

- GENERAL NOTES:**
- CITY OF WILMINGTON WILL NOT PROVIDE SOLID WASTE COLLECTION SERVICES ON A PRIVATE EASEMENT. EITHER TRASH CARTS SHALL BE PLACED AT ANDREWS REACH LOOP OR PRIVATE SOLIDS WASTE COLLECTION SERVICES SHALL BE OBTAINED.
 - THE SITE IS NOT LOCATED WITHIN THE 100 YEAR FLOOD ZONE ACCORDING TO THE CURRENT FEMA FLOOD INSURANCE RATE MAP.
 - NO ADDITIONAL HYDRANTS ARE PROPOSED AS PART OF THIS PROJECT.

Line Table

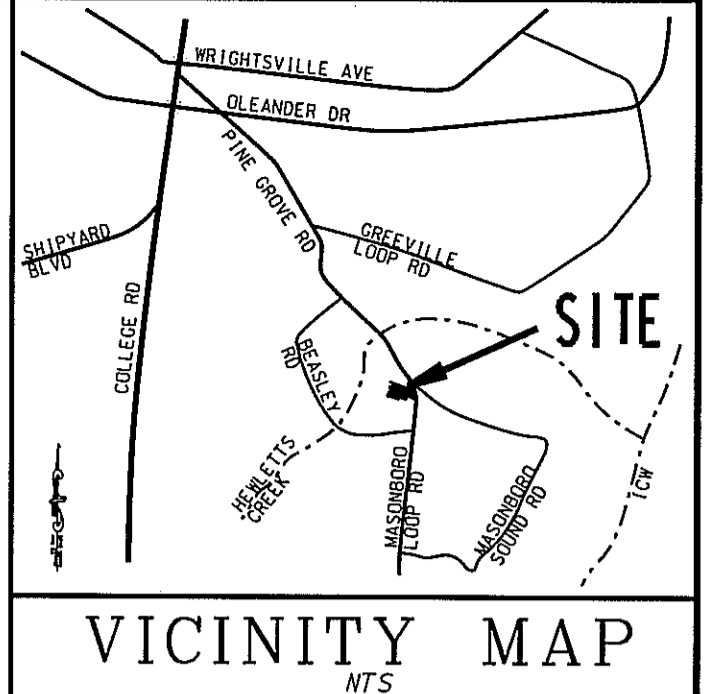
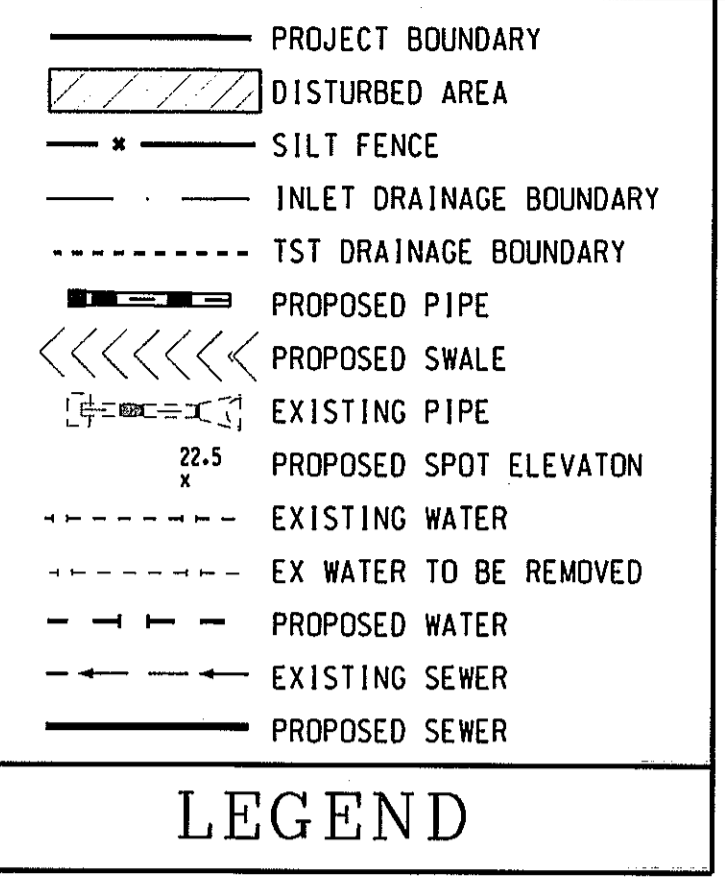
| Name | Direction | Length |
|------|---------------|--------|
| L1 | N 89°22'46" E | 8.79 |
| L2 | S 12°10'11" W | 11.39 |
| L3 | S 02°00'30" E | 13.98 |
| L4 | S 12°42'35" E | 3.00 |

Curve Table

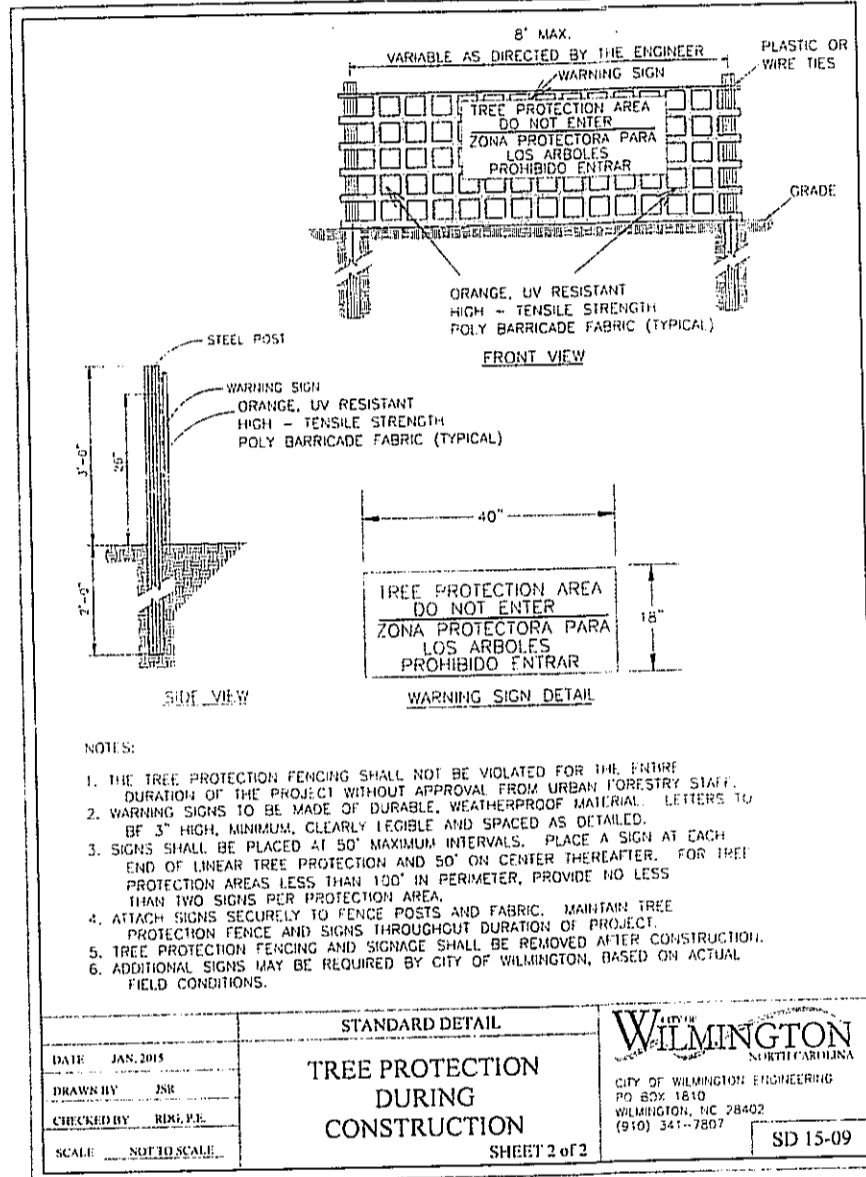
| Name | Delta | Radius | Arc Length | Chord Length | Tangent Length | Chord Direction |
|------|-----------|--------|------------|--------------|----------------|-----------------|
| C1 | 22°51'48" | 540.00 | 215.48 | 214.05 | 109.19 | S 35°53'06" E |
| C2 | 12°02'38" | 521.42 | 109.60 | 109.40 | 55.01 | S 6°08'52" W |
| C3 | 1°17'41" | 170.00 | 3.84 | 3.84 | 1.92 | N 51°47'24" W |
| C4 | 0°13'22" | 325.00 | 1.26 | 1.26 | 0.63 | N 44°16'30" W |
| C5 | 0°48'15" | 540.00 | 7.58 | 7.58 | 3.79 | S 24°51'20" E |
| C6 | 10°42'31" | 540.00 | 100.93 | 100.78 | 50.61 | S 30°36'43" E |
| C7 | 11°21'02" | 540.00 | 106.98 | 106.80 | 53.66 | S 41°38'29" E |

SITE DATA

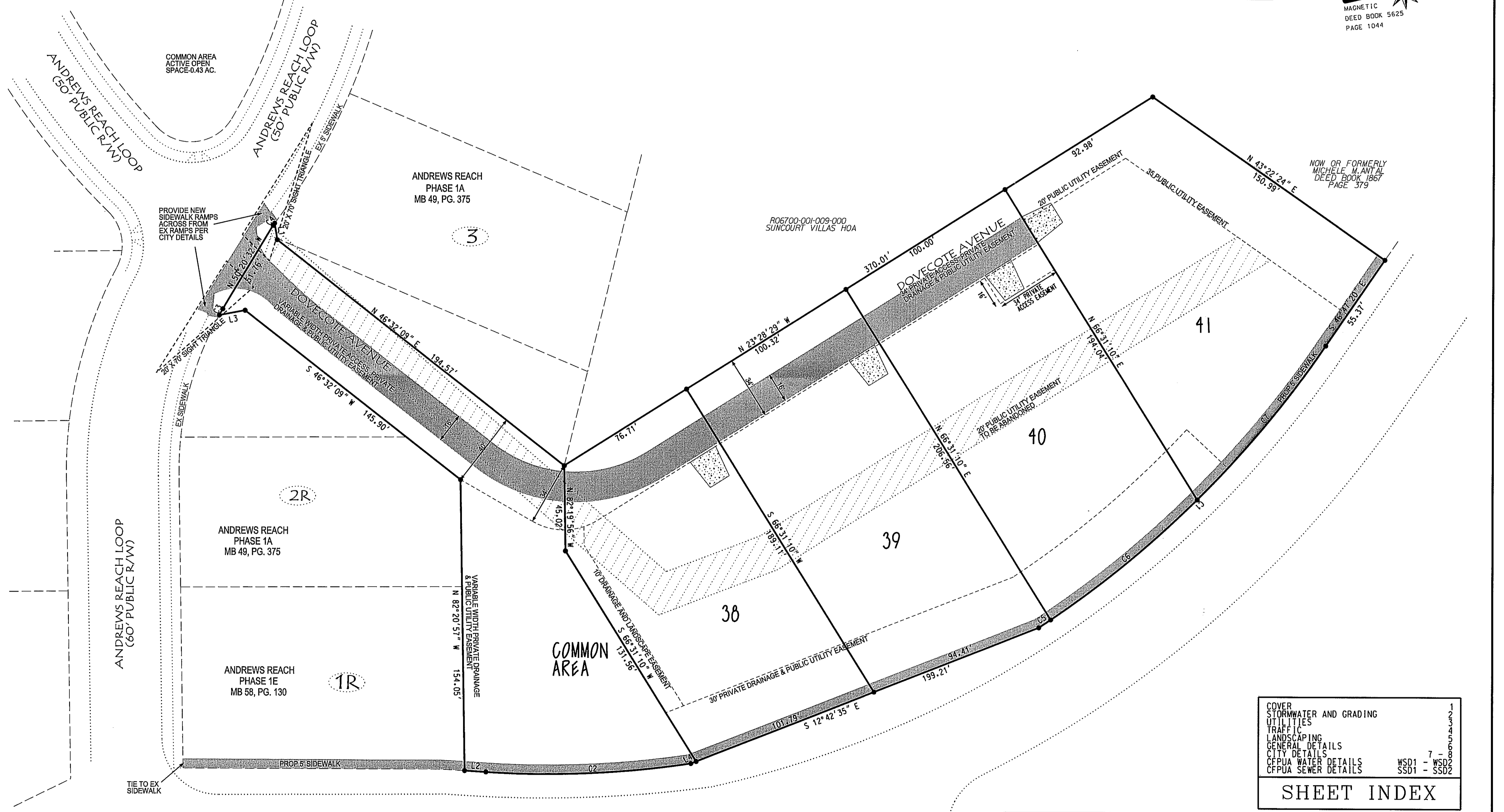
| | |
|--------------------|----------------|
| PROJECT AREA | 2.28 AC |
| TAX PIN | 99,442 SF |
| ZONING | R-15 |
| CAMA LAND CLASS | CONSERVATION |
| RECEIVING STREAM | HEWLETTS CREEK |
| CLASSIFICATION | SA |
| IMPERVIOUS AREA | 9,175 SF |
| STREETS | 3,818 SF |
| SIDEWALKS | 20,000 SF |
| RESERVE (SEE NOTE) | 1,007 SF |
| TOTAL | 34,000 SF |
| PERCENT BUA | 34.2% |
| DISTURBED AREA | 2.0 AC |



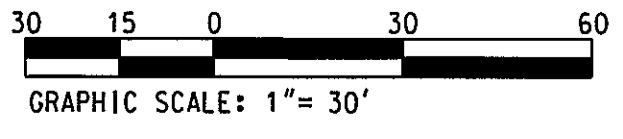
STANDARD DETAIL
TREE PROTECTION DURING CONSTRUCTION
 SHEET 1 of 2
 WILMINGTON
 CITY OF WILMINGTON ENGINEERING
 100 S. MARKET STREET, 3RD FLOOR
 WILMINGTON, NC 28401
 (910) 341-2057
 SD 15-09



STANDARD DETAIL
TREE PROTECTION DURING CONSTRUCTION
 SHEET 2 of 2
 WILMINGTON
 CITY OF WILMINGTON ENGINEERING
 100 S. MARKET STREET, 3RD FLOOR
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 SD 15-09



MASONBORO LOOP ROAD (SR #1492)
 (VARIABLE WIDTH - R/W)

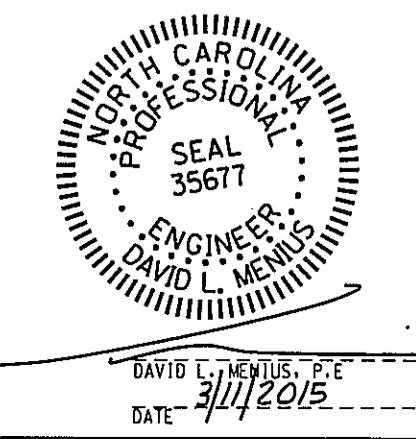


STORMWATER MANAGEMENT PLAN APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE 4/16/15 PERMIT # 2015011
 SIGNED [Signature]

Approved Construction Plan

| | |
|------------------------------|---------|
| Name | Date |
| Planning [Signature] | 3/23/15 |
| Public Utilities [Signature] | |
| Traffic [Signature] | 3-23-15 |
| Fire [Signature] | 3-20-15 |

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



SHEET INDEX

| | |
|----------------------------------|-------------|
| COVER | 7 - |
| STORMWATER AND GRADING UTILITIES | 7 - |
| TRAFFIC | 7 - |
| LANDSCAPING | 7 - |
| GENERAL DETAILS | 7 - |
| CITY DETAILS | 7 - |
| CEPUA WATER DETAILS | WSD1 - WSD2 |
| CEPUA SEWER DETAILS | SSD1 - SSD2 |

COVER

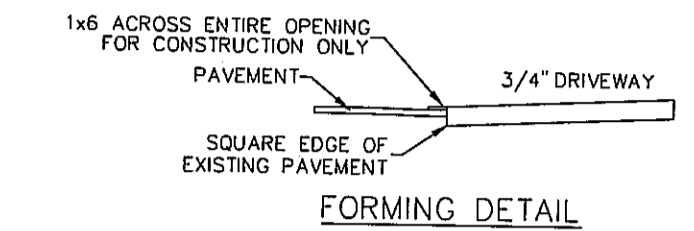
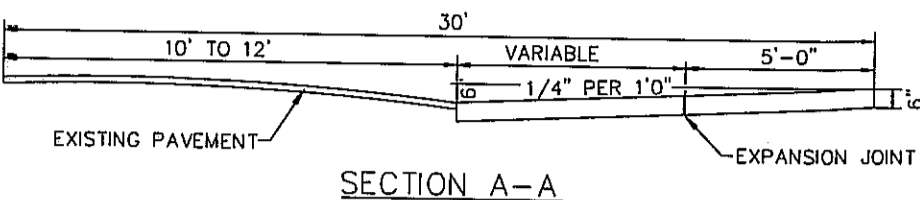
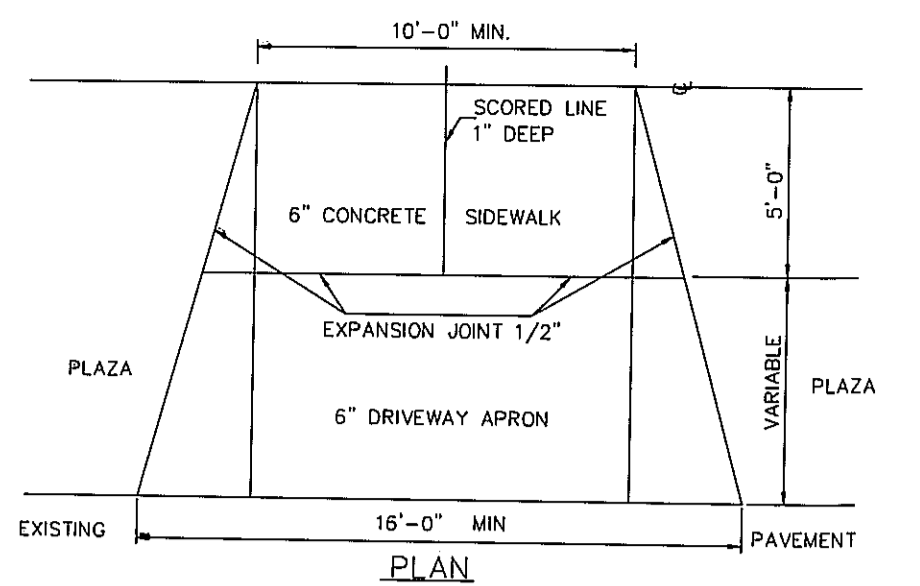
ANDREWS REACH - PHASE 2 -

WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

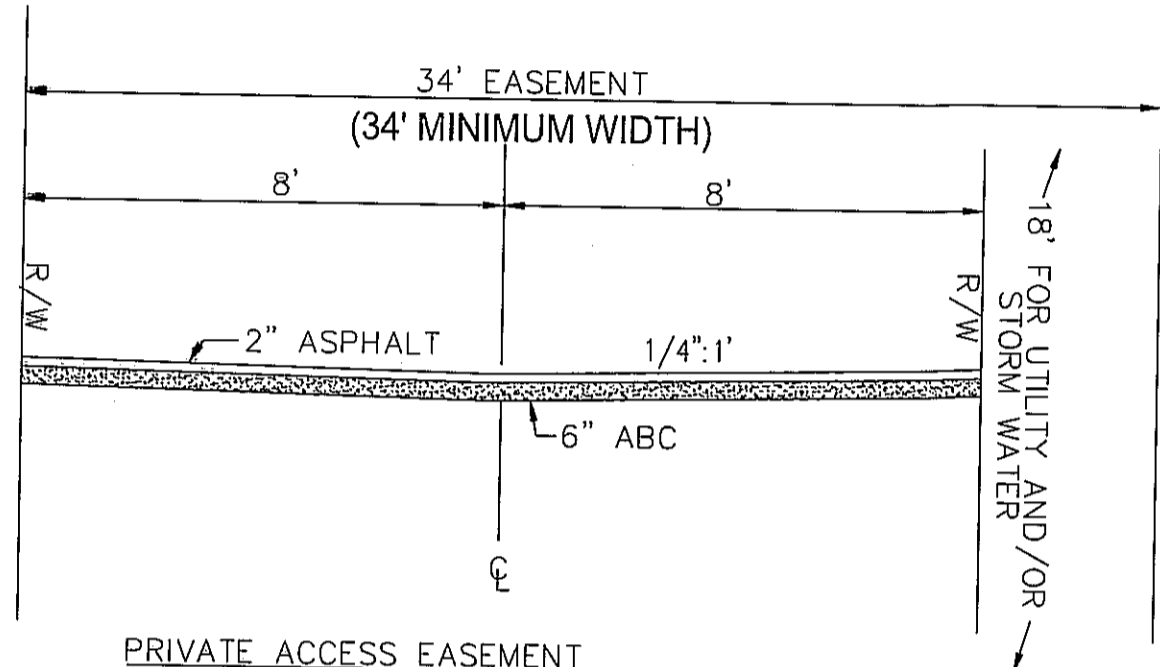
OWNER: ANDREWS REACH DEVELOPERS, LLC
 ADDRESS: 8204 FAZIO DRIVE
 WILMINGTON, NC 28411
 PHONE: (910) 686-8100

DESIGNED: DLM
 DRAWN: DLM
 APPROVED: JHF
 DATE: 9/10/2014
 SCALE: 1" = 30'
 SHEET 1 OF 8

STROUD ENGINEERING, P.A.
 222-D CINEMA DRIVE
 WILMINGTON, NC 28403
 (910) 815-0775 (910) 815-0593 FAX



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



PRIVATE ACCESS EASEMENT
SEE NOTES

ALLEY NOTES:
1. NOT TO CONTAIN WATER AND SEWER UTILITY LINES

PRIVATE ACCESS EASEMENT NOTES:
1. 400' MAXIMUM LENGTH TO FURTHEST UNIT FROM PUBLIC STREET.
2. SERVES A MAXIMUM OF 4 SINGLE FAMILY OR DUPLEX UNITS.
3. 23' (MIN) WIDTH REQUIRED AT STREET INTERSECTION.

