

**STORMDRAIN TABLE**

| Line No. | Inlet ID DN | Invert Dn (ft) | Pipe Size (in) | Pipe Type | Pipe Length (ft) | Pipe Slope (%) | Invert Up (ft) | Inlet ID Up | Grate Elev Up (ft) |
|----------|-------------|----------------|----------------|-----------|------------------|----------------|----------------|-------------|--------------------|
| 1        | FES-1       | 20.00          | 48             | RCP       | 63               | 0.51           | 20.32          | CI-1        | 30.70              |
| 2        | CI-1        | 20.32          | 48             | RCP       | 22               | 0.50           | 20.43          | CI-2        | 30.70              |
| 3        | CI-2        | 20.43          | 48             | RCP       | 107              | 0.50           | 20.97          | CI-3        | 30.25              |
| 4        | CI-3        | 20.97          | 42             | RCP       | 68               | 0.50           | 21.31          | CI-4        | 30.00              |
| 5        | CI-4        | 23.60          | 15             | RCP       | 31               | 0.52           | 23.76          | CI-5        | 30.00              |
| 6        | CI-4        | 21.49          | 36             | RCP       | 35               | 0.49           | 21.66          | CI-6        | 30.00              |
| 7        | CI-6        | 22.81          | 24             | RCP       | 35               | 0.51           | 22.99          | CI-7        | 30.00              |
| 8        | CI-7        | 22.99          | 24             | RCP       | 218              | 0.50           | 24.08          | CI-7A       | 31.00              |
| 9        | CI-7A       | 24.08          | 24             | RCP       | 94               | 0.02           | 24.10          | CI-8        | 30.00              |
| 10       | CI-8        | 26.46          | 15             | RCP       | 22               | 0.50           | 26.57          | CI-9        | 30.00              |
| 20       | CI-6        | 22.16          | 30             | RCP       | 139              | 0.99           | 23.53          | CI-19       | 30.80              |
| 21       | CI-19       | 24.31          | 15             | RCP       | 66               | 0.67           | 24.75          | CI-20       | 30.00              |
| 22       | CI-20       | 24.75          | 15             | RCP       | 67               | 0.75           | 25.25          | CI-21       | 30.00              |
| 25       | CI-19       | 23.53          | 24             | RCP       | 60               | 0.50           | 23.83          | CI-24       | 30.50              |
| EXIST    | EXIST       | 22.50          | 24             |           |                  |                | 23.00          | MH-30       | 28.25              |
| 32       | MH-30       | 23.00          | 18             | RCP       | 69               | 2.54           | 24.75          | FES-31      |                    |
| 33       | mh-30       | 23.00          | 15             | RCP       | 52               | 20.10          | 24.09          | DI-32       | 26.80              |

**TEMPORARY SEEDING**

| GRASS TYPE      | AMOUNT/1000 S.F. | TIME OF SEEDING | INITIAL          |
|-----------------|------------------|-----------------|------------------|
| RYE GRASS       | 1-2 LBS.         | NOV. THRU JAN.  | 25 LBS. 10-10-10 |
| BROWNTOP MILLET | 1-2 LBS.         | JUNE THRU AUG.  | 25 LBS. 10-10-10 |

**PERMANENT SEEDING**

| GRASS TYPE                 | AMOUNT/1000 S.F. | TIME OF SEEDING               | INITIAL          |
|----------------------------|------------------|-------------------------------|------------------|
| BERMUDA, COMMON            | 1-2 LBS.         | APRIL THRU JUNE               | 25 LBS. 10-10-10 |
| FESCUE, TALL (KENTUCKY 31) | 5-7 LBS.         | JUNE THRU AUG. FEB. THRU OCT. | 25 LBS. 10-10-10 |
| SERICEA LESPEDEZA (SLOPES) | 1-2 LBS.         | MARCH THRU APRIL              | 25 LBS. 10-10-10 |

**GROUND STABILIZATION**

| Site Area Description                          | Stabilization Time Frame | Stabilization Time Frame 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 feet in length                                       |
| • All other areas with slopes flatter than 4:1 | 14 days                  | None (except for perimeters and HQW Zones)   |

