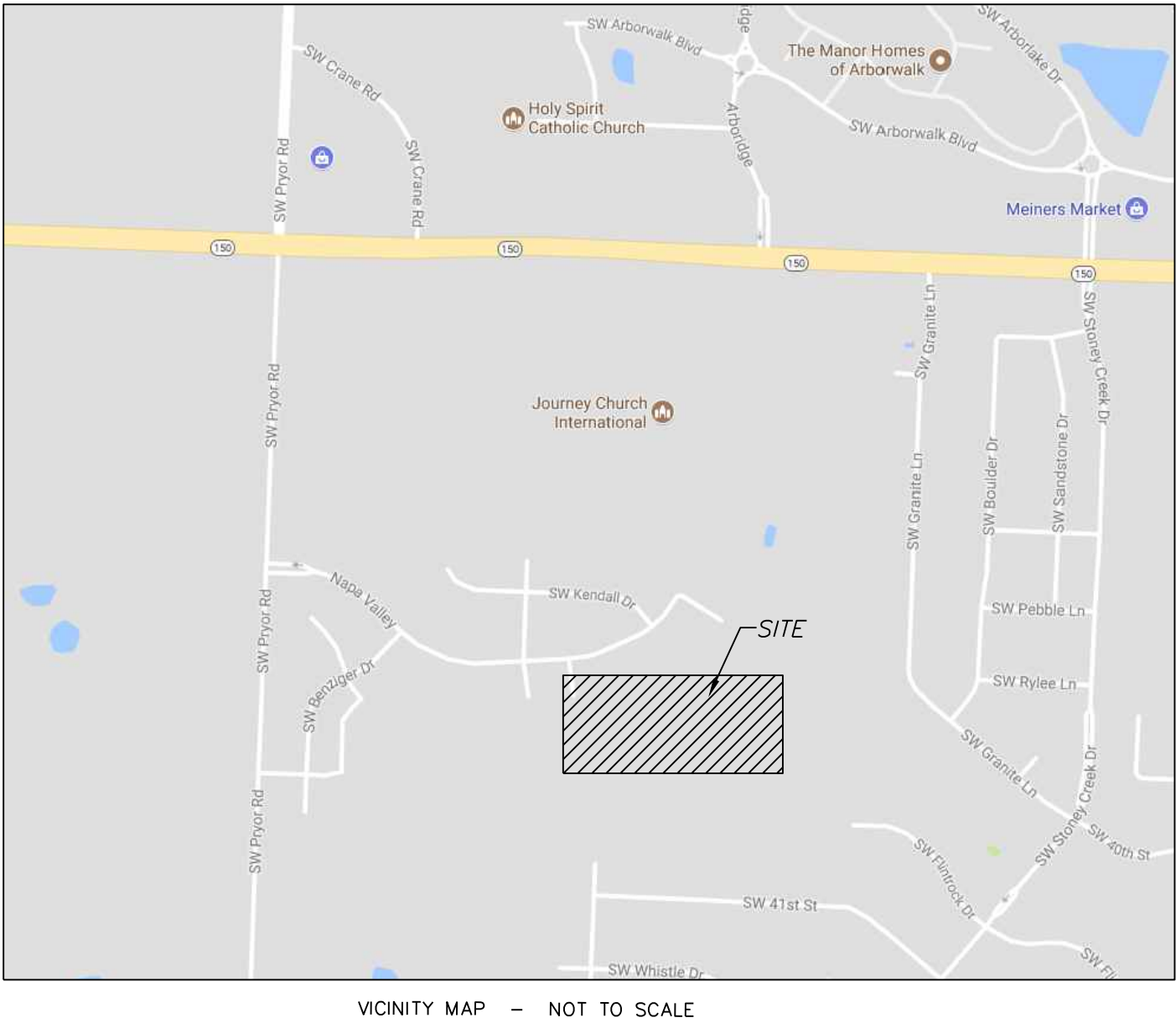


NAPA VALLEY POND
CONSTRUCTION PLANS
TRACT N, NAPA VALLEY 2ND PLAT
PART OF THE NW SECTION 36. TOWNSHIP 47, RANGE 32
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