SECTION BETWEEN ANDREWS REACH LOOP AND LOT 2R SHALL BE CROWNED TO DRAIN TOWARD EXISTING DETENTION BASINS

PROPOSED PRIVATE ACCESS DRIVE LENGTH IS 493' MEASURED ALONG THE CENTERLINE FROM ANDREWS REACH LOOP R/W TO LOT 41.

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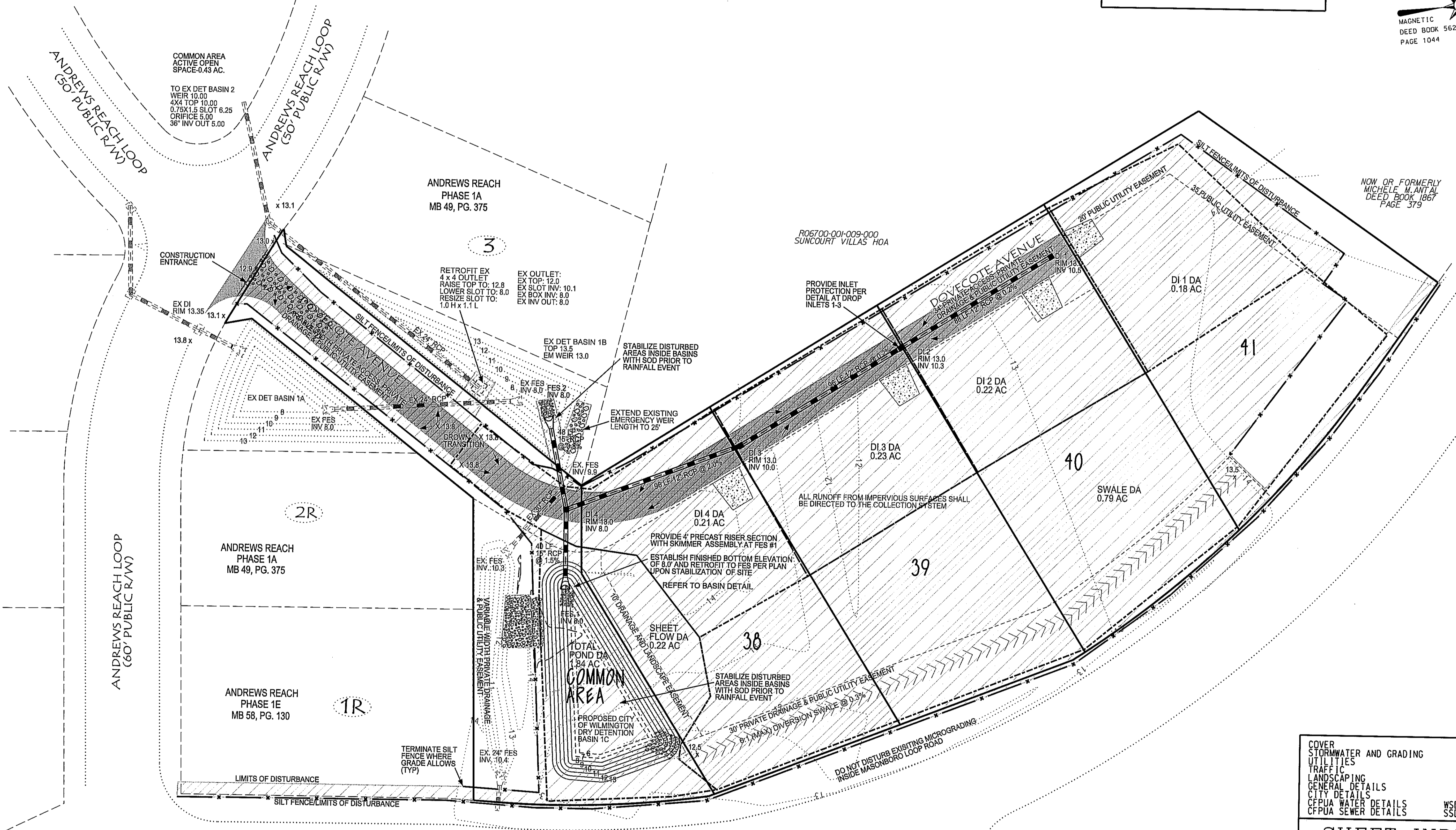
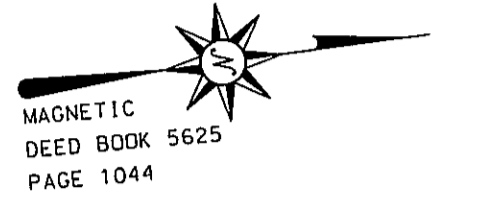
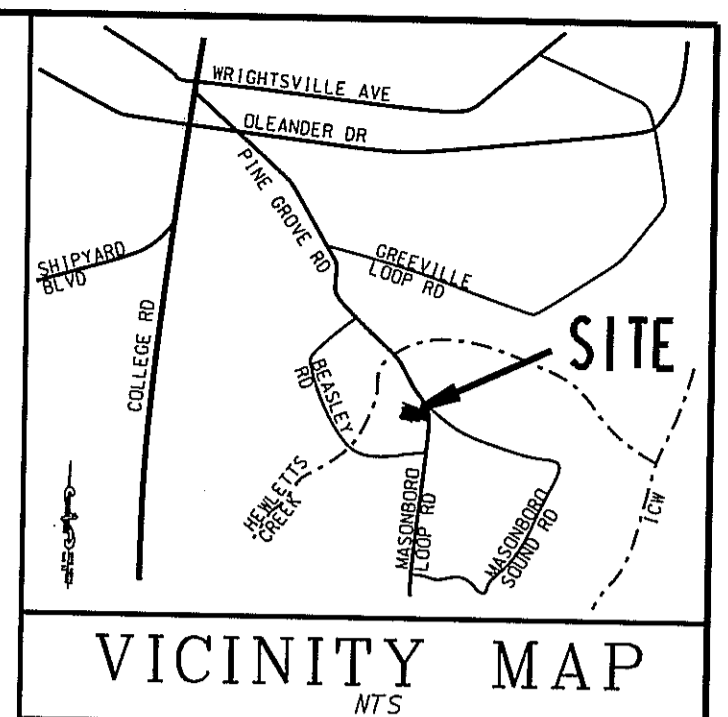
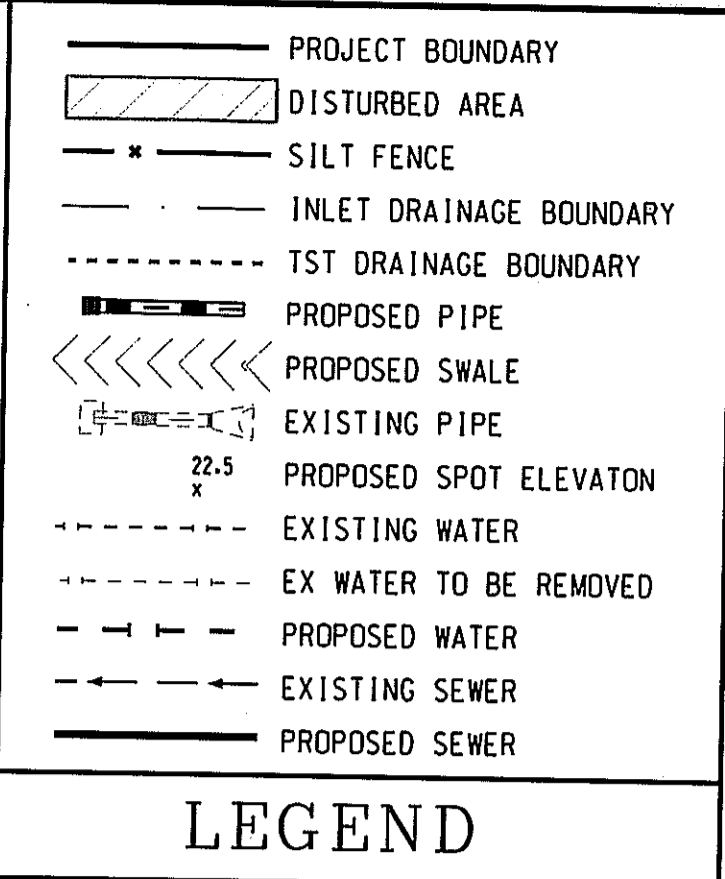
STORMWATER NOTES:

- ALL PROPOSED EASEMENTS AND REQUIRED EASEMENT CHANGES MUST BE RECORDED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- BASIN 1 IS DESIGNED TO STAGE UP TO AN ELEVATION OF 13.0' DURING EXTREME RAINFALL EVENTS. TEMPORARY SHALLOW PONDING AT LOW POINTS IN THE ROADWAY SHOULD BE EXPECTED. LOTS SHALL BE GRADED TO PREVENT NUISANCE FLOODING TO THE GREATEST EXTENT PRACTICABLE.
- BUILDING FINISHED FLOOR ELEVATIONS OF LOTS 38-41 SHALL BE A MINIMUM OF 14.5' ELEVATION.

| | |
|---------------------|--------------------|
| PROJECT AREA | 2.28 AC |
| TAX PIN | 99-442 SF |
| ZONING | R06700-001-012-500 |
| CAMA LAND CLASS | CONSERVATION |
| RECEIVING STREAM | HEWLETTS CREEK |
| CLASSIFICATION | SA |
| IMPERVIOUS AREA | 9,175 SF |
| STREETS | 1,818 SF |
| SIDEWALKS | 20,000 SF |
| LOTS (4 @ 5,000 SF) | 1,007 SF |
| TOTAL | 34,000 SF |
| PERCENT BUA | 24.2% |
| DISTURBED AREA | 2.0 AC |

SITE DATA

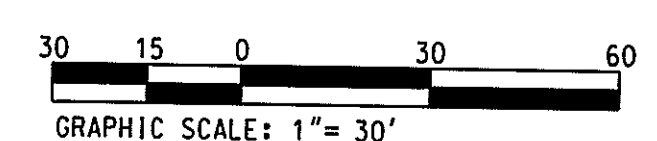
BUA RESERVE NOTE:
REPORTED BUA RESERVE IS LIMITED BY CITY OF WILMINGTON DETENTION BASIN CAPACITY. ADDITIONAL RESERVE IS PERMITTED BY THE NCEWR STORMWATER PERMIT AND MAY BE UTILIZED BY EXPANDING THE CITY DETENTION BASIN CAPACITY AND MODIFYING THE CITY AND NCEWR STORMWATER PERMITS ACCORDINGLY.



| | |
|------------------------|-------------|
| COVER | 1 |
| STORMWATER AND GRADING | 1 |
| UTILITIES | 1 |
| TRAFFIC | 1 |
| LANDSCAPING | 1 |
| GENERAL DETAILS | 1 |
| CITY DETAILS | 7 |
| CEPUA WATER DETAILS | WSD1 - WSD2 |
| CEPUA SEWER DETAILS | SSD1 - SSD2 |

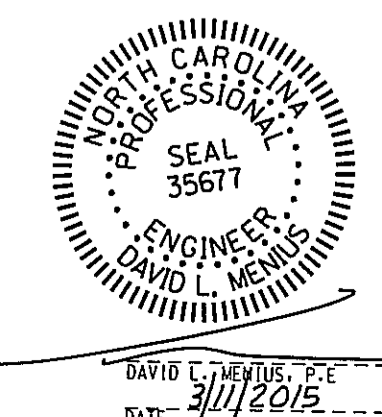
SHEET INDEX

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APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE 4/16/15 PERMIT #1015011
SIGNED [Signature]

Approved Construction Plan
Name [Signature] Date 3/23/15
Planning [Signature] N/A
Public Utilities [Signature] 3-23-15
Traffic [Signature] 3-23-15
Fire [Signature] 3-23-15



STORMWATER
ANDREWS REACH
- PHASE 2 -
WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

OWNER: ANDREWS REACH DEVELOPERS, LLC
ADDRESS: 8204 FAZIO DRIVE
WILMINGTON, NC 28411
PHONE: (910) 686-8100

DESIGNED: DLM
DRAWN: DLM
APPROVED: JHF
DATE: 9/10/2014
SCALE: 1" = 30'
SHEET 2 OF 8

STROUD ENGINEERING, P.A.
10210 CHENNA DRIVE
WILMINGTON, NC 28403
910 85-0775 910 85-0593 FAX

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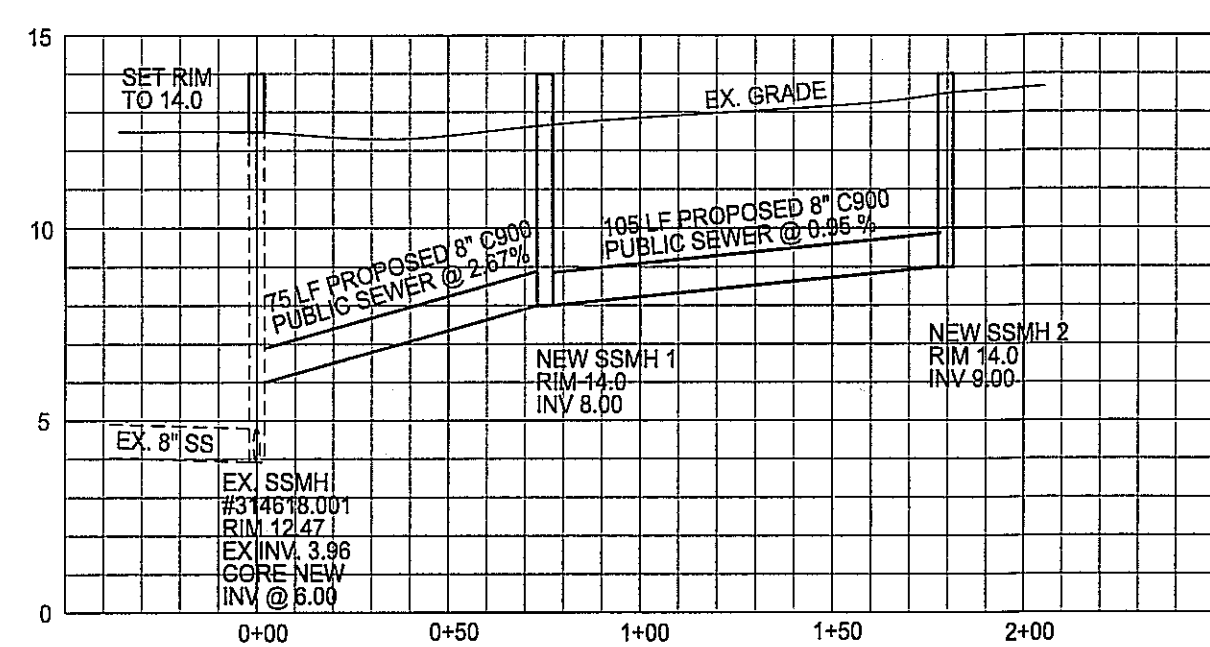
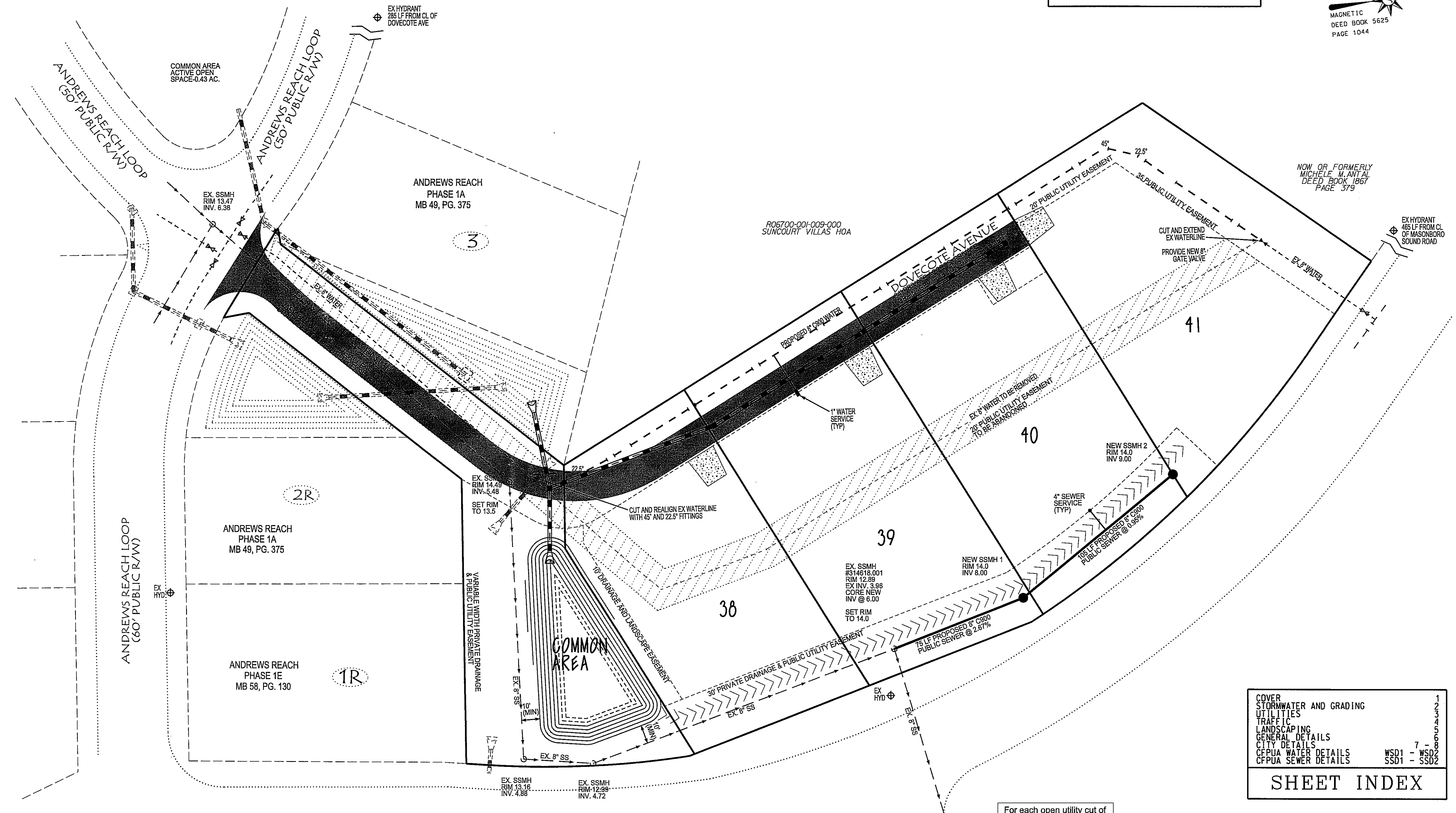
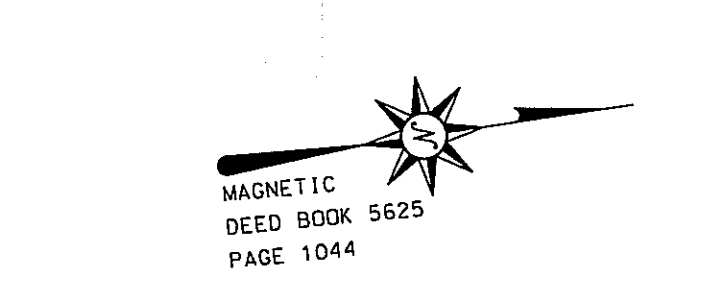
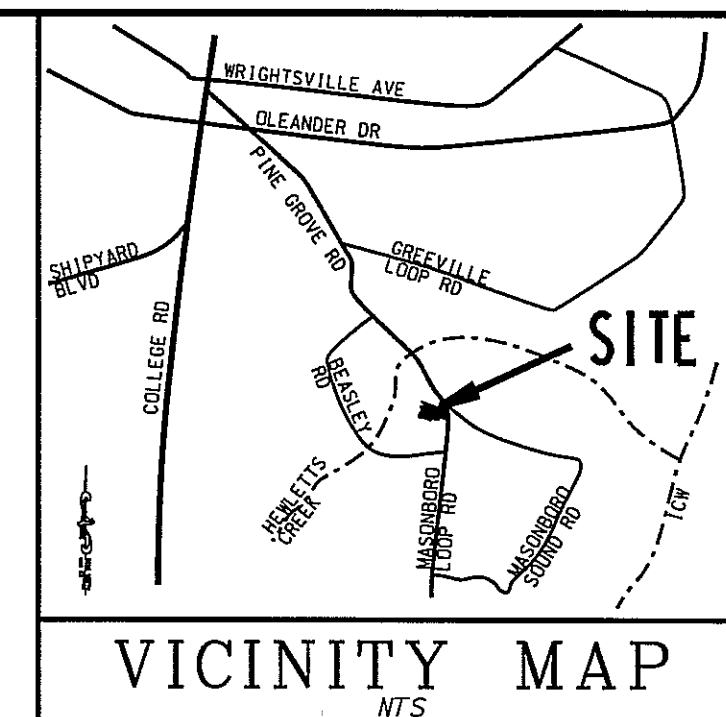
PROJECT AREA 2.28 AC
 TAX PIN 99,442 SF
 ZONING R06700-001-012-000
 CAMA LAND CLASS CONSERVATION
 RECEIVING STREAM HEWLETTS CREEK
 CLASSIFICATION SA
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 LOTS (4 @ 5,000 SF) 20,000 SF
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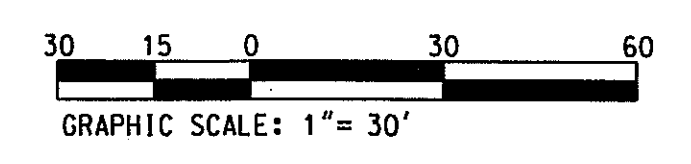
LEGEND

- PROJECT BOUNDARY
- DISTURBED AREA
- SILT FENCE
- INLET DRAINAGE BOUNDARY
- TST DRAINAGE BOUNDARY
- PROPOSED PIPE
- PROPOSED SWALE
- EXISTING PIPE
- PROPOSED SPOT ELEVATION
- EXISTING WATER
- EX WATER TO BE REMOVED
- PROPOSED WATER
- EXISTING WATER
- PROPOSED SEWER



PROPOSED SEWER PROFILE
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'

PIPE MATERIAL NOTES:
 8" WATER MAINS SHALL BE AWWA C900 DR 18 CLASS 150 PVC. WHERE REQUIRED, DUCTILE IRON WATER SHALL CONFORM TO AWWA C104, C111, C150, C151, AND C153.
 GRAVITY SEWER MAINS SHALL BE AWWA C900 DR 18 CLASS 150 PVC. WHERE REQUIRED, DUCTILE IRON SEWER SHALL CONFORM TO AWWA C151. ALL PROPOSED GRAVITY SEWER IS 8 INCHES IN DIAMETER.
 PVC WATER MAINS SHALL BE BLUE. DIP WATER MAINS SHALL BE MARKED WITH A CONTINUOUS BLUE STRIPE.
 PVC SEWER MAINS SHALL BE GREEN. DIP SEWER MAINS SHALL BE MARKED WITH A CONTINUOUS GREEN STRIPE.