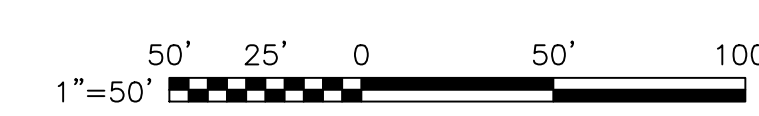
\*Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable." (Section II.B(2)(b))

**EROSION CONTROL NOTES**

- ANY CONSTRUCTION ACTIVITY BEYOND THE LOD LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE STATE EROSION CONTROL ORDINANCE AND IS SUBJECT TO FINES.
- CONTRACTOR SHALL REMOVE ALL TREES AND VEGETATION WITHIN ROAD RIGHT OF WAYS UNLESS OTHERWISE DESIGNATED TO REMAIN.
- CONTRACTOR SHALL RAKE AND REMOVE ROOTS, STUMPS, VEGETATION, DEBRIS, EXISTING STRUCTURES ABOVE AND BELOW GRADE, ORGANIC MATERIAL OR ANY OTHER UNSUITABLE MATERIAL WITHIN THE LIMITS OF CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE WITH OWNER AND THEIR GEOTECHNICAL REPRESENTATIVE TO COORDINATE REMOVAL OF ANY UNSUITABLE SOILS.
- CLEARED, GRUBBED, STRIPPED OR OTHER WASTE MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A PROPERLY PERMITTED FACILITY.
- THE CONTRACTOR SHALL FURNISH ANY REQUIRED BORROW MATERIALS FROM A PROPERLY PERMITTED OFF-SITE FACILITY.
- SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF A SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:
  - ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
  - ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND-DISTURBING ACTIVITY.
  - CONDITIONS - IN MEETING THE STABILIZATION REQUIREMENTS ABOVE, THE FOLLOWING CONDITIONS OR EXEMPTIONS SHALL APPLY:
    - EXTENSIONS OF TIME MAY BE APPROVED BY THE PERMITTING AUTHORITY BASED ON WEATHER OR OTHER SITE SPECIFIC CONDITIONS THAT MAKE COMPLIANCE IMPRACTICABLE.
    - ALL SLOPES 50' IN LENGTH OR GREATER SHALL APPLY THE GROUND COVER WITHIN 7 DAYS EXCEPT WHEN THE SLOPE ARE STEEPER THAN 3:1, THE 7 DAY REQUIREMENT APPLIES.
    - ANY SLOPED AREA FLATTER THAN 4:1 SHALL BE EXEMPT FROM THE 7 DAY GROUND COVER REQUIREMENT.
    - SLOPES 10' OR LESS IN LENGTH SHALL BE EXEMPT FROM THE 7 DAY GROUND COVER REQUIREMENT.
    - ALTHOUGH STABILIZATION IS USUALLY SPECIFIED AS GROUND COVER, OTHER METHODS, SUCH AS CHEMICAL STABILIZATION, MAY BE ALLOWED ON A CASE BY CASE BASIS.
    - FOR PORTIONS OF PROJECTS WITHIN THE SEDIMENT CONTROL COMMISSION DEFINED "HIGH QUALITY WATER ZONE" (15A NCAC 04A.0105), STABILIZATION WITH GROUND COVER SHALL BE ACHIEVED AS SOON AS PRACTICABLE BUT IN ANY EVENT ON ALL AREAS OF THE SITE WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACT.
    - PORTIONS OF A SITE THAT ARE LOWER IN ELEVATION THAN ADJACENT DISCHARGE LOCATIONS AND ARE NOT EXPECTED TO DISCHARGE DURING CONSTRUCTION MAY BE EXEMPT FROM THE TEMPORARY GROUND COVER REQUIREMENTS IF IDENTIFIED ON THE APPROVED E&SC PLAN OR ADDED BY THE PERMITTING AUTHORITY.
- ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY A REPRESENTATIVE OF THE STATE ENGINEERING DEPARTMENT.
- SLOPES SHALL BE GRADED NO STEEPER THAN 3:1.
- ADDITIONAL DEVICES MAY BE REQUIRED AS AGREED UPON BY THE FIELD INSPECTOR, ENGINEER, AND OWNER.
- IF ACTIVE CONSTRUCTION CEASES IN ANY AREA FOR MORE THAN 15 CALENDAR DAYS, ALL DISTURBED AREAS MUST BE SEED, MULCHED, AND TACKED UNLESS WRITTEN APPROVAL IS GRANTED BY THE EROSION CONTROL OFFICER.