CONSTRUCTION AND DESIGN NOTES:

GENERAL NOTES:

- 1 ~ ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
2 ~ ALL REQUIRED EASEMENTS WITHIN THE BOUNDARY OF THIS PROJECT SHALL BE PROVIDED FOR ON THE FINAL PLAT.
3 ~ ANY REQUIRED EASEMENT LOCATED OUTSIDE OF THE BOUNDARY OF THIS PROJECT SHALL BE PROVIDED FOR BY SEPARATE INSTRUMENT PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS.
4 ~ THE CONTRACTOR SHALL NOTIFY THE CITY OF LEE'S SUMMIT PUBLIC WORKS INSPECTION AT 816.969.1800 AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
5 ~ THE CONTRACTOR SHALL NOTIFY ENGINEERING SOLUTIONS AT 816.623.9888 OF ANY CONFLICT WITH THE IMPROVEMENTS PROPOSED BY THESE PLANS AND SITE CONDITIONS.
6 ~ THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND OBTAIN THE APPROPRIATE BLASTING PERMITS FOR A REQUIRED BLASTING. IF BLASTING IS ALLOWED, ALL BLASTING SHALL CONFORM TO STATE REGULATIONS AND LOCAL ORDINANCES.



INDEX OF SHEETS:

- C.001 ~ COVER SHEET
C.050 ~ ESC PHASE 1 - Pre Clearing Plan
C.051 ~ ESC PHASE 2 - Inactive Area Stabilization Plan
C.052 ~ ESC PHASE 3 - Final Restoration Plan
C.100 ~ SITE PLAN
C.200 ~ GRADING PLAN
C.300 ~ RETENTION PLAN
C.301 ~ PLAN AND PROFILE

PROPERTY DESCRIPTION:

All that part of Tract N, Napa Valley 2nd Plat, as recorded in the Office of the Recorder, Jackson County, Missouri.
Recorded as Document Number 2016E0116406

LEGEND:

- B/L - BUILDING SET-BACK
C/A - COMMON AREA
D/E - DRAINAGE EASEMENT
FND. - FOUND
L/E - LANDSCAPE EASEMENT
L.N.A. - LIMITS OF NO ACCESS
R/W - RIGHT OF WAY
SAN - SANITARY SEWER LINE
S/W - SIDEWALK
U/E - UTILITY EASEMENT
W - WATER LINE
ST - STORM SEWER LINE

ENGINEER'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PROJECT HAS BEEN DESIGNED AND THESE PLANS PREPARED IN ACCORDANCE WITH THE CURRENT DESIGN CRITERIA OF THE CITY OF LEE'S SUMMIT, MISSOURI AND THE STATE OF MISSOURI. I FURTHER CERTIFY THAT THESE PLANS WERE DESIGNED IN ACCORDANCE TO AASHTO STANDARDS.

CITY OF LEE'S SUMMIT, MISSOURI

APPROVED: DATE: _____

BY: _____
CITY ENGINEER

"AS-BUILT"

900.10
~~900.00~~ Indicates data replaced with "As-Built" information. All other data is as designed and has not been field verified.

NOTE :

ALL CONSTRUCTION SHALL FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813. WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE DESIGN AND CONSTRUCTION MANUAL SHALL PREVAIL.

UTILITY COMPANIES:

THE FOLLOWING LIST OF UTILITY COMPANIES IS PROVIDED FOR INFORMATION ONLY. WE DO NOT OFFER ANY GUARANTEE OR WARRANTY THAT THIS LIST IS COMPLETE OR ACCURATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES THAT MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION AND VERIFYING THE ACTUAL LOCATION OF EACH UTILITY LINE. THE CONTRACTOR SHALL NOTIFY ENGINEERING SOLUTIONS AT 816.623.9888 OF ANY CONFLICT WITH PROPOSED IMPROVEMENTS.
KCP&L ~ 298-1196
MISSOURI GAS ENERGY ~ 756-5261
SOUTHWESTERN BELL TELEPHONE ~ 761-5011
COMCAST CABLE ~ 795-1100
WILLIAMS PIPELINE ~ 422-6300
CITY OF LEE'S SUMMIT PUBLIC WORKS ~ 969-1800
CITY OF LEE'S SUMMIT PUBLIC WORKS INSPECTIONS ~ 969-1800
CITY OF LEE'S SUMMIT WATER UTILITIES ~ 969-1900
MISSOURI ONE CALL (DIG RITE) ~ 1-800-344-7483