SHEET INDEX

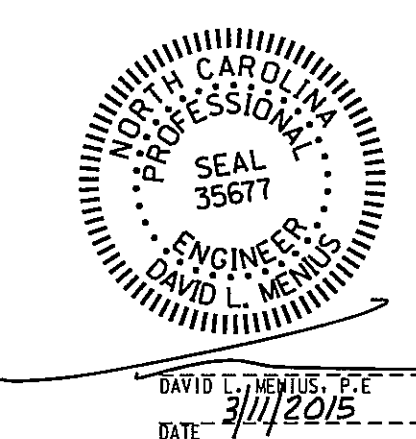
| | |
|------------------------|-------------|
| COVER | 1 |
| STORMWATER AND GRADING | 2 |
| UTILITIES | 3 |
| TRAFFIC | 4 |
| LANDSCAPING | 5 |
| GENERAL DETAILS | 6 |
| CITY DETAILS | 7 |
| CPWA WATER DETAILS | WSD1 - 7 |
| CPWA SEWER DETAILS | SSD1 - 5SD2 |

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APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE _____ PERMIT # _____
 SIGNED *[Signature]*

Approved Construction Plan

Name _____ Date _____
 Planning _____
 Public Utilities _____
 Traffic _____
 Fire _____



UTILITIES

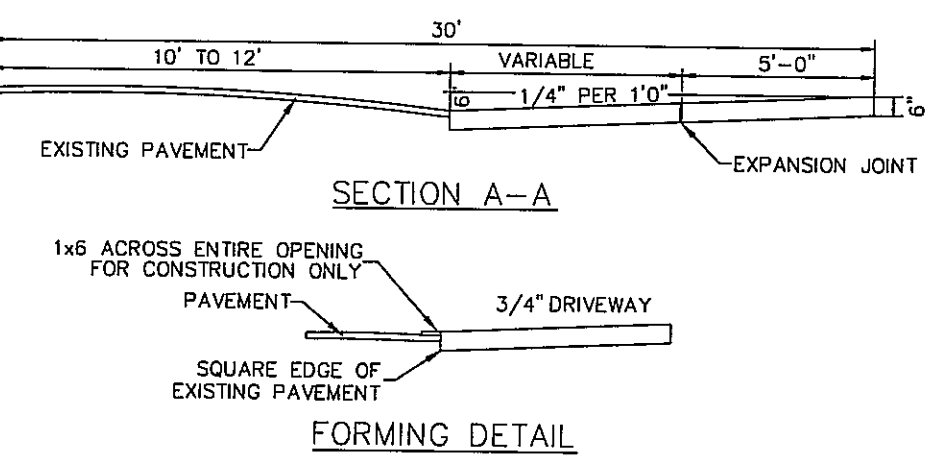
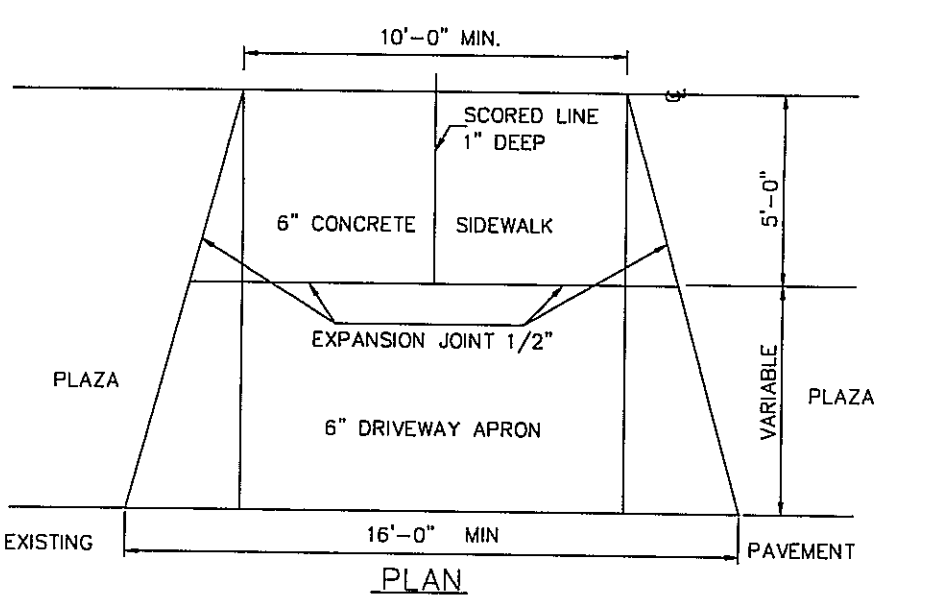
ANDREW'S REACH
 - PHASE 2 -

WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

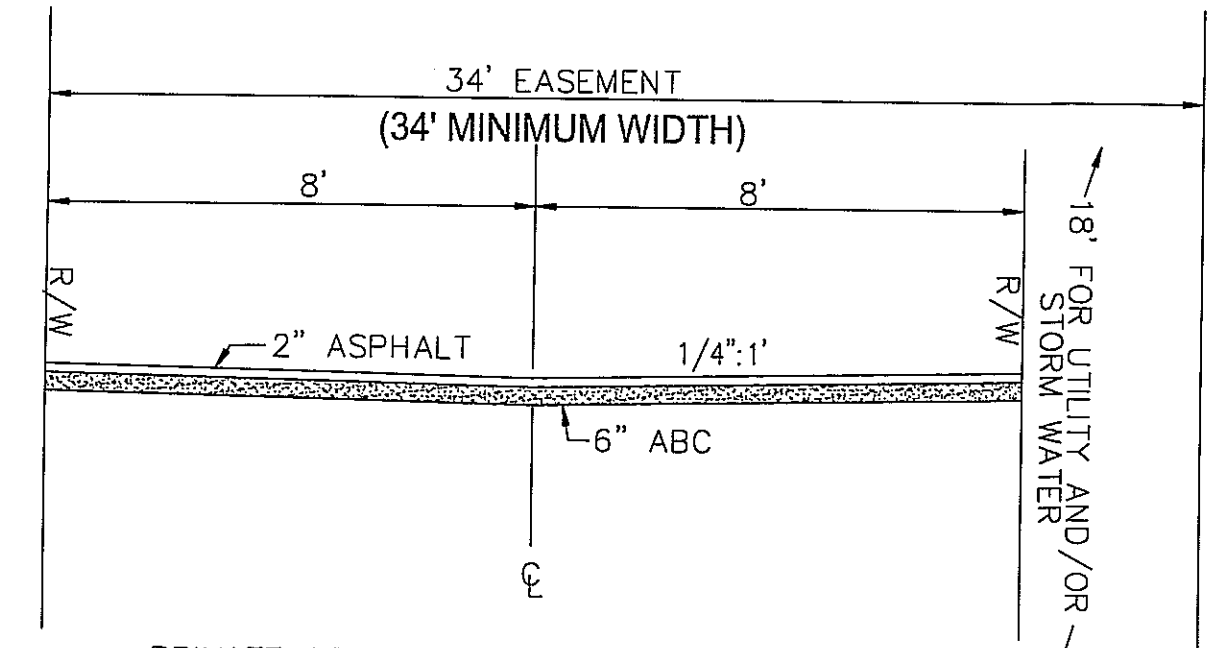
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 WILMINGTON, NC 28411
 PHONE: (910) 686-8100

DESIGNED: DLW
 DRAWN: DLW
 APPROVED: JHF
 DATE: 9/10/2014
 SCALE: 1" = 30'
 SHEET 3 OF 8

STROUD ENGINEERING, P.A.
 102-D CINEMA DRIVE
 WILMINGTON, NC 28403
 (910) 815-0775 (910) 815-0593 FAX



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



PRIVATE ACCESS EASEMENT
SEE NOTES

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- TRAFFIC NOTES:
- ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 2'6" TO 10'0" ABOVE GRADE.
 - A LANDSCAPING PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT PRIOR TO THE RECORDING OF THE FINAL PLAT.
 - CONTACT TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE R/W.
 - CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
 - ALL PAVEMENT MARKINGS IN PUBLIC R/W AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT GUIDELINES.
 - ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD STANDARDS.
 - A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET.
 - INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS.
 - 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.
 - ANY BROKEN OR MISSING SIDEWALK PANELS OR CURBING SHALL BE REPLACED.
 - TACTILE WARNING MATS ARE TO BE INSTALLED ON ALL WHEELCHAIR RAMPS.
 - LOTS 38-41 SHALL NOT DIRECTLY ACCESS MASONBORO LOOP ROAD.
 - DRIVEWAYS SHALL BE CITY STANDARD RAMP-TYPE WITH CURB RETURNS 6.5' (MIN) FROM PROPERTY LINES.
 - LOT BUYERS SHALL RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT.

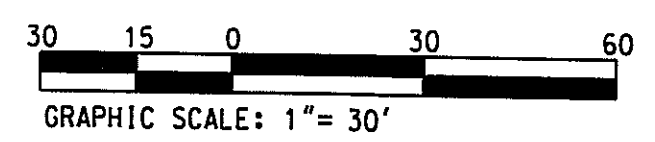
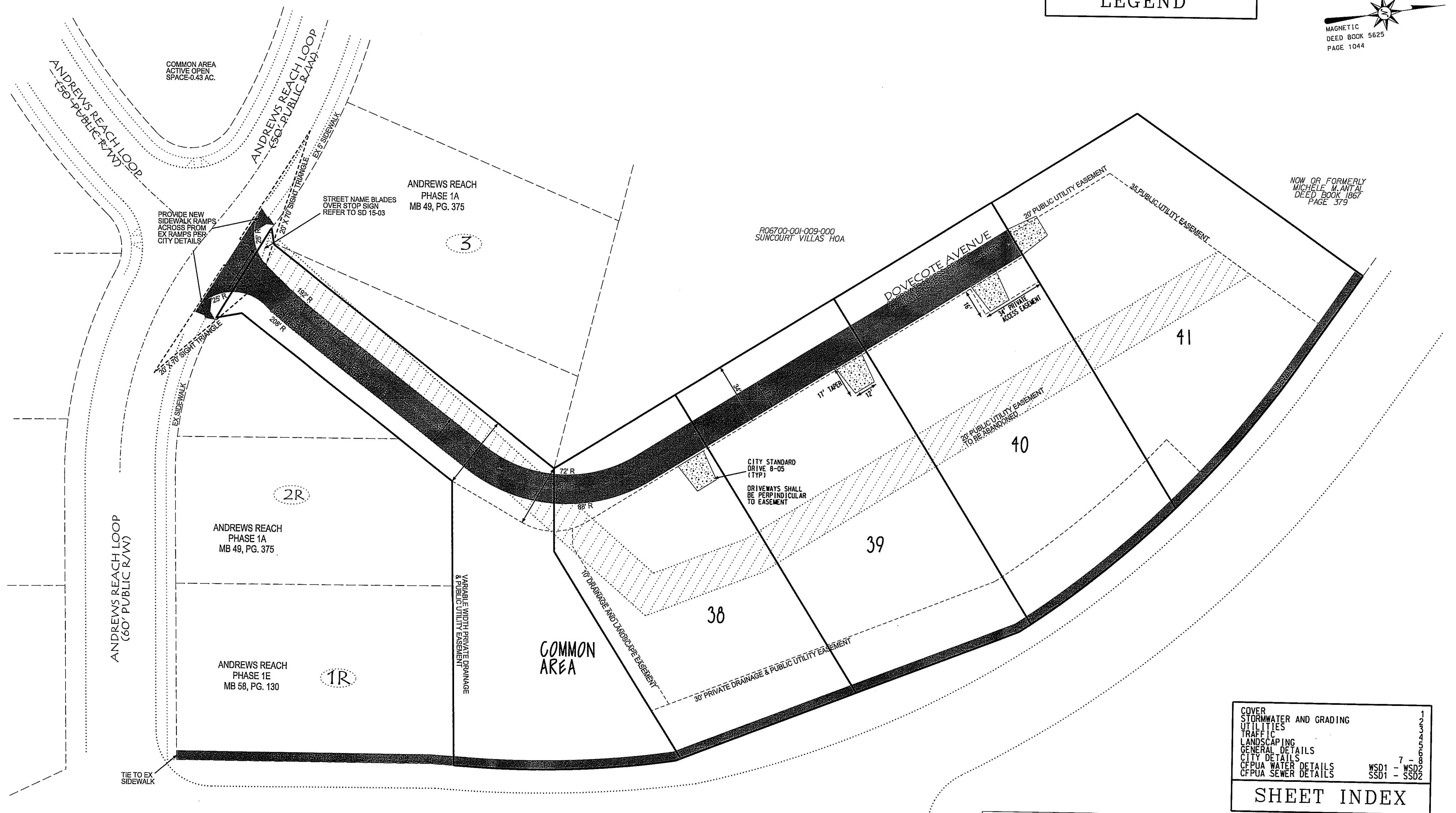
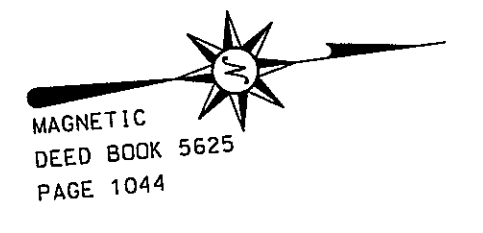
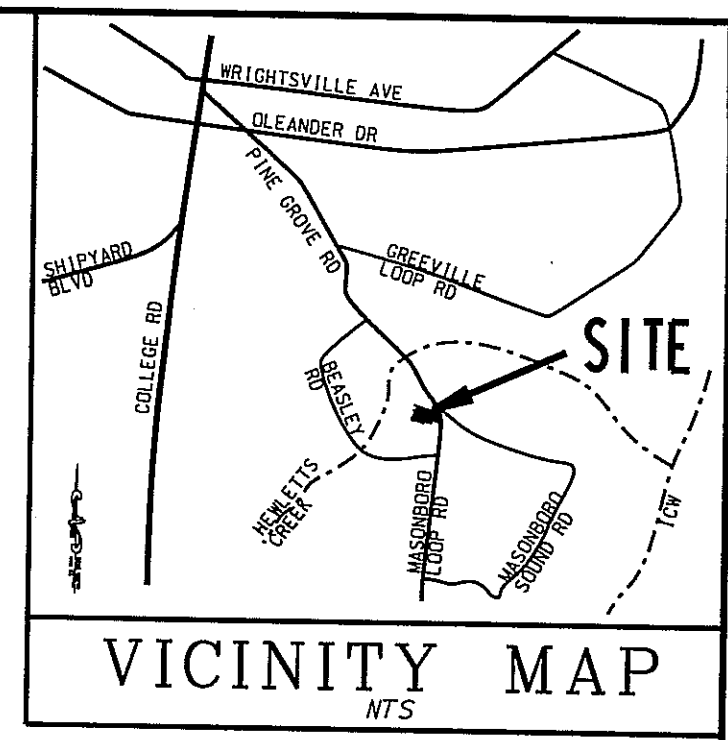
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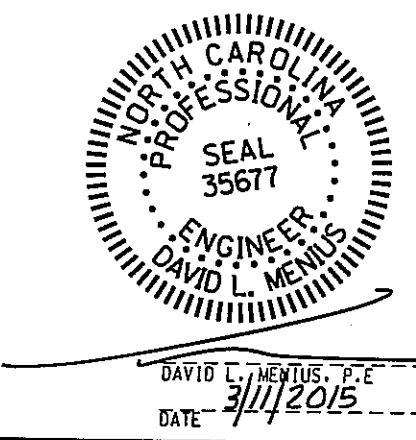
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- EXISTING PIPE
- PROPOSED SPOT ELEVATION
- EXISTING WATER
- EX WATER TO BE REMOVED
- PROPOSED WATER
- EXISTING SEWER
- PROPOSED SEWER



STORMWATER MANAGEMENT PLAN
APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE _____ PERMIT # _____
 SIGNED *[Signature]*

Approved Construction Plan
 Name: *[Signature]* Date: *3/23/15*
 Planning: *[Signature]*
 Public Utilities: *[Signature]*
 Traffic: *[Signature]* 3-23-15
 Fire: *[Signature]* 3-20-15



COVER
 STORMWATER AND GRADING
 UTILITIES
 TRAFFIC
 LANDSCAPING
 GENERAL DETAILS
 CITY DETAILS
 CFPWA WATER DETAILS
 CFPWA SEWER DETAILS

WSD1 - 7
 SSD1 - 5SD2

SHEET INDEX

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TRAFFIC

ANDREWS REACH
 - PHASE 2 -

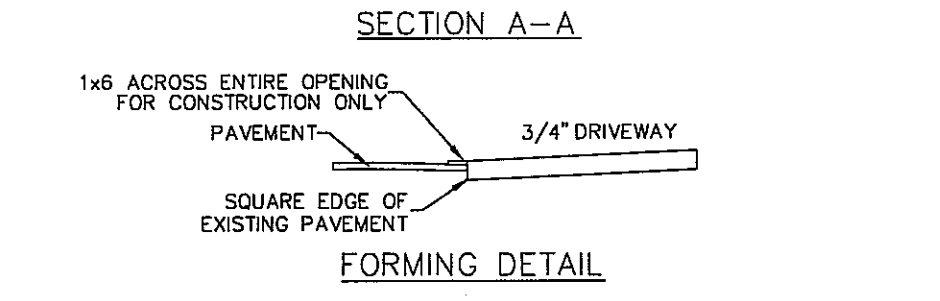
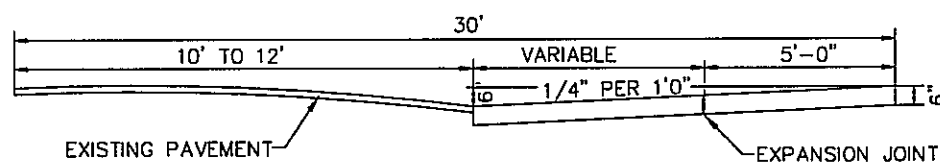
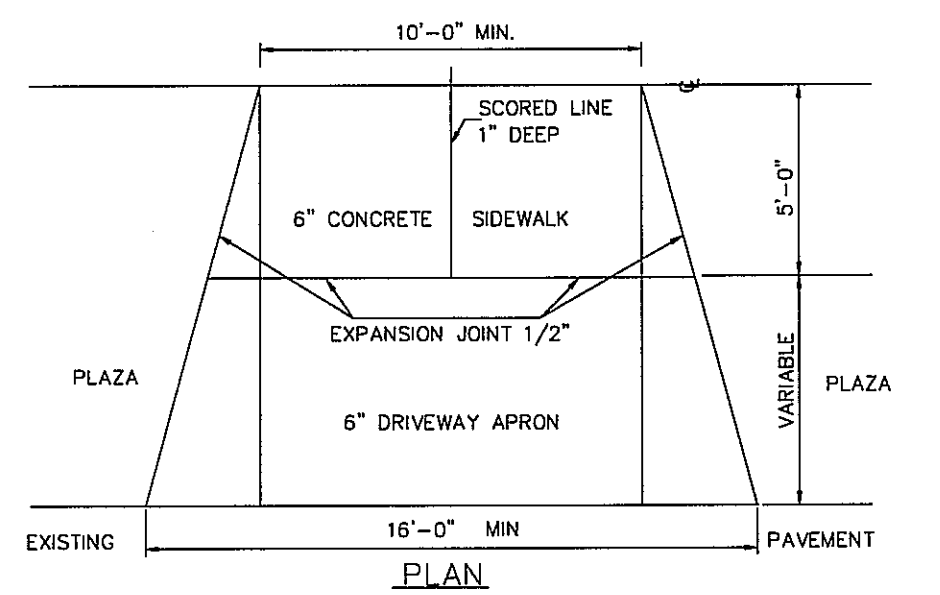
WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

