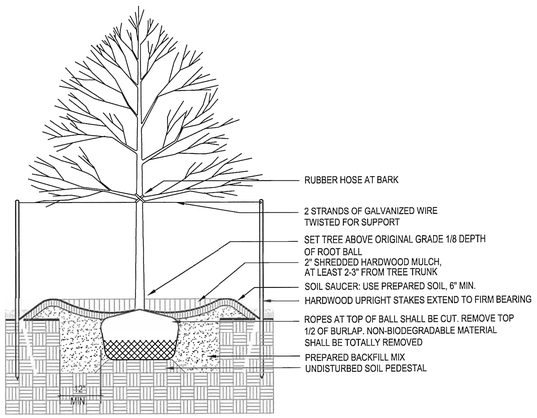
1 GROUNDCOVER PLANTING

N.T.S.



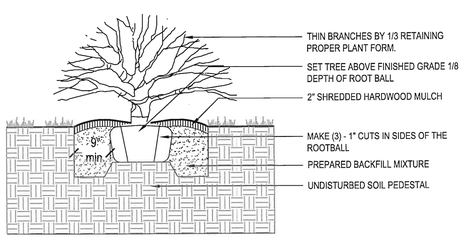
2 ORNAMENTAL TREE PLANTING

NTS



3 DECIDUOUS TREE PLANTING

NTS



4 TYP. B&B SHRUB PLANTING

N.T.S.

PLANT SCHEDULE

Key	Qty	Botanical Name	Common Name	Size
LARGE CANOPY TREES				
CL	34	X Cupressocyparus leylandii	Leyland Cypress	6' Ht.
QV	9	Quercus virginiana	Live Oak	6' Ht.
UNDERSTORY TREES				
LI	8	Lagerstroemia indica	Crape Myrtle	6' Ht.
SHRUBS				
IV	192	Ilex vomitoria	Yaupon Holly	see note *
RO	16	Rhododendron obtusum	Kurume Azalea	24" Ht.
GROUND COVER				
LM	50	Liriope muscari	Lillyturf Liriope	8" Ht.

* 24" Ht. unless adjacent to parking spaces then 36" Ht. required at time of planting

STREETYARD LANDSCAPING REQUIREMENTS
(per Section 18-477)

STREETYARD FACTOR FOR LI (60' ACCESS EASEMENT)	25
REQUIRED STREETYARD LANDSCAPING (435 LF x 25)	10,875 SF
CANOPY TREE (10,875 SF / 600 SF x 1) (ONE PER EVERY 600 SF OF STREETYARD AREA)	18
SHRUBS (10,875 SF / 600 SF x 6) (SIX PER EVERY 600 SF OF STREETYARD AREA)	109
PROVIDED STREETYARD LANDSCAPING (435 LF x 25)	10,875 SF
CANOPY TREE	18
SHRUBS	114
STREETYARD FACTOR FOR LI (RIVER ROAD)	12.5
REQUIRED STREETYARD LANDSCAPING (603 LF x 12.5)	7,538 SF
CANOPY TREE (7,538 SF / 600 SF x 1) (ONE PER EVERY 600 SF OF STREETYARD AREA)	13
SHRUBS (7,538 SF / 600 SF x 6) (SIX PER EVERY 600 SF OF STREETYARD AREA)	78
PROVIDED STREETYARD LANDSCAPING (603 LF x 12.5)	7,538 SF
CANOPY TREE	13
SHRUBS	78

PARKING LOT INTERIOR LANDSCAPING REQUIREMENTS
(per Section 18-481)

AREA OF VEHICULAR (PARKING) AND PEDESTRIAN USE (SOUTH SIDE)	15,780 SF
REQUIRED LANDSCAPING (15,780 SF x 0.08)	1,262 SF
TREES (1 PER ISLAND)	8 TREES
PROVIDED LANDSCAPING:	1,660 SF
TREES (1 PER ISLAND)	8 TREES

FOUNDATION PLANTINGS REQUIREMENTS
(per Section 18-490)

EXISTING BUILDING FOUNDATION PLANTINGS REQUIRED	
AREA OF BUILDING FACE	900 SF
AREA (900 SF x 0.12)	108 SF
EXISTING BUILDING FOUNDATION PLANTINGS PROVIDED	
AREA	250 SF
PROPOSED BUILDING FOUNDATION PLANTINGS REQUIRED (FRONT)	
AREA OF BUILDING FACE	1,200 SF
AREA (1,200 SF x 0.12)	144 SF
PROPOSED BUILDING FOUNDATION PLANTINGS PROVIDED (FRONT)	
AREA	240 SF
PROPOSED BUILDING FOUNDATION PLANTINGS REQUIRED (REAR)	
AREA OF BUILDING FACE	1,200 SF
AREA (1,200 SF x 0.12)	144 SF
PROPOSED BUILDING FOUNDATION PLANTINGS PROVIDED (REAR)	
AREA	290 SF

FOR LANDSCAPE PURPOSES ONLY

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Approved Construction Plan

Name Date

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Traffic _____

Fire _____

STORMWATER MANAGEMENT PLAN
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PLAN DATE 06-28-13 04-11-14

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NORTH CAROLINA PROFESSIONAL SEAL 10972 ENGINEER C. LAWRENCE SNEEDEN, JR. 6/11/14

LANDSCAPE DETAILS

4 SEASONS SITE AND DEMO, INC.

CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

DATE: May, 2013
C.I. =N/A
SCALE: N/A

SHEET 12 OF 12

FILE No. 13002