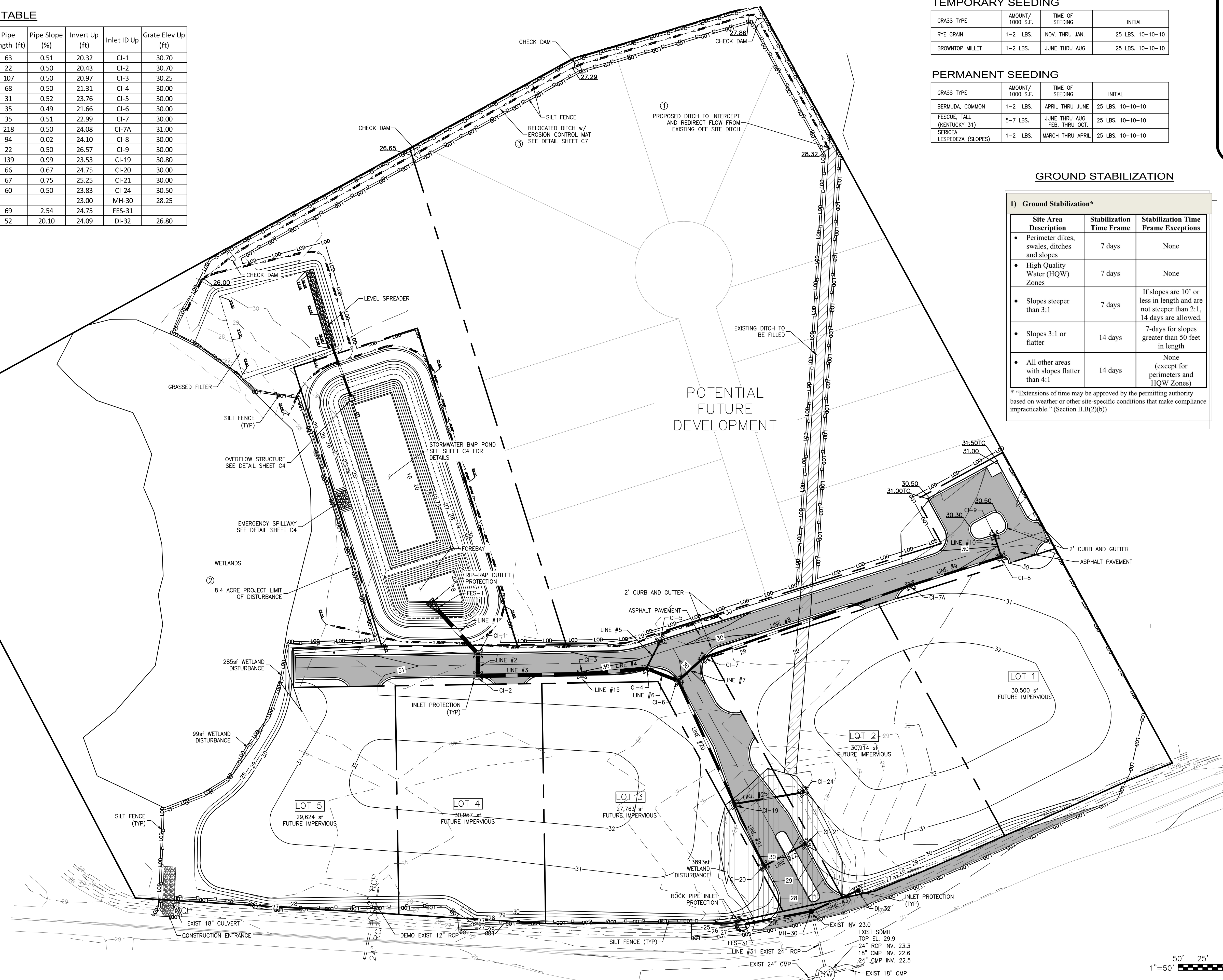
**LEGEND**

- LOD LOD LOD LIMITS OF DISTURBANCE
- - - - - DITCH / SWALE
- ○ ○ ○ ○ SILT FENCE
- ▭ ▭ ▭ ▭ ▭ AREA OF FILL
- ◻ ◻ ◻ ◻ ◻ CHECK DAM