OWNER: ANDREWS REACH DEVELOPERS, LLC
 ADDRESS: 8204 FAZIO DRIVE
 WILMINGTON, NC 28411
 PHONE: (910) 686-8100

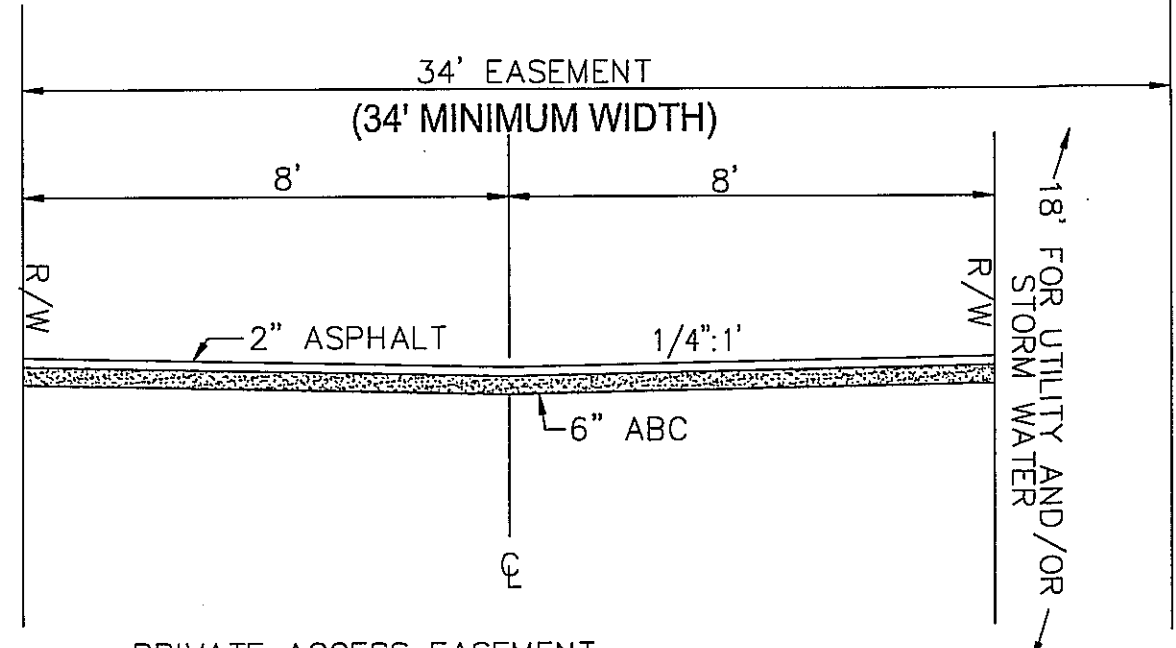
DESIGNED: OLM
 DRAWN: OLM
 APPROVED: JHF

DATE: 9/10/2014
 SCALE: 1" = 30'
 SHEET 4 OF 8

STROUD ENGINEERING, P.A.
 102-D CINEMA DRIVE
 WILMINGTON, NC 28403
 (910) 85-0775 (910) 85-0593 FAX



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



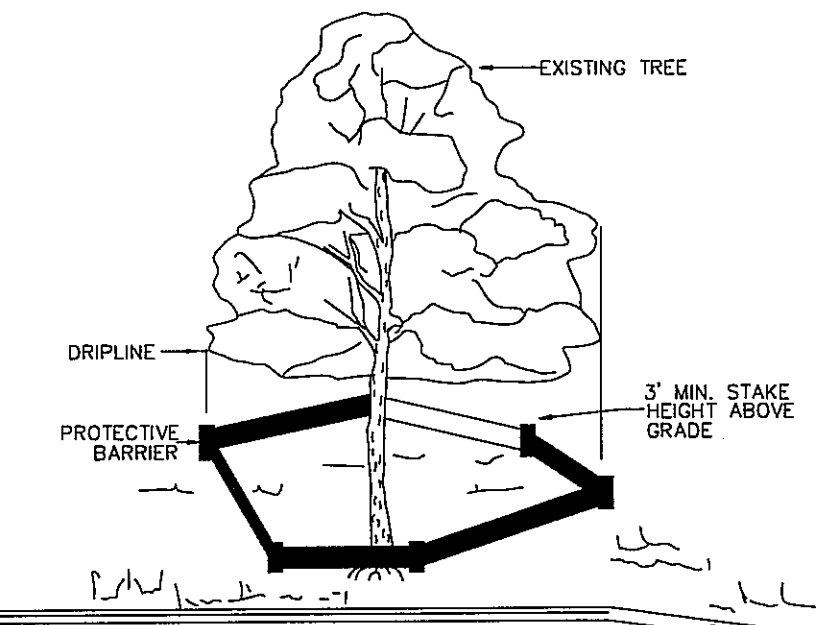
PRIVATE ACCESS EASEMENT
SEE NOTES

ALLEY NOTES:
1. NOT TO CONTAIN WATER AND SEWER UTILITY LINES

PRIVATE ACCESS EASEMENT NOTES:
1. 400' MAXIMUM LENGTH TO FURTHEST UNIT FROM PUBLIC STREET.
2. SERVES A MAXIMUM OF 4 SINGLE FAMILY OR DUPLEX UNITS.
3. 23' (MIN) WIDTH REQUIRED AT STREET INTERSECTION.

SECTION BETWEEN ANDREWS REACH LOOP AND LOT 2R SHALL BE CROWNED TO DRAIN TOWARD EXISTING DETENTION BASINS
PROPOSED PRIVATE ACCESS DRIVE LENGTH IS 493' MEASURED ALONG THE CENTERLINE FROM ANDREWS REACH LOOP R/W TO LOT 41.

| SPECIES | DBH | STATUS | REASON FOR REMOVAL |
|---------|-----|-----------|--------------------|
| GUM | 14" | REGULATED | SIDEWALK |
| GUM | 12" | REGULATED | WATER MAIN/ROADWAY |
| PINE | 13" | REGULATED | WATER MAIN |
| PINE | 20" | REGULATED | SW BASIN |
| PINE | 17" | REGULATED | SW BASIN |
| PINE | 17" | REGULATED | SW BASIN |
| PINE | 16" | REGULATED | SW BASIN |



TREE PROTECTION
NTS

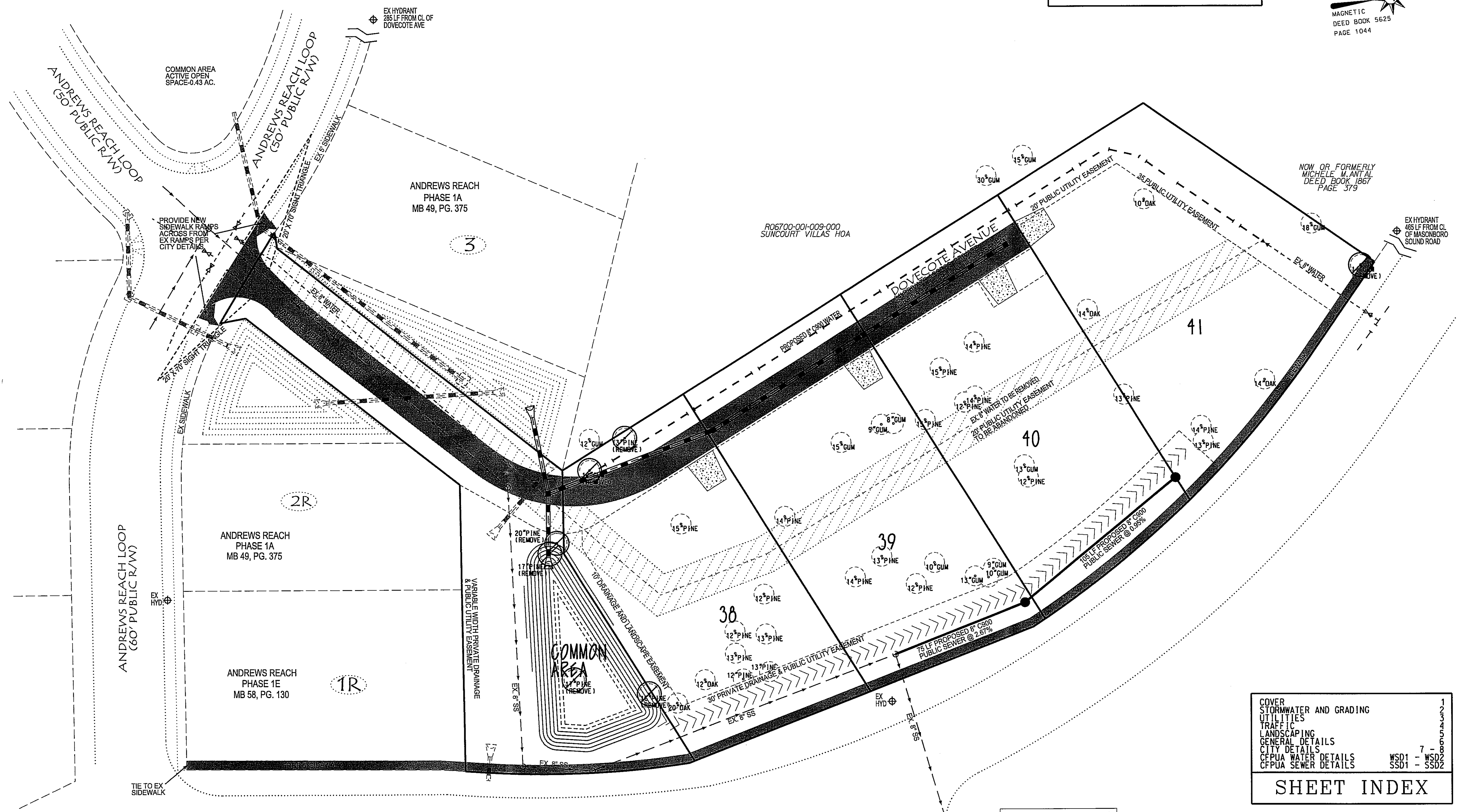
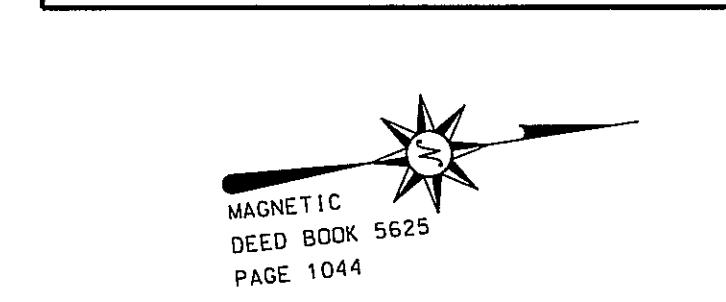
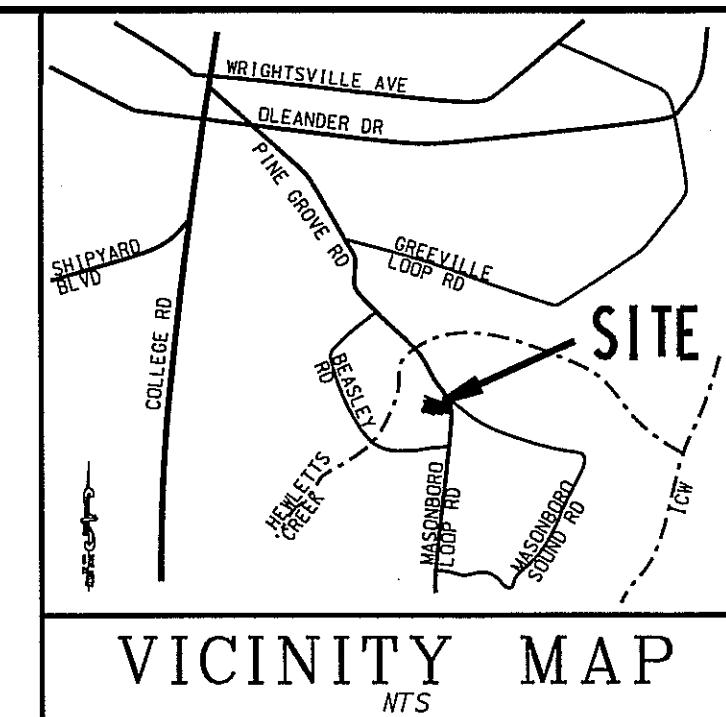
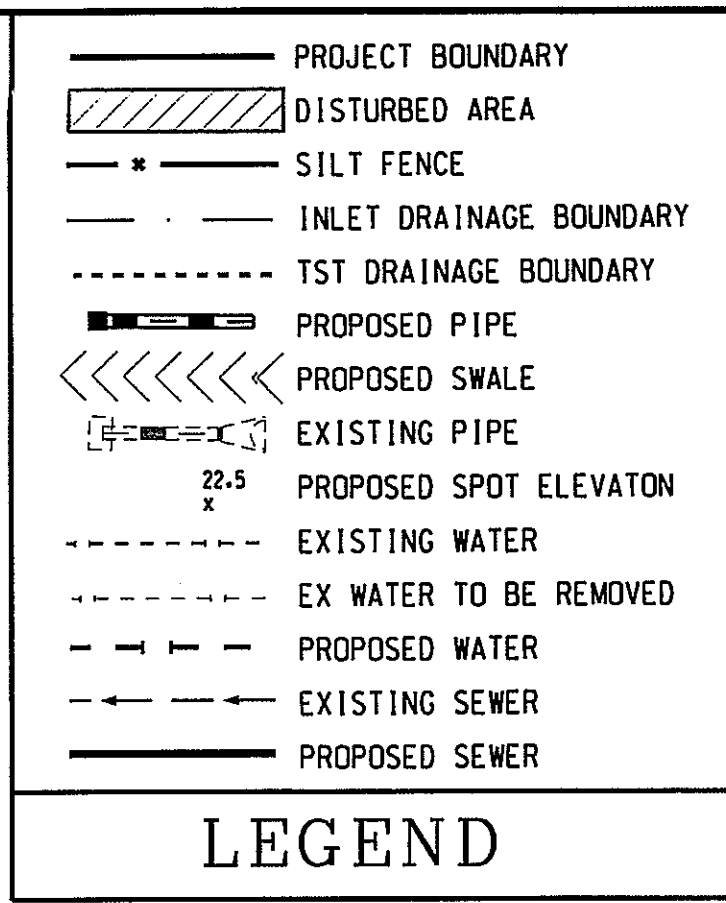
- GENERAL NOTES:
- CITY OF WILMINGTON WILL NOT PROVIDE SOLID WASTE COLLECTION SERVICES ON A PRIVATE EASEMENT. EITHER TRASH CARTS SHALL BE PLACED AT ANDREWS REACH LOOP OR PRIVATE SOLIDS WASTE COLLECTION SERVICES SHALL BE OBTAINED.
 - THE SITE IS NOT LOCATED WITHIN THE 100 YEAR FLOOD ZONE ACCORDING TO THE CURRENT FEMA FLOOD INSURANCE RATE MAP.
 - NO ADDITIONAL HYDRANTS ARE PROPOSED AS PART OF THIS PROJECT.

- LANDSCAPING NOTES:
- POND FACILITIES ARE IN ACCORDANCE WITH REQUIREMENTS OUTLINED IN CHAPTER V, SECTION D, PARAGRAPH 4(b), 4(g) AND 4(h) AND STANDARD DETAIL OF SD 15-16 OF THE CITY OF WILMINGTON TECHNICAL STANDARDS.
 - LANDSCAPE STRIP SHALL BE A MAXIMUM SLOPE OF 7:1 IN ORDER TO PLANT VEGETATION.
 - PROVIDE A MINIMUM OF 3 INCHES OF MULCH AROUND ALL VEGETATION.
 - ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 2'6" TO 10'0" ABOVE GRADE.

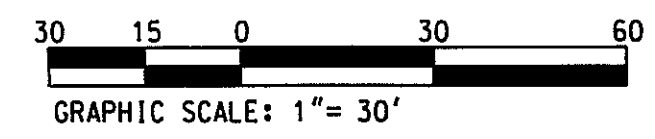
PROJECT AREA: 2.28 AC
TAX PIN: 99-442 SF
ZONING: R-15
CAMA LAND CLASS: CONSERVATION
RECEIVING STREAM: HEWLETTS CREEK
CLASSIFICATION: SA
IMPERVIOUS AREA: 9,175 SF
SIDEWALKS: 3,818 SF
LOTS (4 @ 5,000 SF): 20,000 SF
RESERVE (SEE NOTE): 1,000 SF
TOTAL: 34,000 SF
PERCENT BUA: 34.2 %
DISTURBED AREA: 2.0 AC

SITE DATA

BUA RESERVE NOTE:
REPORTED BUA RESERVE IS LIMITED BY CITY OF WILMINGTON DETENTION BASIN CAPACITY. ADDITIONAL RESERVE IS PERMITTED BY THE NCDENR STORMWATER PERMIT AND MAY BE UTILIZED BY EXPANDING THE CITY DETENTION BASIN CAPACITY AND MODIFYING THE CITY AND NCDENR STORMWATER PERMITS ACCORDINGLY.



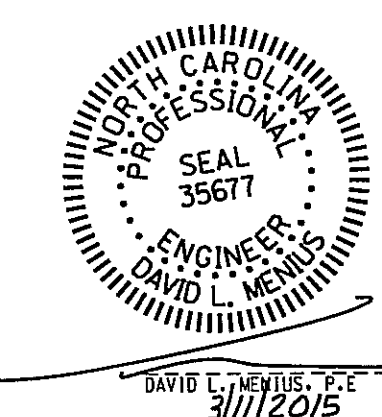
MASONBORO LOOP ROAD (SR #1492)
(VARIABLE WIDTH - R/W)



STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE: 3/23/15 PERMIT #:
SIGNED: [Signature]

Approved Construction Plan
Name: [Signature] Date: 3/23/15
Planning: [Signature] Date: 3/23/15
Public Utilities: [Signature] Date: 3-23-15
Traffic: [Signature] Date: 3-23-15
Fire: [Signature] Date: 3-23-15

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



COVER
STORMWATER AND GRADING
UTILITIES
TRAFFIC
LANDSCAPING
GENERAL DETAILS
CITY DETAILS
CFRUA WATER DETAILS
CFRUA SEWER DETAILS

1
7
7
7
7
7
7

WS01 - 7
SS01 - 7
SS02 - 7

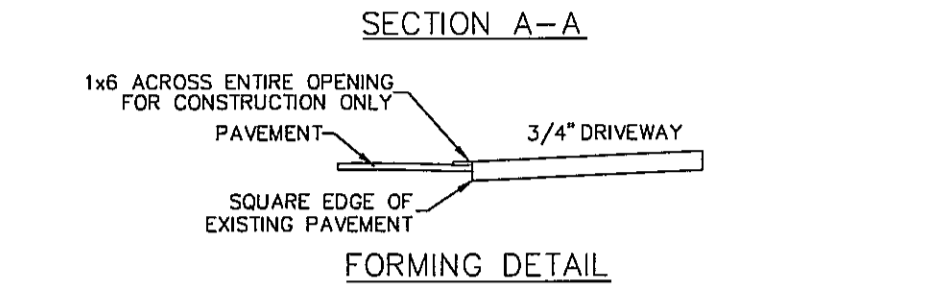
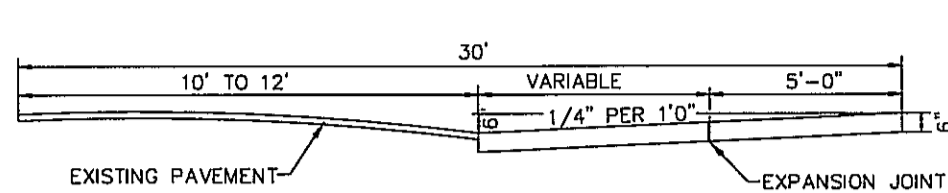
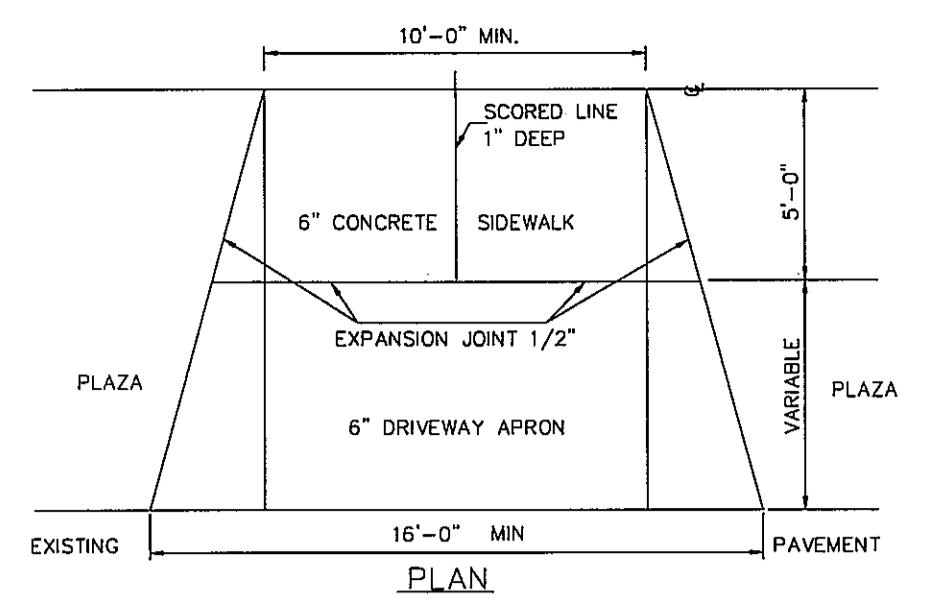
SHEET INDEX

LANDSCAPING
ANDREW'S REACH
- PHASE 2 -
WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