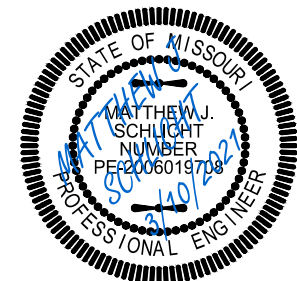


Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005008319-D
Kansas
Engineering E-1685
Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

Napa Valley Pond
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri

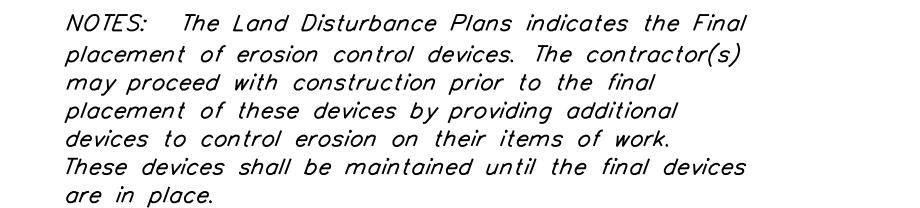
Project:
NAPA VALLEY LSMO
Issue Date:
October 24, 2017

Cover Sheet
Construction Plans for:
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri

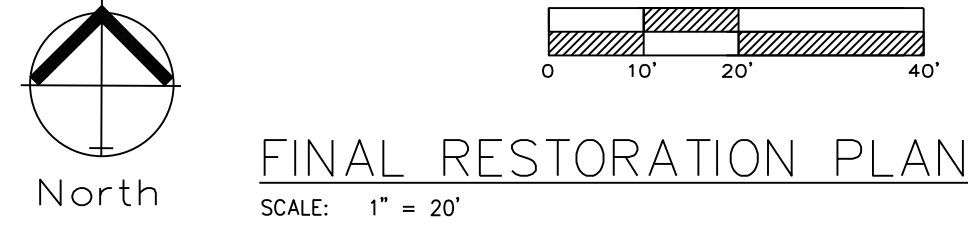


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OK PE 25226
NE PE E-14335

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2/9/2021 As-Built
3/10/2021 As-Built







FINAL RESTORATION PLAN

SILT FENCE PROTECTION
TO BE MAINTAINED BY CONTRACTOR

LEGEND

- PHASE 1 SILT FENCE ———— SF - 1 ———— SF - 1 ————
PHASE 2 SILT FENCE ———— SF - 2 ———— SF - 2 ————

DURING ALL PHASES OF CONSTRUCTION, INACTIVE AREA STABILIZATION METHODS AS DESCRIBED IN APWA SECTION 5111.3 SHALL BE USED TO CONTROL EROSION AND SILTATION.

- NOTES:
- 1) The Land Disturbance Plans indicates the Final placement of erosion control devices. The contractor(s) may proceed with construction prior to the final placement of these devices by providing additional devices to control erosion on their items of work. These devices shall be maintained until the final devices are in place.
 - 2) Per Unified Ordinance Section 14.090.B.2. All portions of the site not covered with paving or buildings shall be landscaped. Open areas not covered with other materials shall be covered with sod. Ground cover shall be utilized on all slopes in excess of 3:1 slope.