**LINE TABLE**

| LINE # | LENGTH  | DIRECTION   |
|--------|---------|-------------|
| L64    | 47.41'  | S68°29'33"W |
| L65    | 116.93' | S65°48'44"W |
| L66    | 110.48' | S66°26'26"W |
| L67    | 55.99'  | S67°45'11"W |
| L68    | 152.02' | S77°28'42"W |
| L69    | 186.52' | S89°50'10"W |
| L70    | 422.77' | N86°27'35"W |



**REVISIONS**

| NO. | DATE     | DESCRIPTION                          |
|-----|----------|--------------------------------------|
| 1   | 10/03/17 | GRADING AND STORMDRAIN MODIFICATIONS |

**DESIGN & MAINTENANCE OF ALTERNATIVE LAND USES**

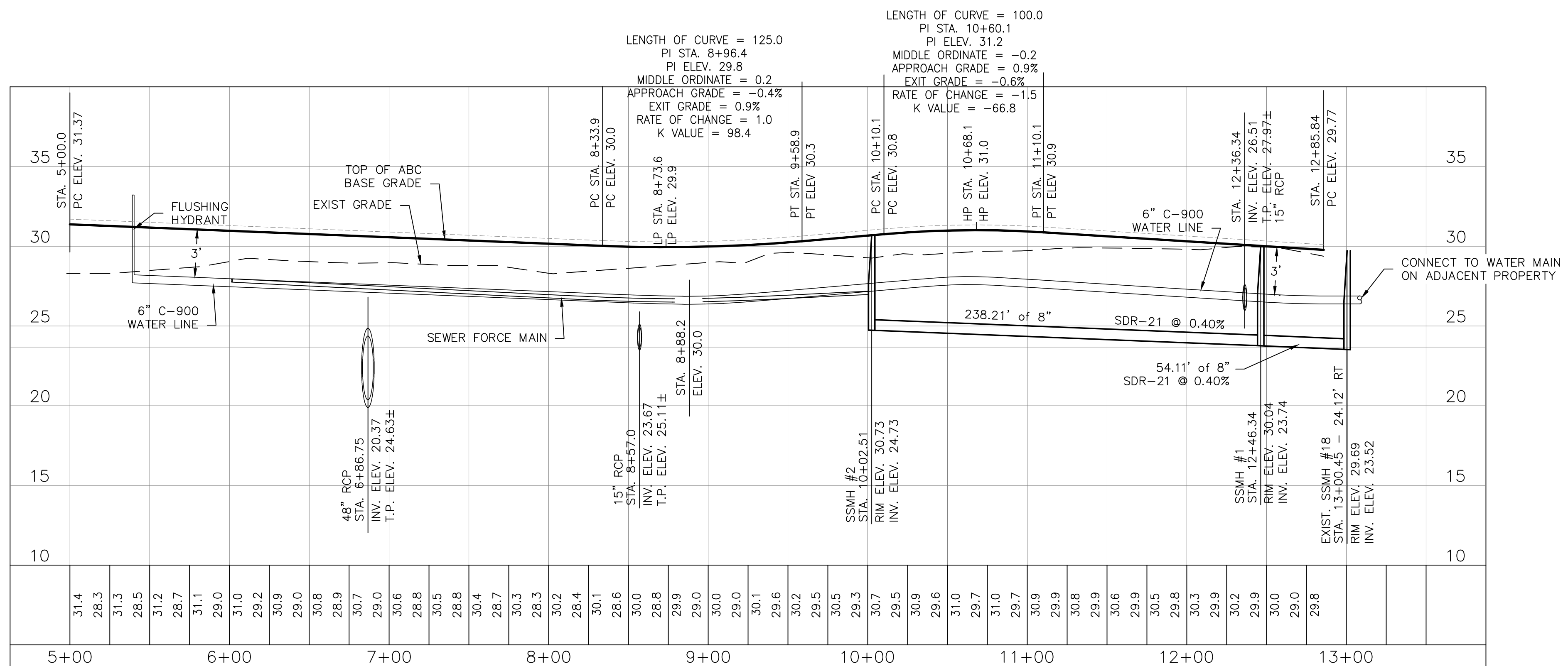
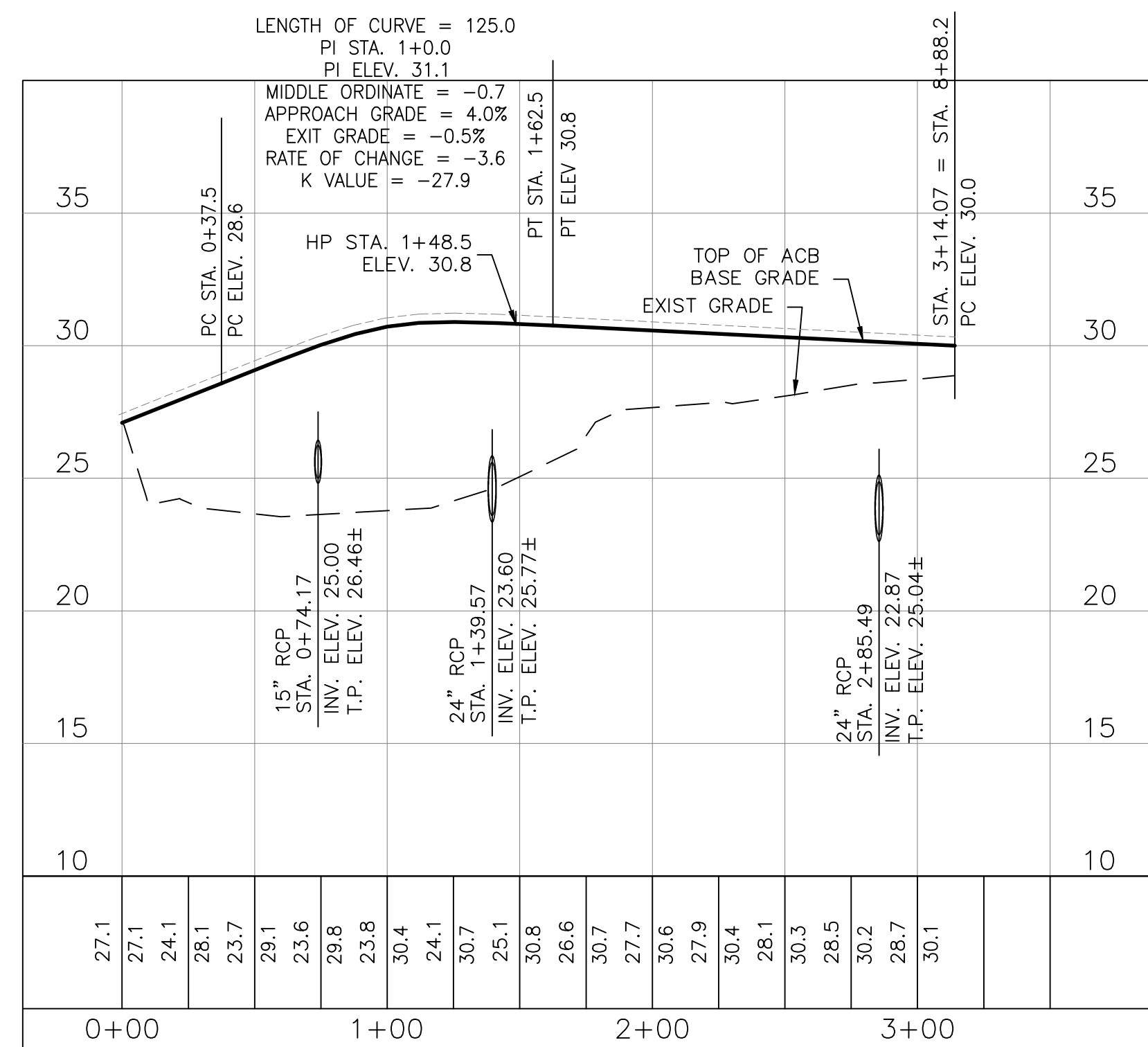
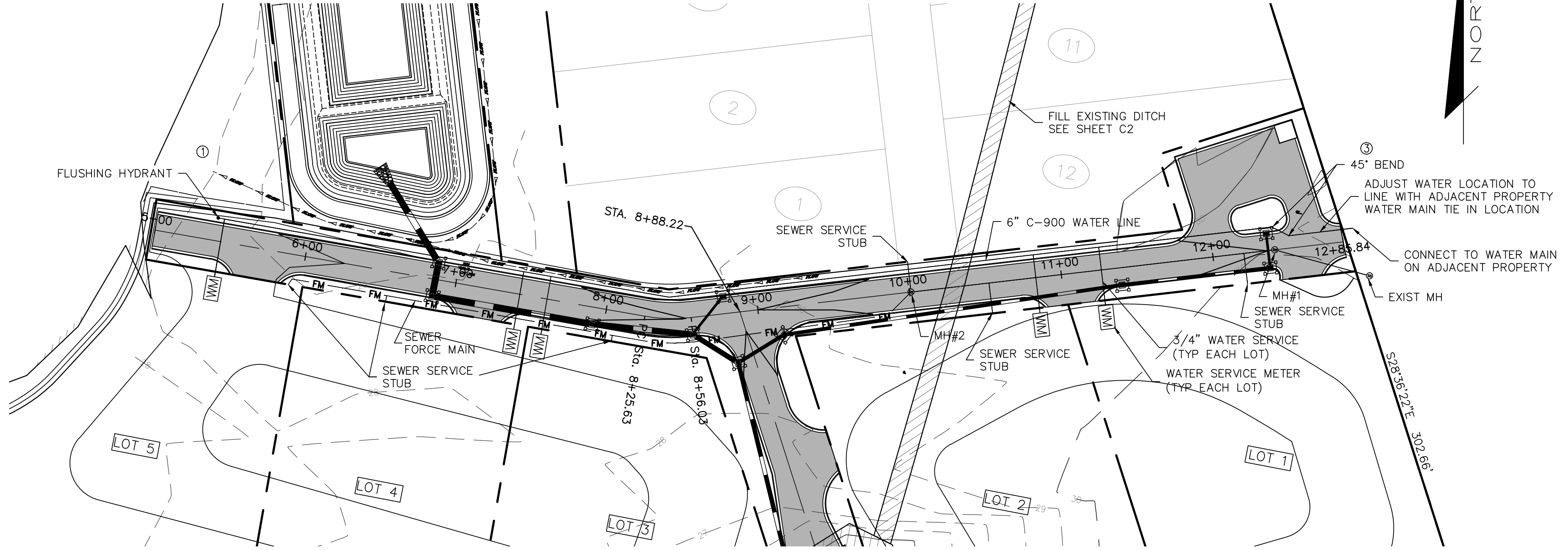
**RSC ENGINEERING, PLLC**  
 15226 US HWY 17  
 HAMPSTEAD, NORTH CAROLINA 28443  
 PHONE: 910.270.9599 ~ FAX: 910.270.9592  
 E-Mail: sonya@rscengineering.com