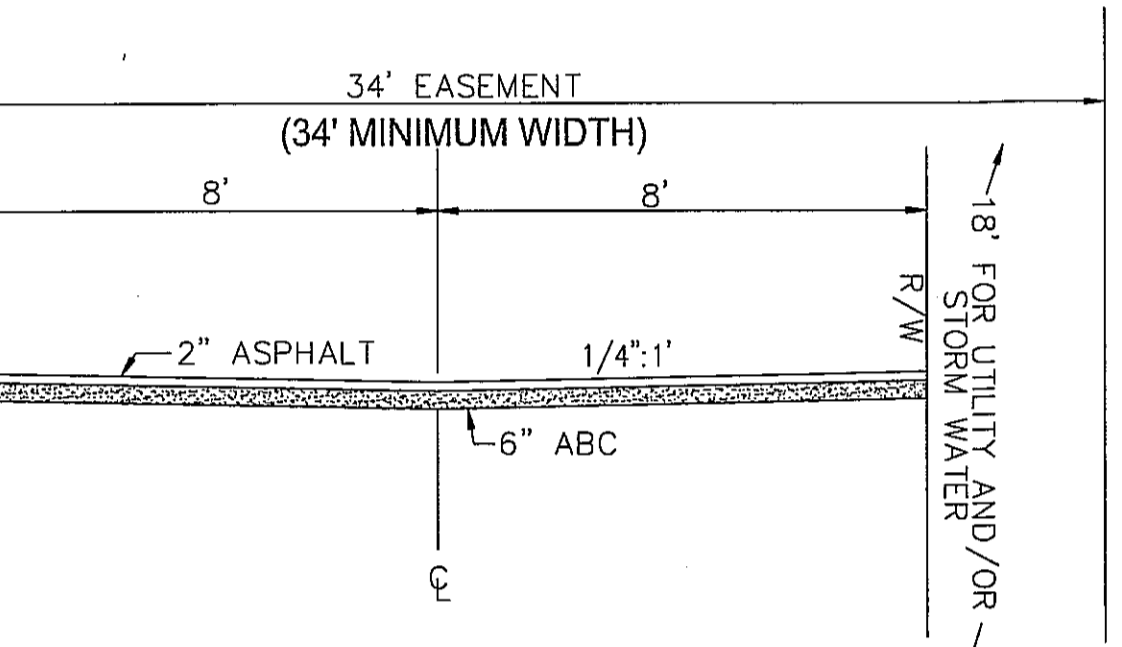
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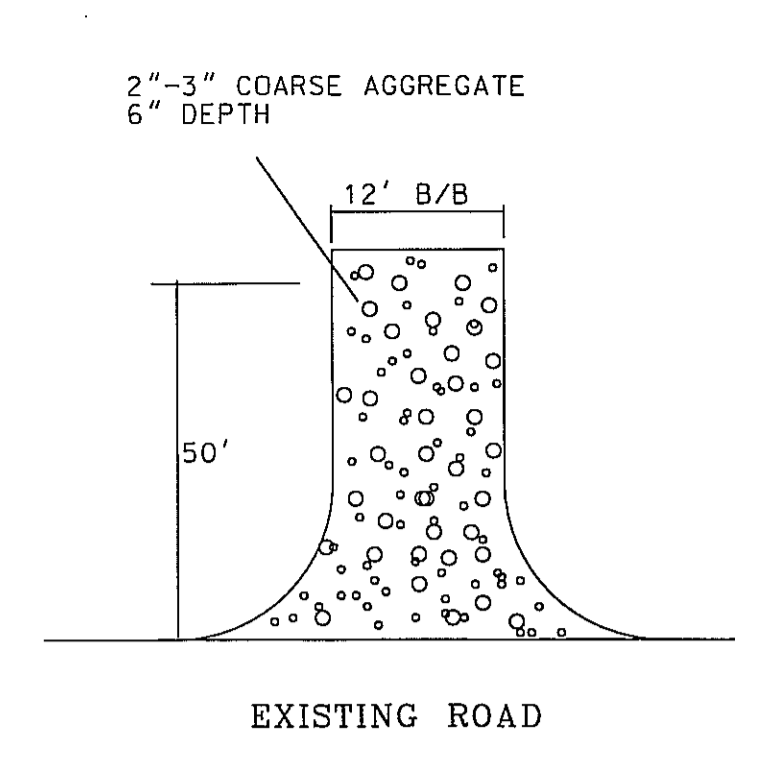
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SEE NOTES

ALLEY NOTES:
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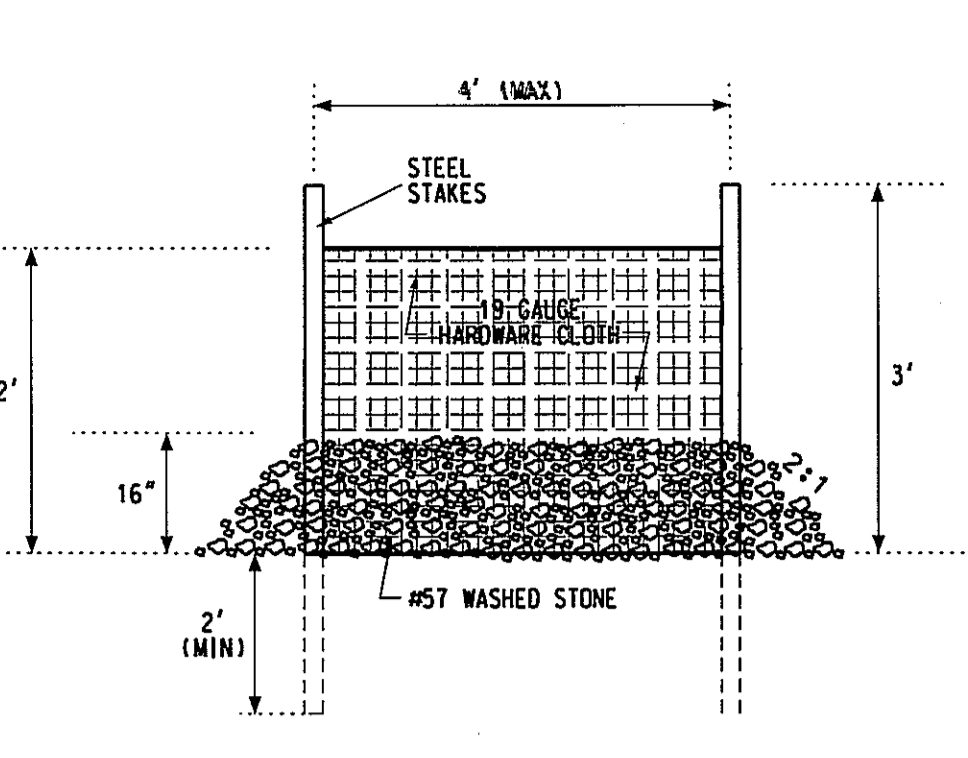
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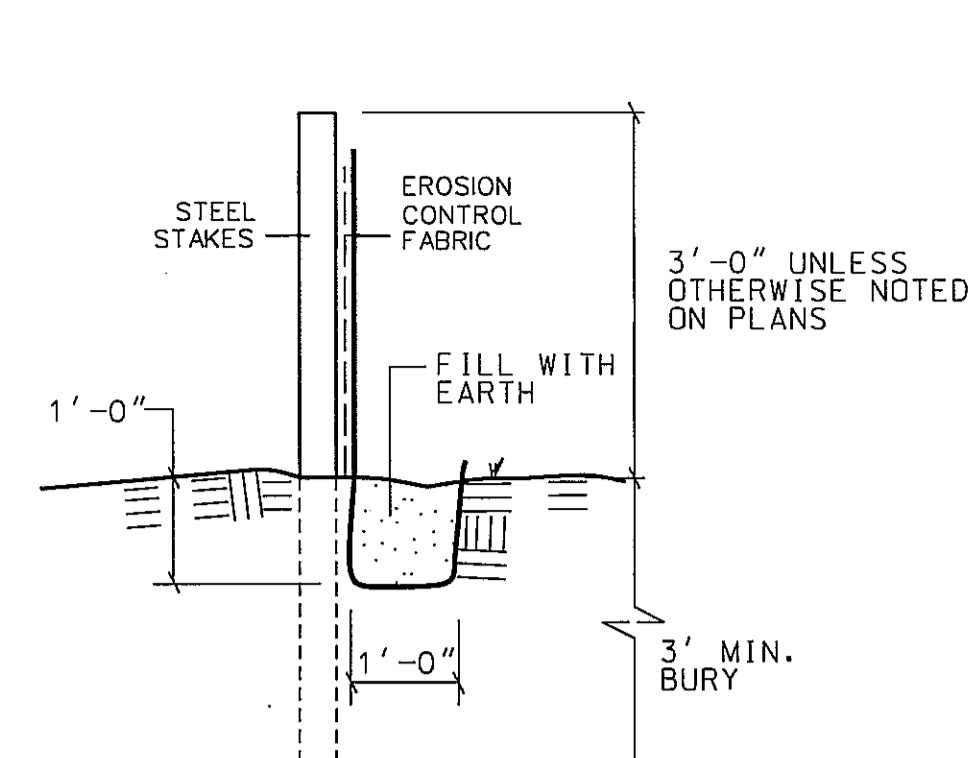
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CONSTRUCTION ENTRANCE
NTS

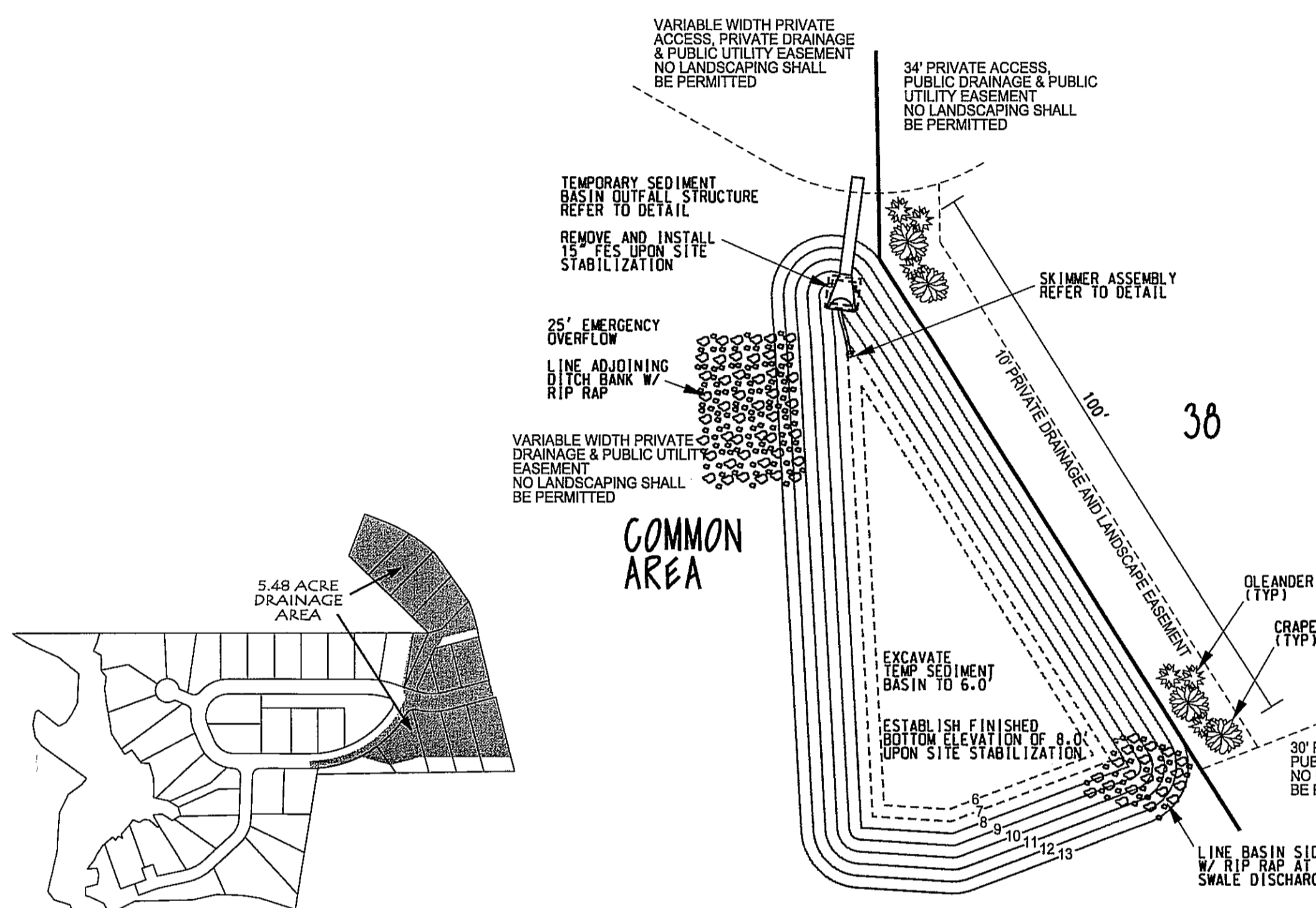


TYPICAL INLET PROTECTION
NTS



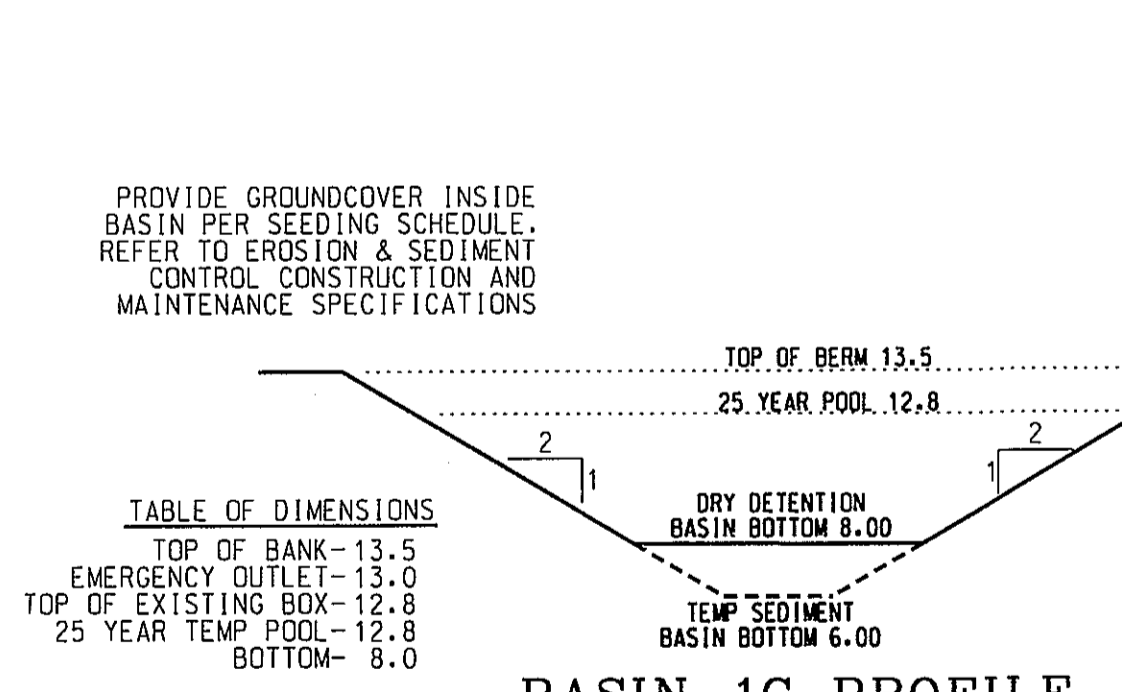
TYPICAL SILT FENCE
NTS

NOTE: POSTS TO BE SPACED 6 FT O.C. OR 8 FT O.C. W/ 14 GAUGE 6 X 6 WIRE MESH REINFORCEMENT. WOODEN POSTS ARE NOT ACCEPTABLE

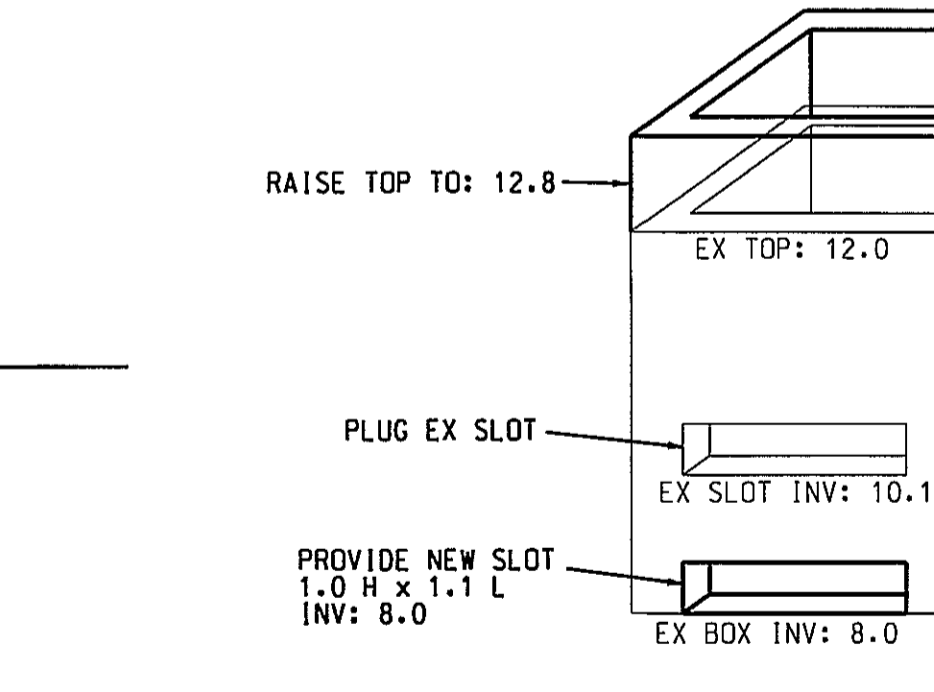


DRY DETENTION BASIN 1 DRAINAGE AREA MAP
1" = 400'

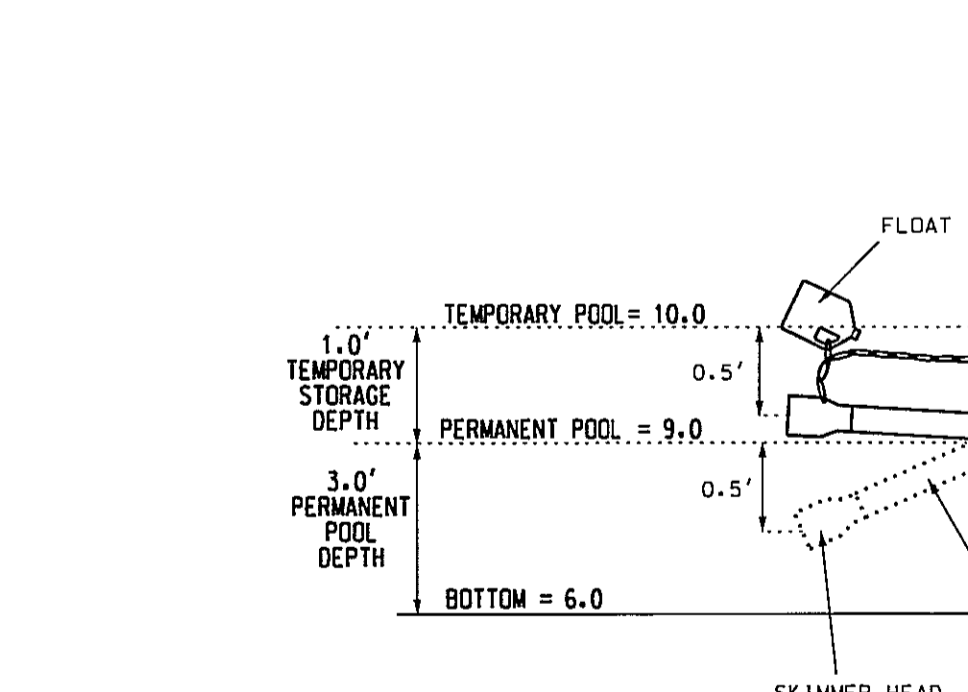
DRY DETENTION BASIN 1C DETAIL
1" = 20'



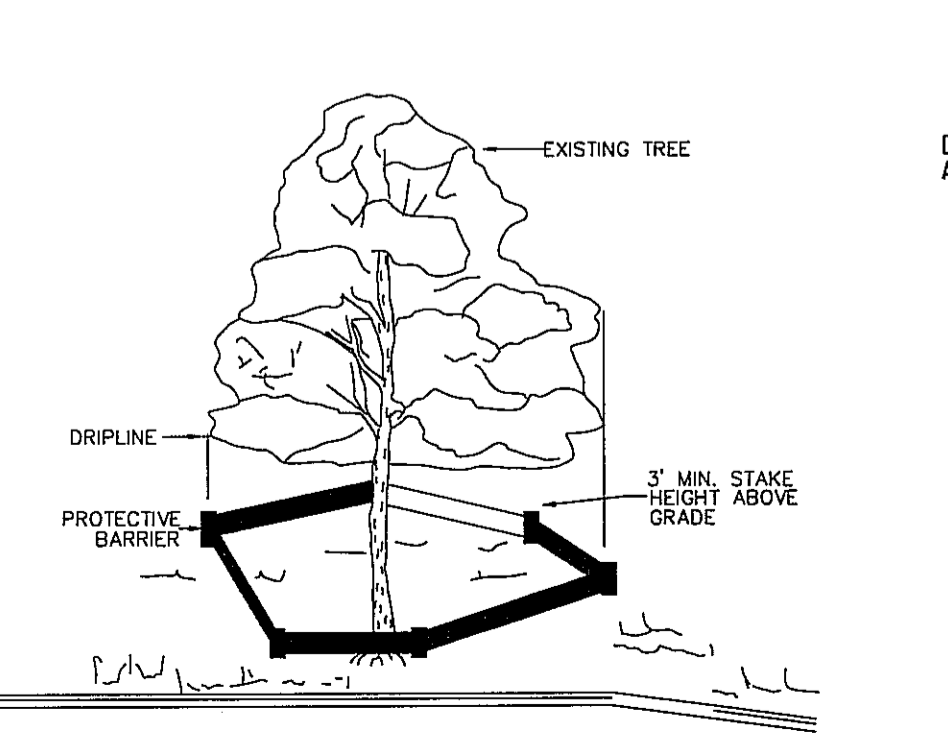
BASIN 1C PROFILE
N.T.S.



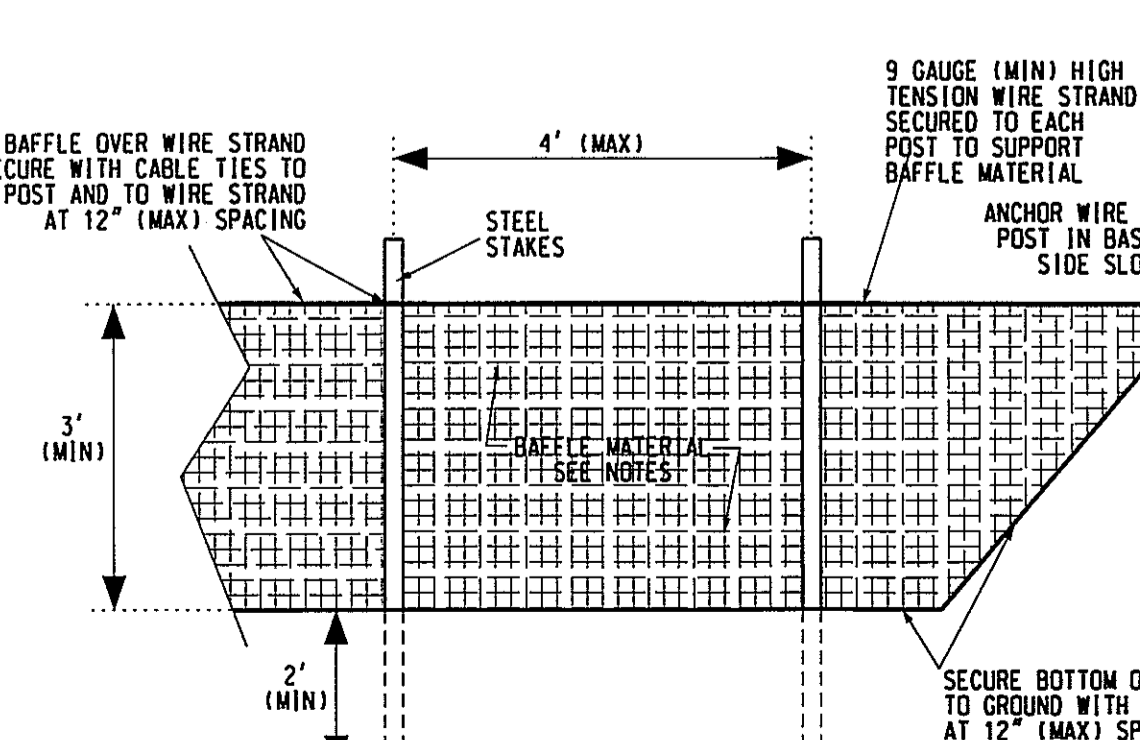
BASIN 1B OUTLET STRUCTURE DETAIL
NTS



SKIMMER ARM/TEMPORARY OUTLET STRUCTURE DETAIL
NTS

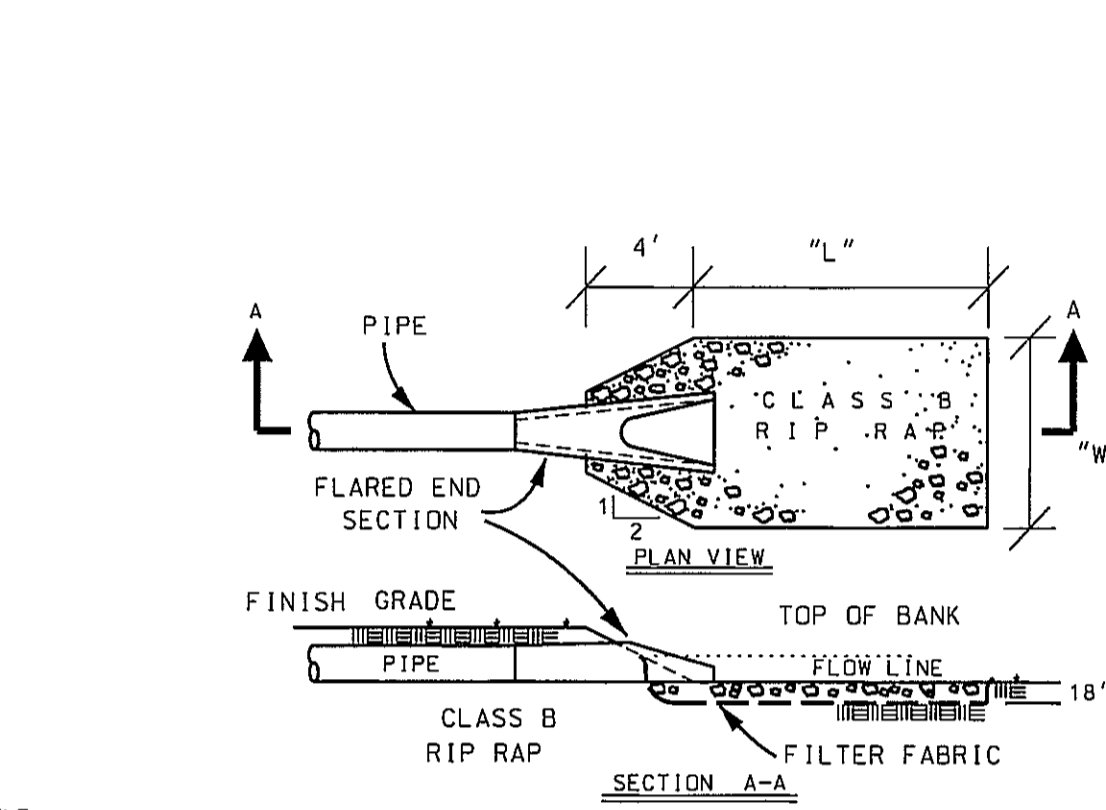


TREE PROTECTION
NTS



BAFFLE DETAIL
NTS

| GRID BAFFLE MATERIAL PROPERTY REQUIREMENTS | |
|--|-----------------------|
| THICKNESS | 0.30 IN (MIN) |
| TENSILE STRENGTH (WET) | 300 X 680 LB/FT (MIN) |
| ELONGATION (WET) | 65% X 34% (MAX) |
| FLOW VELOCITY | 10-12 FT/SEC |
| WEIGHT | 20 OZ/SY (MIN) |
| MINIMUM WIDTH | 6.5 FT |
| OPEN AREA | 50% (MAX) |



RIP RAP APRON DETAIL
NTS

| PIPE | LENGTH | WIDTH |
|------|--------|-------|
| 12" | 6.0' | 3.0' |
| 15" | 7.5' | 3.8' |
| 24" | 12.0' | 6.0' |
| 30" | 15.0' | 7.5' |
| 36" | 18.0' | 9.0' |

- EROSION & SEDIMENT CONTROL MAINTENANCE PLAN
- ALL EROSION AND SEDIMENTATION 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.
 - ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2" 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.
 - SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION, ROCK PIPE INLET PROTECTION, AND GUTTERBUDDY 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/SOCKS, AND GUTTERBUDDIES ONCE A WEEK AND AFTER EVERY RAIN EVENT. NOTE THAT THE GUTTERBUDDY IS REUSABLE SHOULD BE STORED OUT OF DIRECT SUNLIGHT BETWEEN JOBS.
 - 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 RESTABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.
 - 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 USED 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.
 - 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 DISLOADED. 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 FIRST BAFFLE. IF APPLICABLE, FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
 - SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLOADED. 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 FIRST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
 - 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.
 - FLOCCULANTS WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECTION SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.

COASTAL PLAIN SITE STABILIZATION SCHEDULE

Fertilize and lime per recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.

- Incorporate lime/fertilizer 4-6 inches.
- Roughen steep slopes by tracked machinery.
- Select species based on season. Refer to tables.
- Broadcast seeds evenly and cover by raking or grading a chain. Firm soil by rolling.
- Apply straw mulch at a rate 1-2 tons per acre. Anchor straw by raking with asphalt, netting, or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
- Re-fertilize if growth is not fully adequate. Reseed, re-fertilize and mulch immediately following erosion or other damage.

| Seeding Dates | Recommended Planting | Rate (lb/ac) |
|------------------|----------------------|--------------|
| Feb. 15 - Apr. 1 | Tall Fescue Mixture | see table 2 |
| Apr. 1 - May. 1 | Hybrid Bermudagrass | see table 2 |
| Apr. 1 - Jul. 15 | Common Bermudagrass | see table 2 |
| Mar. 1 - Jul. 1 | Centipede grass | see table 2 |

PERMANENT SEEDING TABLE 2a-LOW MAINTENANCE MIXTURES

| Site Description | Recommended Planting | Rate (lb/ac) |
|------------------------------|----------------------|--------------|
| Well to poorly drained soils | Tall Fescue Mixture | 80 |
| | Panola Bahiagrass | 50 |
| | Kobe Lespedeza | 40 |
| Dry to well drained soils | Panola Bahiagrass | 50 |
| | Common Bermudagrass | 30 |
| | Kobe Lespedeza | 10 |
| Swales | Common Bermudagrass | 40-80 |

PERMANENT SEEDING TABLE 2b-HIGH MAINTENANCE MIXTURES

| Site Description | Recommended Planting | Rate (lb/ac) |
|---|----------------------|--------------|
| Well to poorly drained soils | Tall Fescue Mixture | 200 |
| | Rye Grain | 25 |
| Dry to well drained soils | Hybrid Bermudagrass | 50 |
| Well drained sandy loam to sandy loams. | Centipede grass | 10-20 |

Notes:
For seeding outside of recommended dates and/or for temporary stabilization, refer to temporary seeding table.

For highly erosive areas or as directed by an engineer, sod shall be provided.

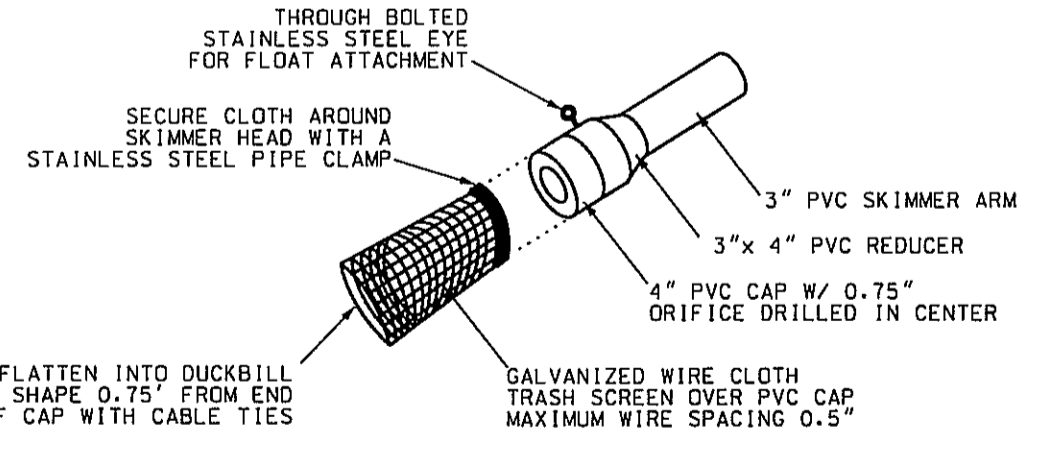
TEMPORARY SEEDING TABLE

| Seeding Dates | Recommended Planting | Rate (lb/ac) |
|-------------------|-------------------------------|--------------|
| Dec. 1 - Apr. 15 | Kobe Lespedeza with Rye Grain | 50 |
| Apr. 15 - Aug. 15 | German Millet | 40 |
| Aug. 15 - Dec. 1 | Rye Grain | 120 |

- SOD INSTALLATION
- Fertilize and lime per recommendations of soil tests or apply 100 lb/1,000 sf ground agricultural limestone and 25 lb/1,000 sf fertilizer. In the fall, use 10-10-10. In the spring, use 5-10-10.
 - Incorporate lime/fertilizer 4-5 inches.
 - Rake or harrow to achieve a smooth finish.
 - Roll to achieve a smooth, firm surface on which to lay the sod.
 - Lightly rake and irrigate top layer of soil just prior to installation.
 - Lay sod in a staggered, brick-like pattern with the longest dimension perpendicular to the slope. Avoid gaps. Use a knife to fit irregular shapes. Roll sod lightly after installation to ensure good sod to soil contact.
 - Irrigate initially to wet soil to a depth of 4". Keep soil moist 2-3 weeks thereafter or until sod has taken root.
 - Flocculants will be used to address turbidity issues. The pumps, tanks, hoses and injection systems will be checked for problems or turbid discharges daily.

NPDES STABILIZATION TIMEFRAMES

| SITE AREA DESCRIPTION | STABILIZATION | TIMEFRAME EXCEPTIONS |
|--|---------------|--|
| PERIMETER DIKES, SWALES, AND DITCHES | 7 DAYS | NONE |
| HIGH QUALITY WATER (HOW) ZONES | 7 DAYS | NONE |
| SLOPES STEEPER THAN 3:1 | 7 DAYS | IF SLOPES ARE 10' OR LESS IN LENGTH AND FLATTER THAN 2:1 THEN 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER | 14 DAYS | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH. |
| OTHER AREAS WITH SLOPES FLATTER THAN 4:1 | 14 DAYS | NONE |

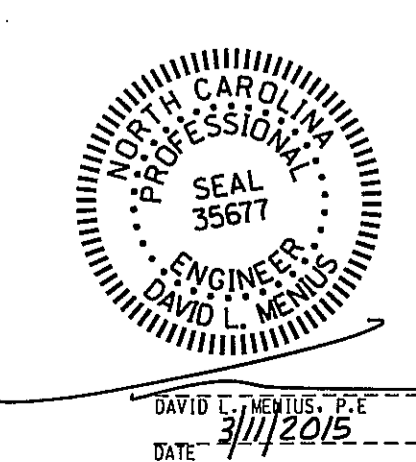


SKIMMER HEAD DETAIL
NTS

- CONSTRUCTION SEQUENCE
- INSTALL INLET PROTECTION, SILT FENCE, SEDIMENT BASIN, AND STONE CONSTRUCTION ENTRANCES.
 - CLEAR & GRADE
 - INSTALL UNDERGROUND UTILITIES
 - INSTALL PAVEMENT
 - PROVIDE 100% VEGETATIVE COVER OF ALL DISTURBED SOILS.
 - CLEAN SEDIMENT FROM PIPES AFTER STABILIZATION.

NOTE:
NO WETLANDS EXIST IN DISTURBED PORTIONS OF SITE.

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 [Signature]

Approved Construction Plan
Name [Signature] Date 3/27/15
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Public Utilities [Signature]
Traffic [Signature] 3-23-15
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DETAILS

ANDREWS REACH
- PHASE 2 -

WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

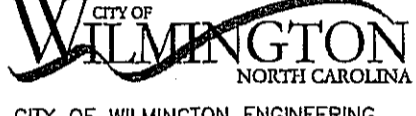
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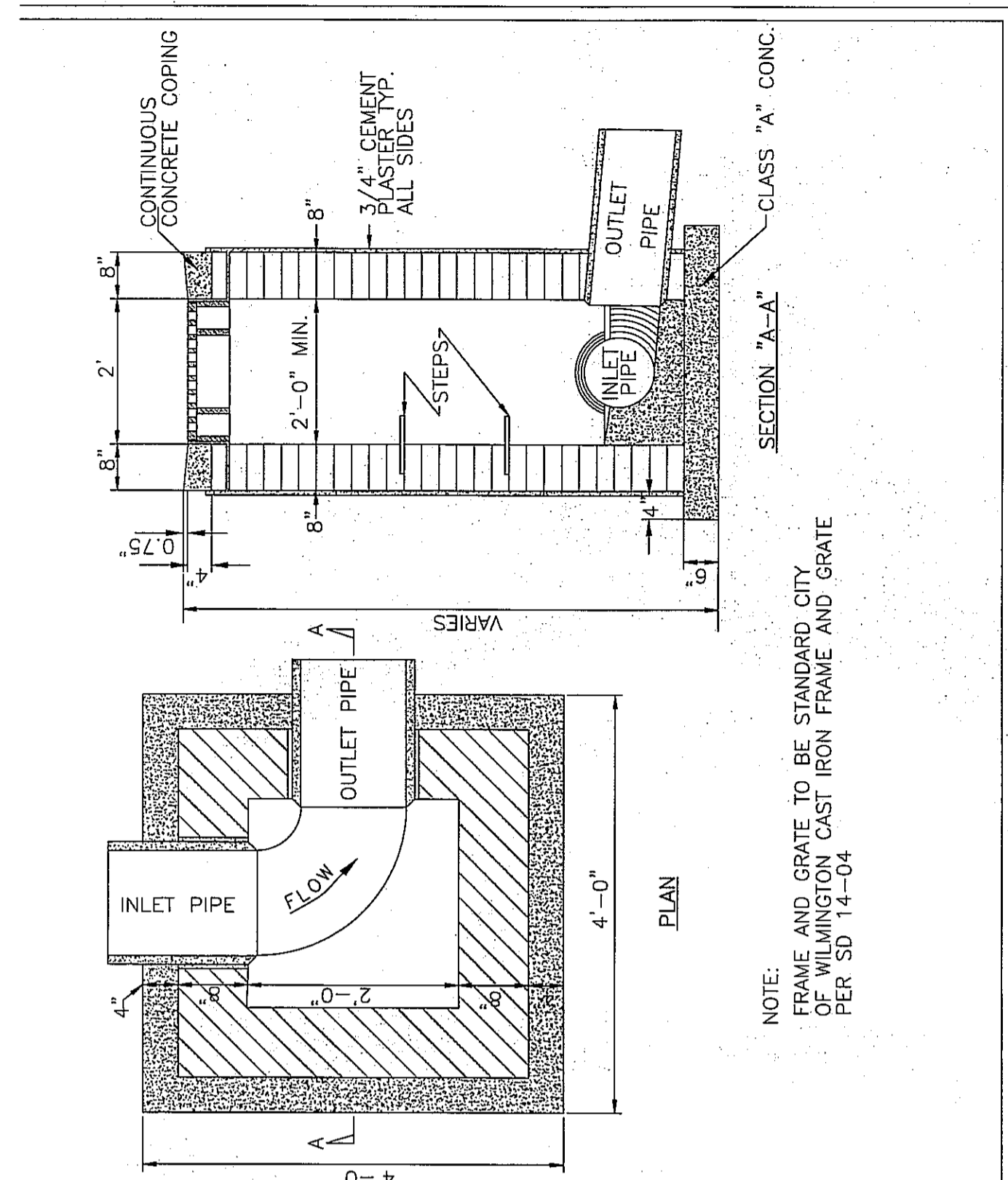
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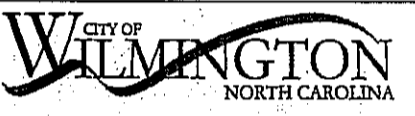
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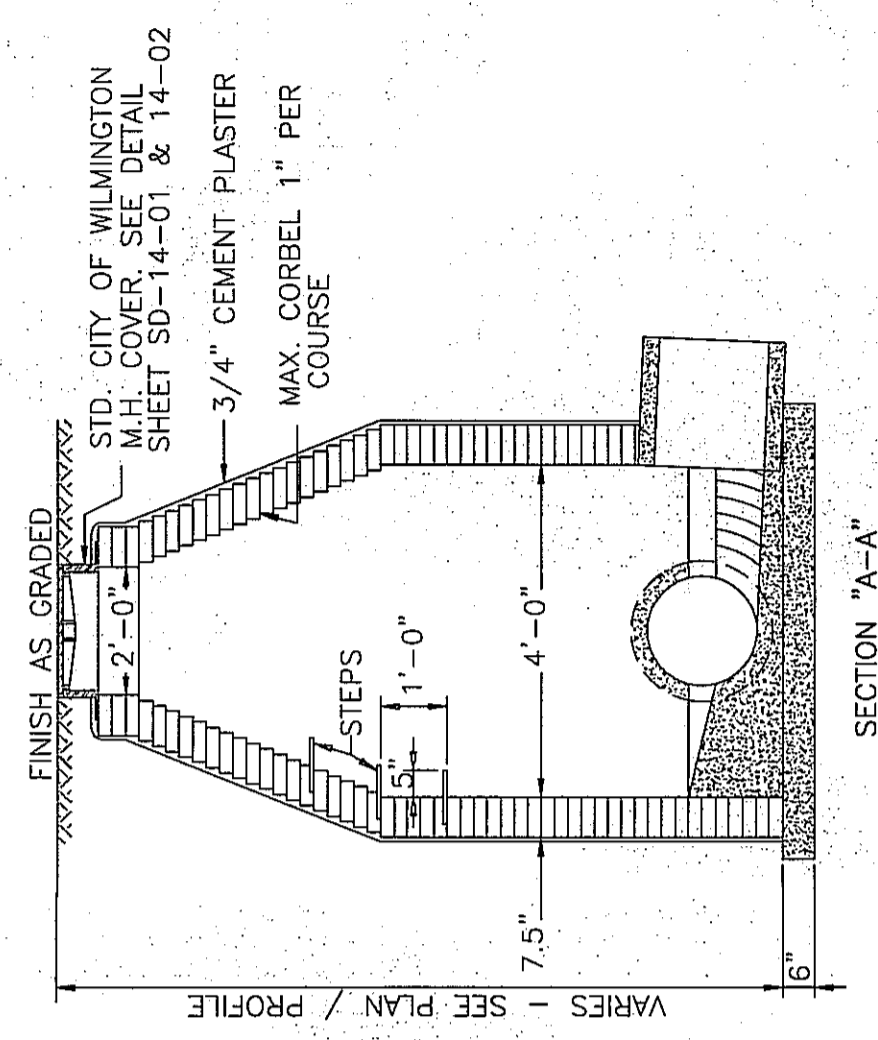
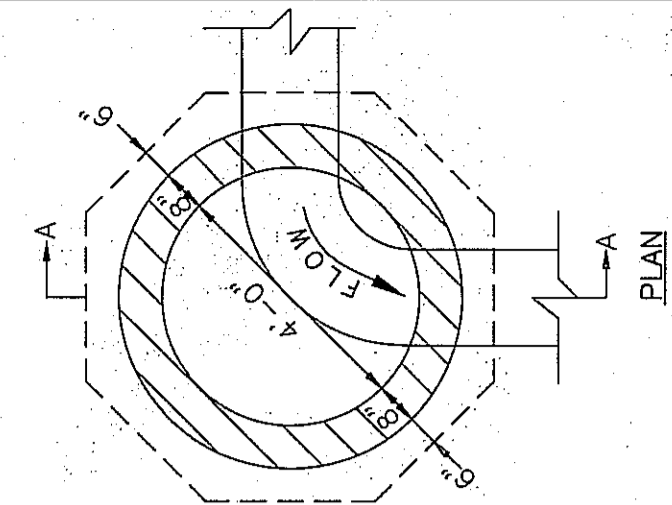
GENERAL NOTES:

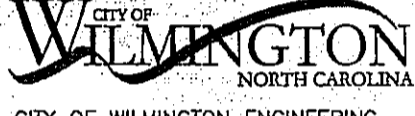
- * USE 4000 PSI CONCRETE, PROVIDE FOR H-20 TRAFFIC LOADING.
- * PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185.
- * LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 6'-0".
- * PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704
- * SAW CUT, CORE DRILL OR FORM OPENINGS, FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCKOUT/WAFFLE PANELS ONLY. SEAL OPENINGS WITH HYDRAULIC CEMENT.
- * ALL ELEMENTS PRECAST TO MEET ASTM C913.
- * SET ON 6" WASHED STONE
- * FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH BRICK.
- * PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS/LADDER INSTALLED IN ACCORDANCE WITH ASHA STANDARD 1910.27 AND AS FIELD CONDITIONS DICTATE.
- * WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- * SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-19B, TYPE B - BUTYL RUBBER.
- * LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 2'-6" x 3'-0".
- * USE FRAME AND GRATE AS PER SD-19.
- * GROUT INVERT TO PROVIDE SMOOTH FLOW

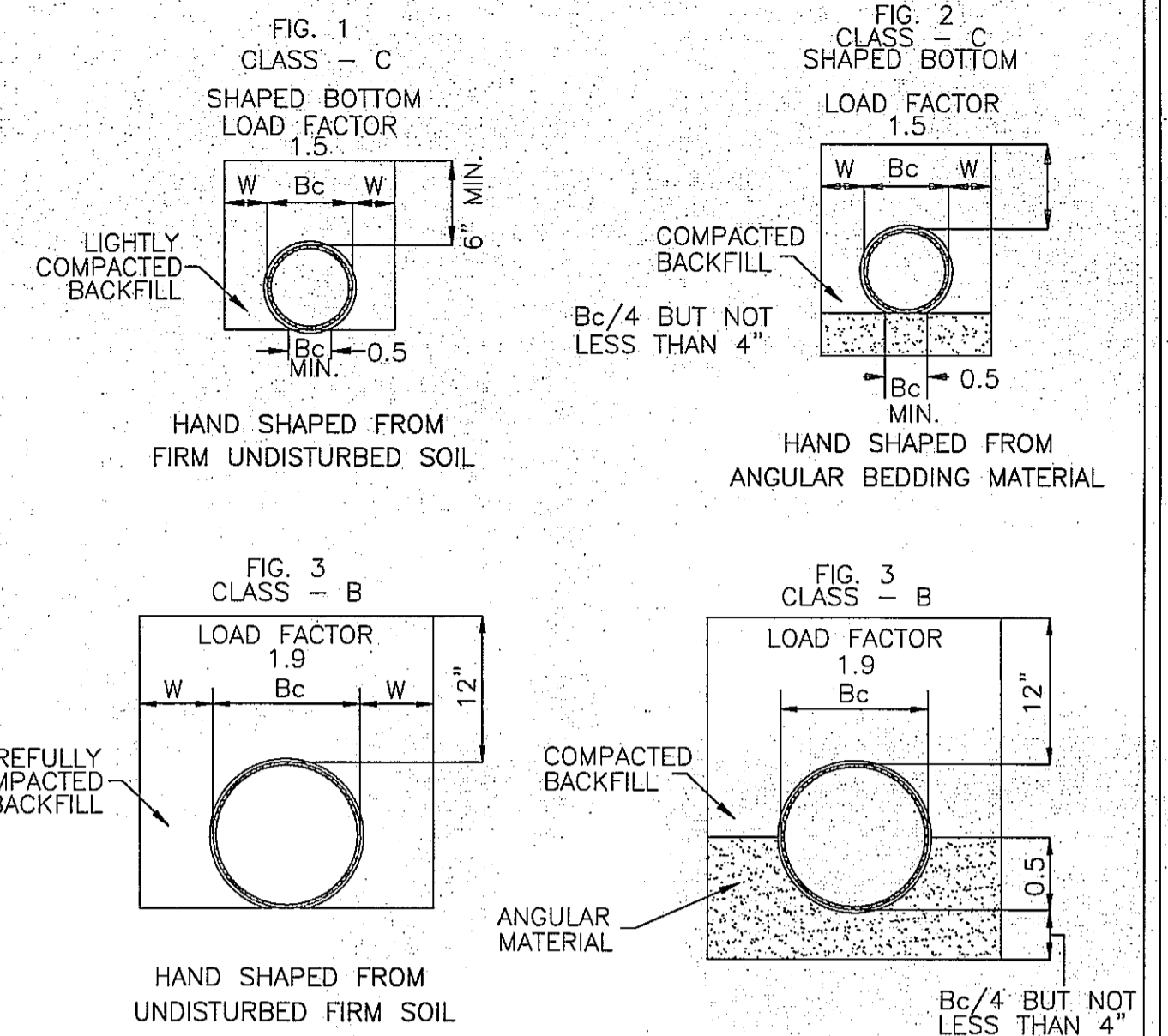
| | | |
|-----------------------|-----------------------------------|--|
| DATE: 2001 | STANDARD DETAIL |  CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807 |
| DRAWN BY JSR/CMR | PRECAST WAFFLE DRAINAGE STRUCTURE | |
| CHECKED BY B.P., P.E. | GENERAL NOTES | |
| SCALE NOT TO SCALE | | |

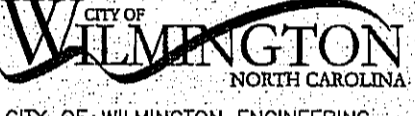


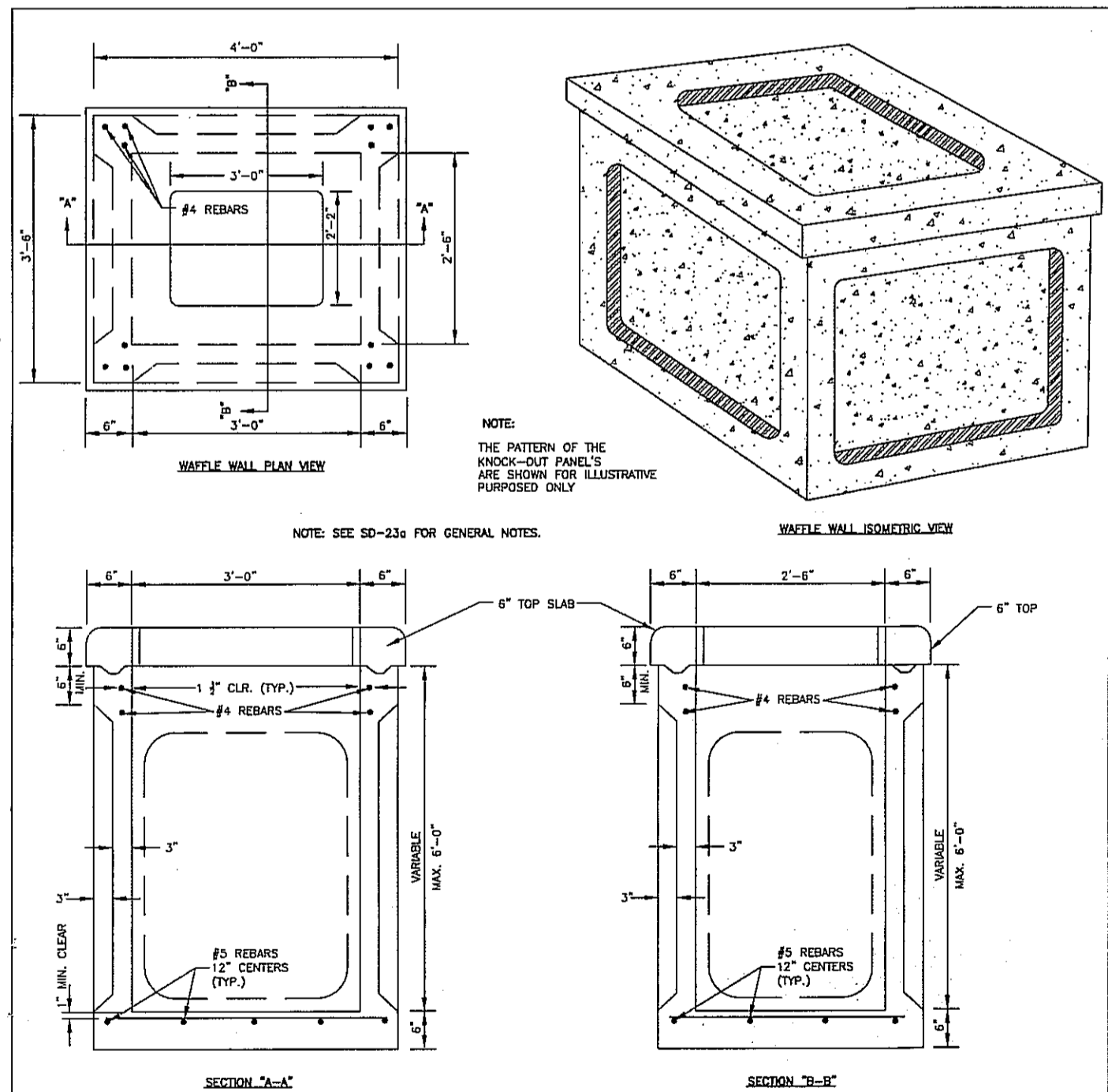
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| DATE: 2001 | STANDARD DETAIL |  CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807 |
| DRAWN BY JSR | GRILL BASIN | |
| CHECKED BY B.P., P.E. | | |
| SCALE NOT TO SCALE | | |




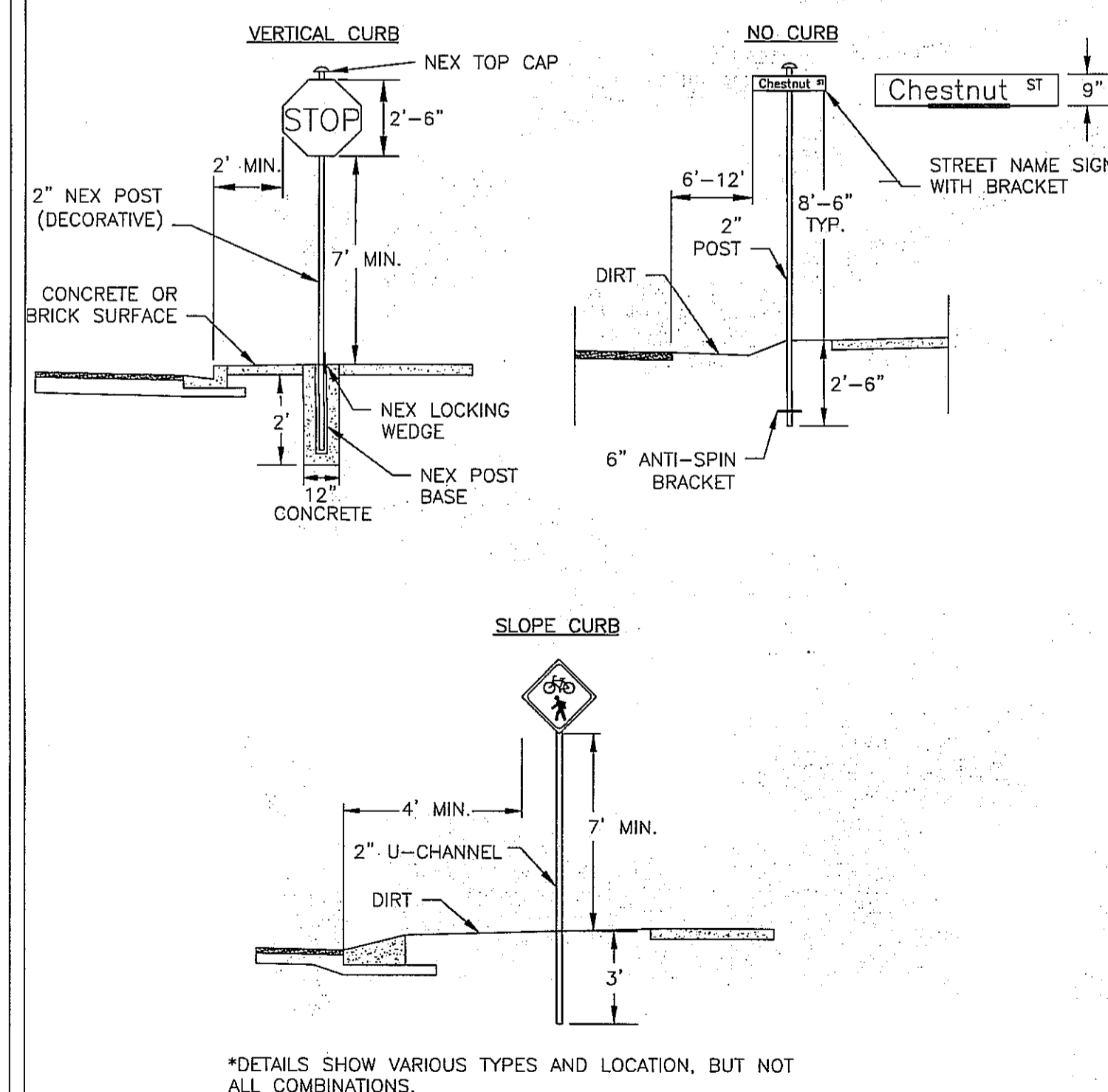
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| DATE: 2001 | STANDARD DETAIL |  CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807 |
| DRAWN BY JSR/CMR | GUIDELINES FOR STORM DRAIN MANHOLE | |
| CHECKED BY B.P., P.E. | | |
| SCALE NOT TO SCALE | | |




| | | |
|-----------------------|---|--|
| DATE: 2001 | STANDARD DETAIL |  CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807 |
| DRAWN BY JSR/CMR | GUIDELINES FOR BEDDING DETAILS, STORM SEWER CLASSES (B & C) | |
| CHECKED BY B.P., P.E. | | |
| SCALE NOT TO SCALE | | |




| | | |
|-----------------------|-----------------------------------|--|
| DATE: 2001 | STANDARD DETAIL |  CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807 |
| DRAWN BY JSR/CMR | PRECAST WAFFLE DRAINAGE STRUCTURE | |
| CHECKED BY B.P., P.E. | | |
| SCALE NOT TO SCALE | | |



| | | |
|----------------------|---------------------------|--|
| DATE: NOVEMBER, 2011 | STANDARD DETAIL |  CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807 |
| DRAWN BY JSR | STREET SIGNS AND LOCATION | |
| CHECKED BY BDR, P.E. | | |
| SCALE NOT TO SCALE | SHEET 1 of 2 | |

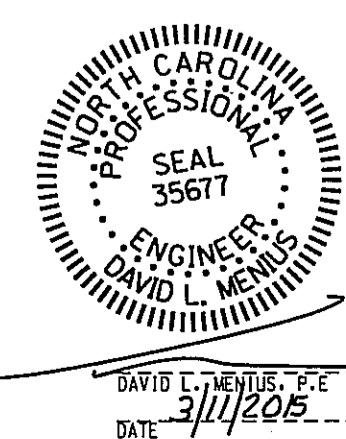
- SIGNS**
- All signs shall meet the requirements of MUTCD and City Traffic Engineering in effect at the time of construction.
 - All Traffic Control Signs including multi-use paths shall be fabricated with 0.080 inch aluminum blanks using high intensity prismatic reflective sheeting Type IV or better. STOP signs shall be a minimum of 30"x30".
 - SPECIAL DESIGNATION signs by location and type shall adhere to City of Wilmington signage plan (ie. downtown, historic, cross-city trail, parks, riverfront, scenic by-way, parking, etc.) and all associated policies.
 - POST MOUNTED STREET NAME SIGNS shall be fabricated with 9" extruded aluminum street name sign blanks using a standard cut-out. Minimum sign length is 18" long and increasing in 6" increments to 54" maximum as dictated by the number of letters in the name. The color scheme shall be white letters on a green background without a border. Generally, in the downtown and historic areas or as designated in the City of Wilmington signage plan the background shall be blue and contain a topper.
 - Decorative sign posts shall consist of the NEX sign support system, 2" octagonal tube, 14 gauge, powder coated glossy black and include cap, post, base and wedge.
 - All other sign posts shall be u-channel posts made of galvanized steel with 8" posts 2lbs/ft or 12" posts 3lbs/ft. Galvanized NEX post may be substituted with approval from the City Signs and Markings Engineer.
 - OVERHEAD STREET NAME SIGNS shall be fabricated with 0.080 inch aluminum flat sign blanks 18" in height using a standard cut-out. Sign length will be dictated by the number of letters in the name. For mast-arm type traffic signal supports and other overhead support systems refer to the design plans for maximum sign length.
 - All sign lettering, colors and fonts shall adhere to the MUTCD in effect at the time of construction. Fluorescent Yellow-Green shall be used on signs, in place of Yellow, when listed as an optional color in the MUTCD. Generally, the font will be FHWA series fonts (Highway Gothic.) Other font types require prior City Signs and Markings Engineer approval.
- LOCATION**
- Sign locations depend on the edge of road condition. Generally, signs shall be a minimum 2' from face of a vertical curb, 4' from front of slope face curb, and 6' from edge of pavement without curb. Signs shall not be located more than 12' from any of these locations.
 - Sign posts installed in dirt shall be buried a minimum of 36". Octagonal posts shall utilize an anti-spin device, 6" in length minimum. Sign posts installed in concrete or brick shall utilize a base cast in concrete 24" x 12" diameter.
 - Street name signs shall be installed 8'-6" from the ground to the bottom of the sign. Street name signs co-located with STOP signs shall be installed above the STOP sign. A 6" space shall be maintained between the STOP sign and a Street name sign that is parallel to the STOP sign face. All other signs should be mounted per MUTCD guidelines for Urban Areas.

| | | |
|----------------------|---------------------------|--|
| DATE: NOVEMBER, 2011 | STANDARD DETAIL |  CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807 |
| DRAWN BY JSR | STREET SIGNS AND LOCATION | |
| CHECKED BY BDR, P.E. | | |
| SCALE NOT TO SCALE | SHEET 2 of 2 | |

STORMWATER MANAGEMENT PLAN
APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE _____ PERMIT # _____
 SIGNED *[Signature]*

Approved Construction Plan
 Name _____ Date _____
 Planning *[Signature]* 3/23/15
 Public Utilities *[Signature]* n/a
 Traffic *[Signature]* 3-23-15
 Fire *[Signature]* 3-30-15