**SULLIVAN**

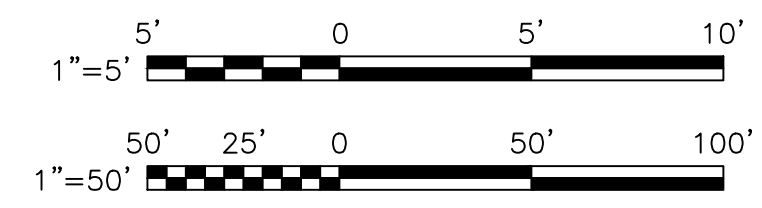
18.063 ACRE TRACT ON NC HIGHWAY 210  
 TOPSAIL TOWNSHIP, PENDER COUNTY NORTH CAROLINA

**GRADING, DRAINAGE AND EROSION CONTROL**

DATE: 12/02/2016  
 SCALE: 1" = 50'  
 JOB #: 16091949  
 DRAWN BY: JAR  
 SHEET: **C2**



NOTES:  
 1. PROPOSED ROADWAY PROPOSED GRADES SHOWN ON PROFILES IS TO TOP OF ABC STONE BASE.  
 2. FINISH ASPHALT GRADE IS 2" HIGHER THAN SHOWN.



| REVISIONS  |
|--|
| 10/03/17      PROFILE GRADE AND STORMDRAIN MODIFICATIONS |
|  |
|  |
|  |

DESIGN & MAINTENANCE OF ALTERNATIVE LAND USES

**RSC**  
Engineering, PLLC

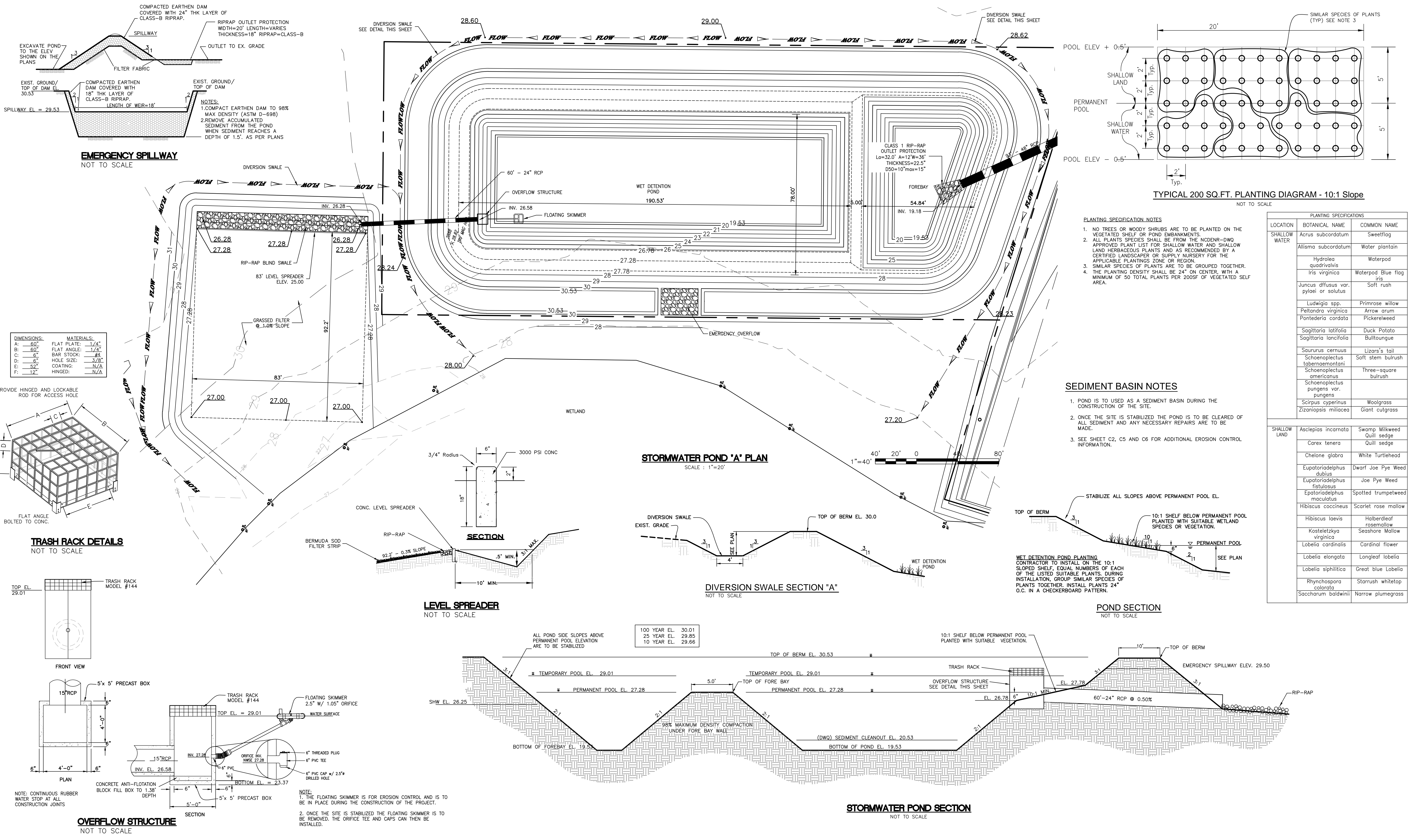
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**SULLIVAN**