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 DETAILS

ANDREW'S REACH

- PHASE 2 -

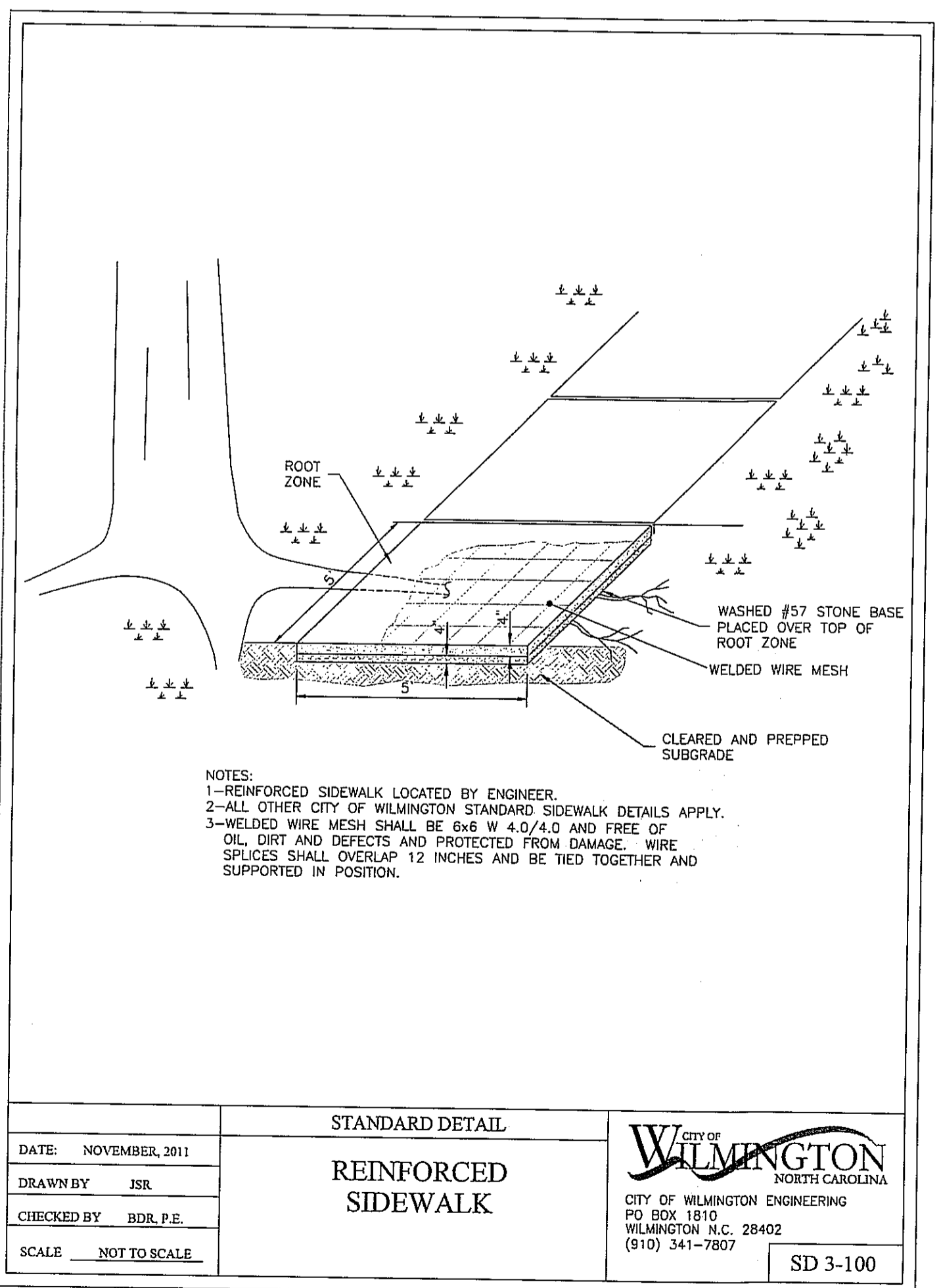
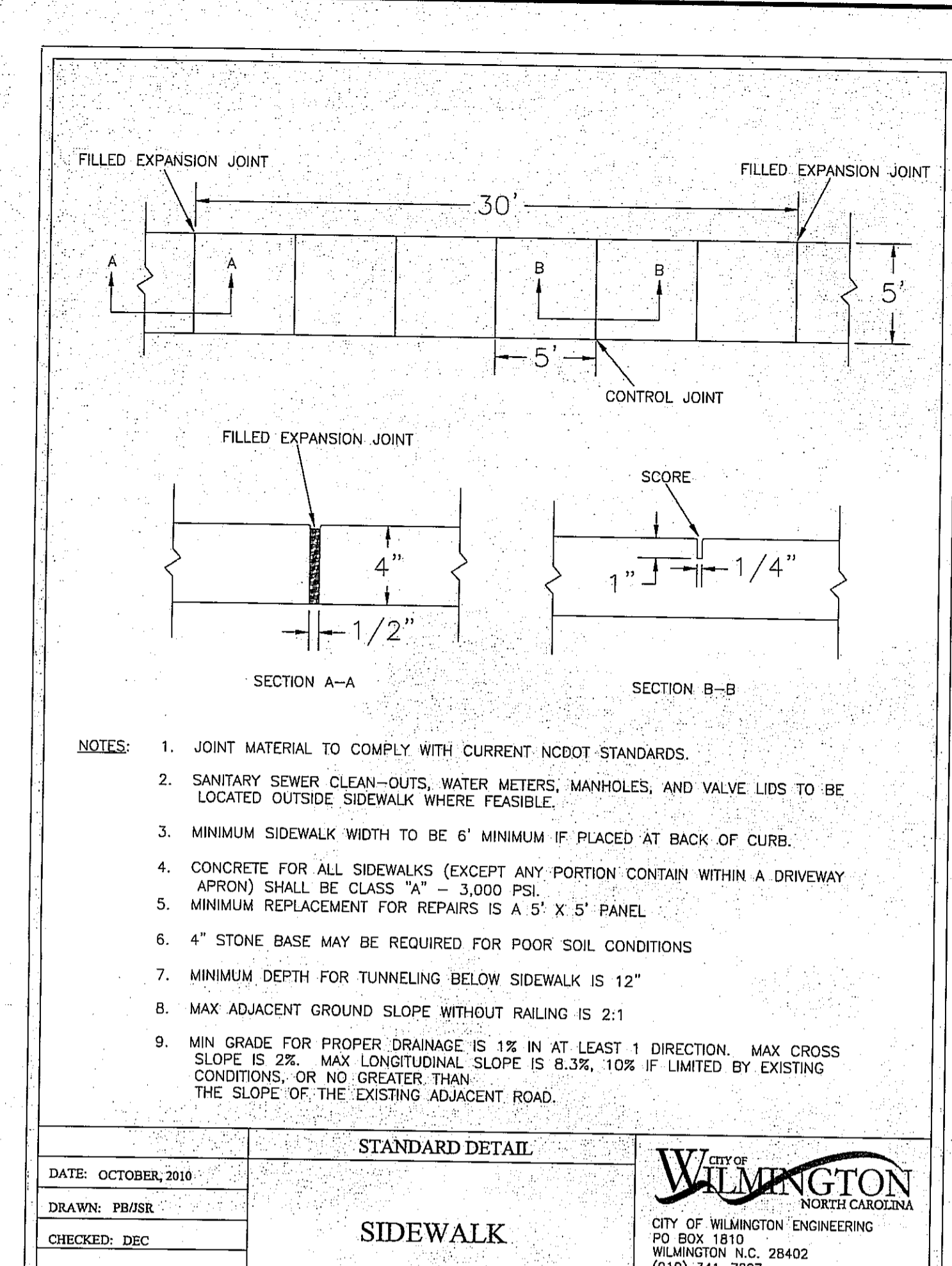
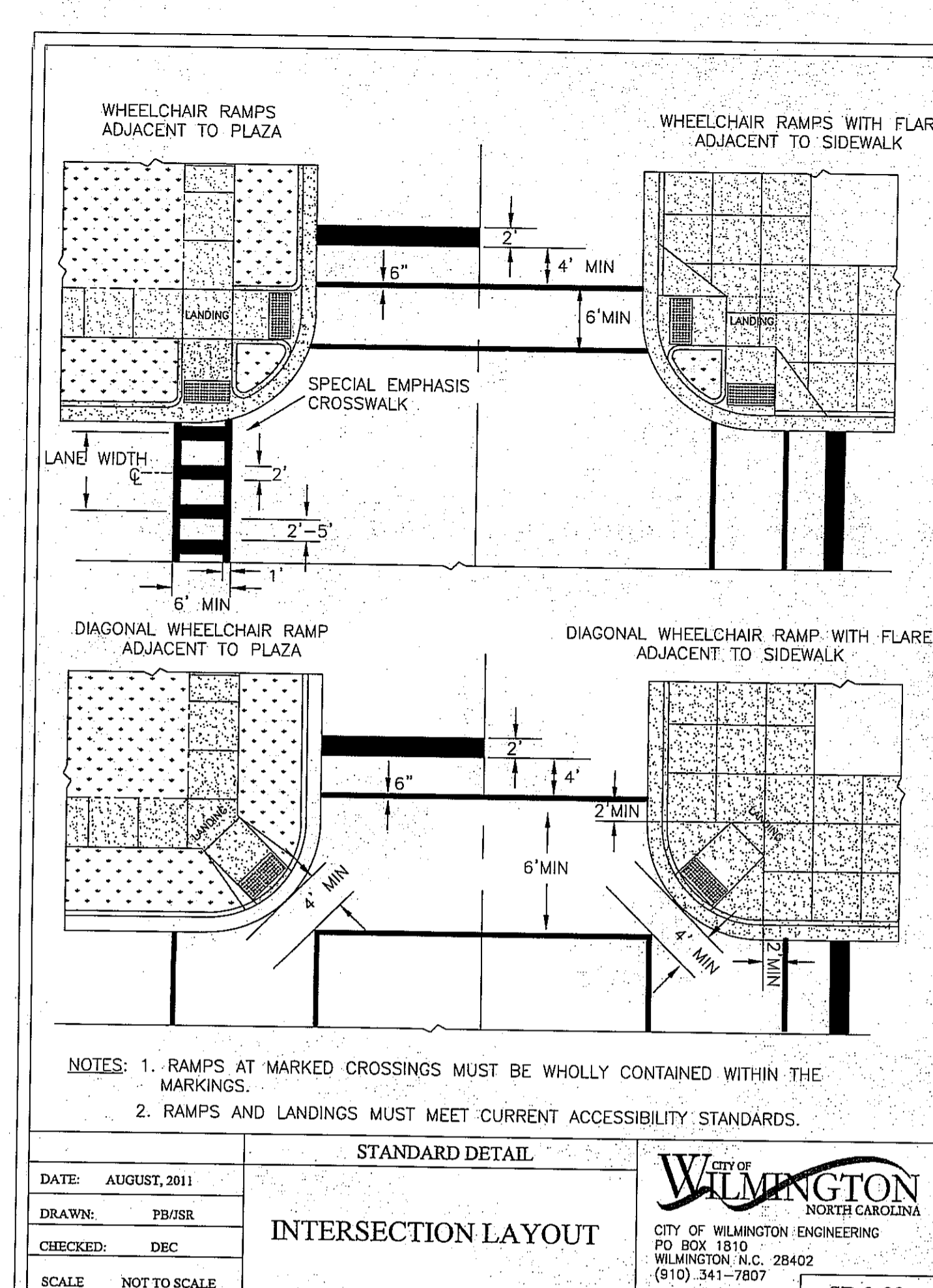
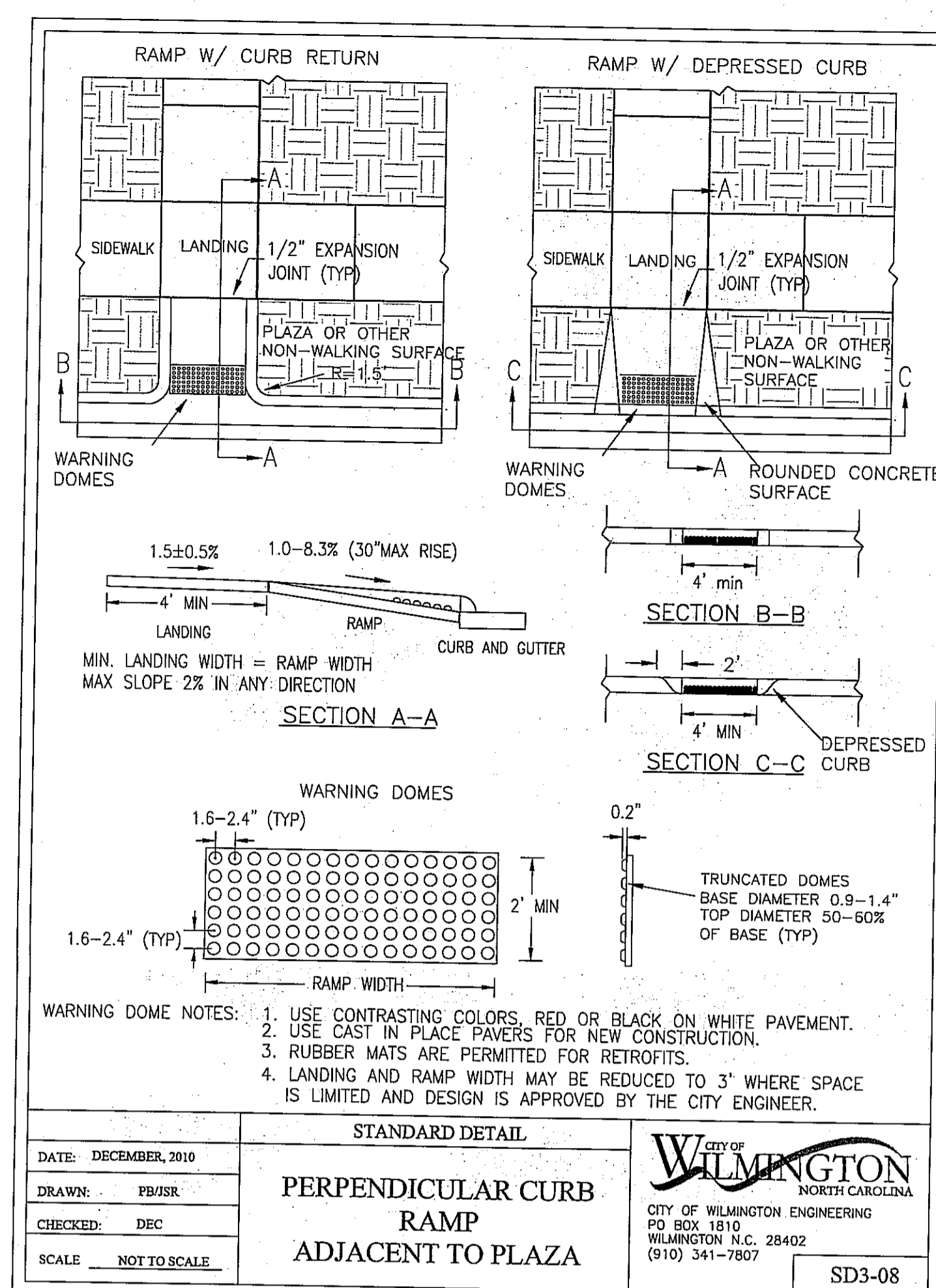
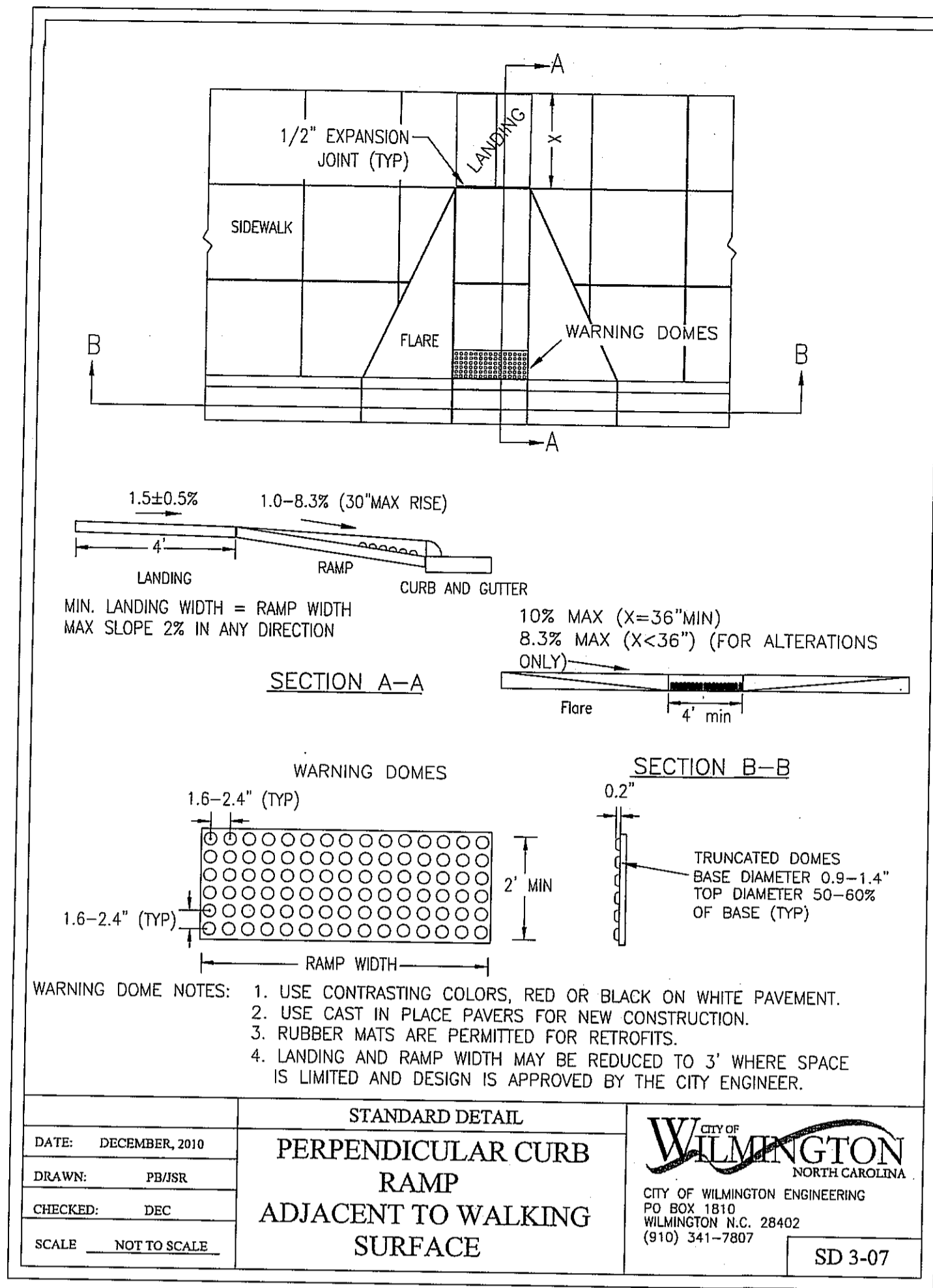
WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

OWNER: ANDREWS REACH DEVELOPERS, LLC
 ADDRESS: 8204 FAZIO DRIVE
 WILMINGTON, NC 28411
 PHONE: (910) 686-8100

DESIGNED: DLM
 DRAWN: DLM
 APPROVED: JHF

DATE: 9/10/2014
 SCALE: AS NOTED
 SHEET 7 OF 8

STROUD ENGINEERING, P.A.
 102-D CINEMA DRIVE
 WILMINGTON, NC 28403
 (910) 855-0775 (910) 855-0593 FAX



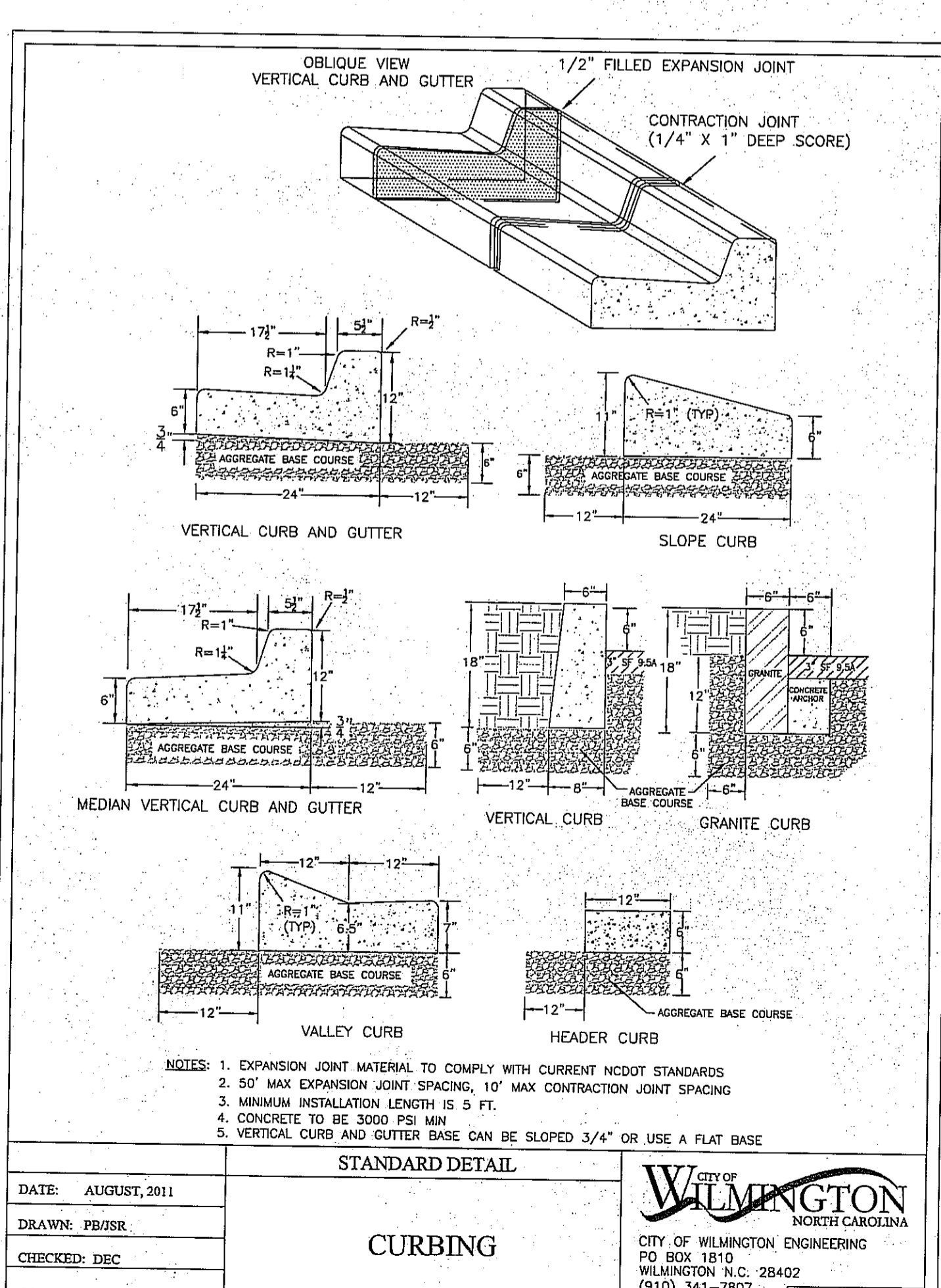
STANDARD DETAIL
STREET ELEVATIONS

DATE: 11-16-09
 DRAWN: PB/SR
 CHECKED: DEC
 SCALE: NOT TO SCALE

CITY OF WILMINGTON
 NORTH CAROLINA
 CITY OF WILMINGTON ENGINEERING
 PO BOX 1810
 WILMINGTON N.C. 28402
 (910) 341-7807

SD 3-02

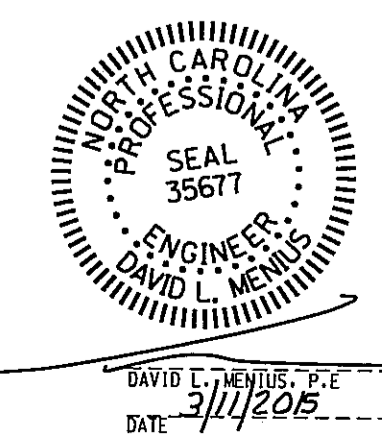
| STREET WIDTH 2W (ft) | TOP OF COMPACTED SUB-GRADE (FT) | TOP OF AGGREGATE BASE COURSE (FT) | TOP OF FINISHED GRADE (FT) |
|-------------------------|---------------------------------------|---|----------------------------------|
| 18 | -0.96 (±0.04) | -0.46 (±0.04) | -0.29 (±0.04) |
| 20 | -0.94 (±0.04) | -0.44 (±0.04) | -0.27 (±0.04) |
| 22 | -0.92 (±0.05) | -0.42 (±0.05) | -0.25 (±0.05) |
| 24 | -0.90 (±0.05) | -0.40 (±0.05) | -0.23 (±0.05) |



STORMWATER MANAGEMENT PLAN
APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE: 3/1/2015
 SIGNED: [Signature]

Approved Construction Plan
 Name: [Signature] Date: 3-30-15
 Planning: [Signature]
 Public Utilities: [Signature]
 Traffic: [Signature]
 Fire: [Signature]

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 DETAILS
ANDREW'S REACH
 - PHASE 2 -
 WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

OWNER: ANDREWS REACH DEVELOPERS, LLC
 ADDRESS: 8204 FAZIO DRIVE
 WILMINGTON, NC 28411
 PHONE: (910) 686-8100

DESIGNED: DLN
 DRAWN: DLN
 APPROVED: JHF
 DATE: 9/10/2014
 SCALE: AS NOTED

STROUD ENGINEERING, P.A.
 102-D CINEMA DRIVE
 WILMINGTON, NC 28403
 (910) 815-0775 (910) 815-0593 FAX
 C-0847