18.063 ACRE TRACT ON NC HIGHWAY 210  
 TOPSAIL TOWNSHIP, PENDER COUNTY NORTH CAROLINA

**ROADWAY PLAN AND PROFILE**

|           |            |
|-----------|------------|
| DATE:     | 12/02/2016 |
| SCALE:    | 1" = 50'   |
| JOB #     | 16091949   |
| DRAWN BY: | JAR        |
| SHEET     | <b>C3</b>  |



| PLANTING SPECIFICATIONS            |  |                         |
|------------------------------------|--|-------------------------|
| LOCATION                           | BOTANICAL NAME   | COMMON NAME             |
| SHALLOW WATER                      | <i>Acrus subcordatum</i>                                   | Sweetflag               |
|                                    | <i>Allisma subcordatum</i>                                 | Water plantain          |
|                                    | <i>Hydrolea quadrivalvis</i>                               | Waterpod                |
|                                    | <i>Iris virginica</i>                                      | Waterpod Blue flag iris |
|                                    | <i>Juncus effusus</i> var. <i>pyloei</i> or <i>solutus</i> | Soft rush               |
|                                    | <i>Ludwigia</i> spp.                                       | Primrose willow         |
|                                    | <i>Peltandra virginica</i>                                 | Arrow arum              |
|                                    | <i>Pontederia cordata</i>                                  | Pickereelweed           |
|                                    | <i>Sagittaria latifolia</i>                                | Duck Potato             |
|                                    | <i>Sagittaria lancifolia</i>                               | Bulltongue              |
| SHALLOW LAND                       | <i>Saururus cernuus</i>                                    | Lizors's tail           |
|                                    | <i>Schoenoplectus tabernaemontani</i>                      | Soft stem bulrush       |
|                                    | <i>Schoenoplectus americanus</i>                           | Three-square bulrush    |
|                                    | <i>Schoenoplectus pungens</i> var. <i>pungens</i>          |                         |
|                                    | <i>Scirpus cyperinus</i>                                   | Woolgrass               |
|                                    | <i>Zizaniopsis miliacea</i>                                | Giant cutgrass          |
|                                    | <i>Asclepias incarnata</i>                                 | Swamp Milkweed          |
|                                    | <i>Carex tenera</i>  | Quill sedge             |
|                                    | <i>Chelone glabra</i>                                      | White Turtlehead        |
|                                    | <i>Eupatoriadelphus dubius</i>                             | Dwarf Joe Pye Weed      |
| <i>Eupatoriadelphus fistulosus</i> | Joe Pye Weed   |                         |
| <i>Eupatoriadelphus maculatus</i>  | Spotted trumpetweed  |                         |
| <i>Hibiscus coccineus</i>          | Scarlet rose mallow  |                         |
| <i>Hibiscus laevis</i>             | Halberleaf rosemallow                                      |                         |
| <i>Kosteletzkya virginica</i>      | Seashore Mallow  |                         |
| <i>Labelia cardinalis</i>          | Cardinal flower  |                         |
| <i>Labelia elongata</i>            | Longleaf labelia   |                         |
| <i>Labelia siphilitica</i>         | Great blue Labelia   |                         |
| <i>Rhynchospora colorata</i>       | Starrush whitetop  |                         |
| <i>Saccharum baldwinii</i>         | Narrow plumegrass  |                         |

REVISIONS

|          |                                |
|----------|--------------------------------|
| 10/03/17 | GRADING AND POND MODIFICATIONS |
|----------|--------------------------------|

DESIGN & MAINTENANCE OF ALTERNATIVE LAND USES

**RSC**  
Engineering, PLLC

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**SULLIVAN**

18.063 ACRE TRACT ON NC HIGHWAY 210  
TOPSAIL TOWNSHIP, PENDER COUNTY NORTH CAROLINA

**STORMWATER BMP DETAILS**

DATE: 12/02/2016  
SCALE: SEE PLAN  
JOB #: 16091949  
DRAWN BY: JAR  
SHEET **C4**