SEED AND MULCH NOTES:

Seeding shall be done before the proposed seedbed becomes eroded, crusted over, or dried out and shall not be done when the ground is frozen, or covered with snow. The seed shall comply with the requirements of the Missouri Seed Law and the Federal Seed Act. Also, it shall contain no seed of any plant on the Federal Noxious Weed List. Other weed seeds shall not exceed one percent by weight of mix

Seed and Fertilizer Rate:
Mix I - Rye Grass / Blue Grass ----- 100 lbs. per Acre
Mix II - Tall Fescue / Blue Grass ----- 195 lbs. per Acre
Lime -----2000 lbs per Acre (50 lbs. per 1000 sq. ft.)
Fertilizer -----800 to 1200 lbs per Acre (25 lbs per 1000 sq. ft.)

During the dates December 15th through May 31 ALL lime fertilizer, seed and mulch shall be applied to finished slopes of disturbed areas. During the months of June, July, October and November 1st through December 15th, lime fertilizer, seed and mulch shall be applied at the following rates:
Lime - 100% of specified quantity
Fertilizer - 75% of the specified quantity
Seed - 50% of the specified quantity
Mulch - 100% of the specified quantity

Mulch shall be Vegetative type, cereal straw from stalks of oats, rye, or barley, or approved equal. The straw shall be free of prohibited weed seed and relatively free of all other noxious and undesirable seed. Mulch shall be applied at the rate of 2 tons per acre, (70 to 90 lbs per 1000 sq. ft.). Mulch shall be embedded by a mulch anchoring tool or disk type roller having flat serrated disks spaced not more than 10 inches apart and cleaning scrapers shall be provided

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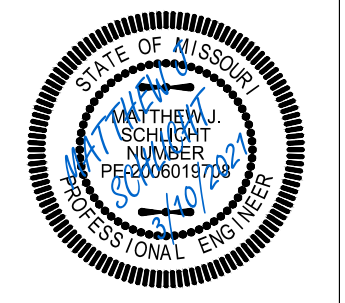
ENGINEERING SOLUTIONS
ENGINEERING & SURVEYING
50 SE 30TH STREET
LEE'S SUMMIT, MO 64082
P: (816) 623-9888 F: (816) 623-9849

Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005008319-D
Kansas
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Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

Project: NAPA VALLEY LSMO
Issue Date: October 24, 2017

ESC Phase 3 Plan
Construction Plans for:
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri

Napa Valley Pond
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri

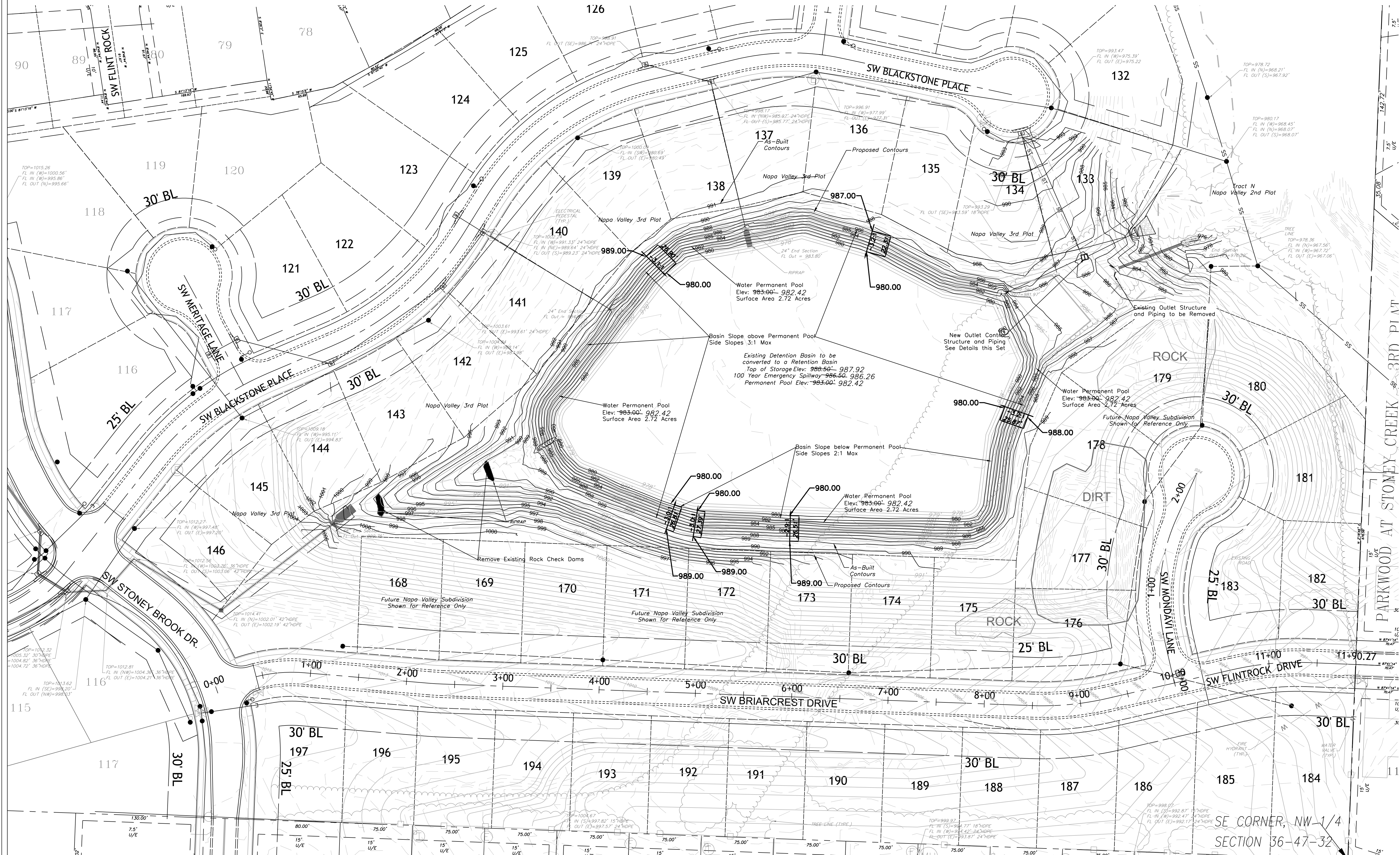
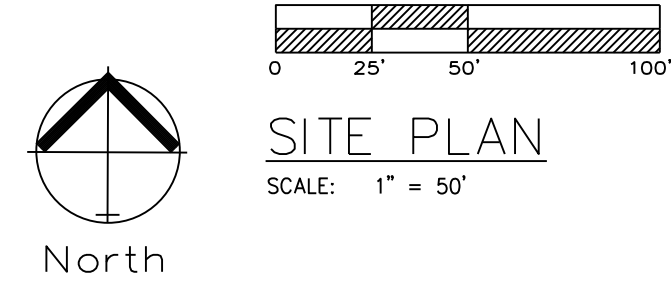


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OK PE 25226
NE PE E-14335

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2/9/2021 As-Built
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Construction Notes

- Existing Detention Pond was constructed and approved as part of the Napa Valley 2nd and 3rd Plat Construction Plans.
- The storage capacity of the detention facility atop the Permanent Pool is the same volume as designed originally.

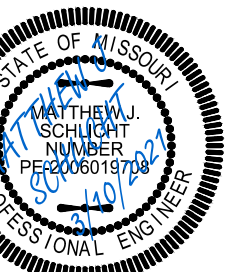


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Missouri
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Surveying 2005008319-D
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Napa Valley Pond
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri

Project:
NAPA VALLEY LSMO
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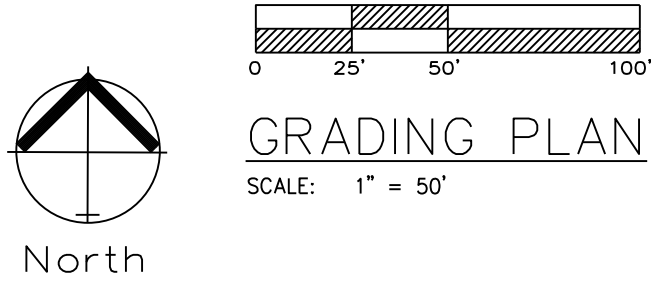
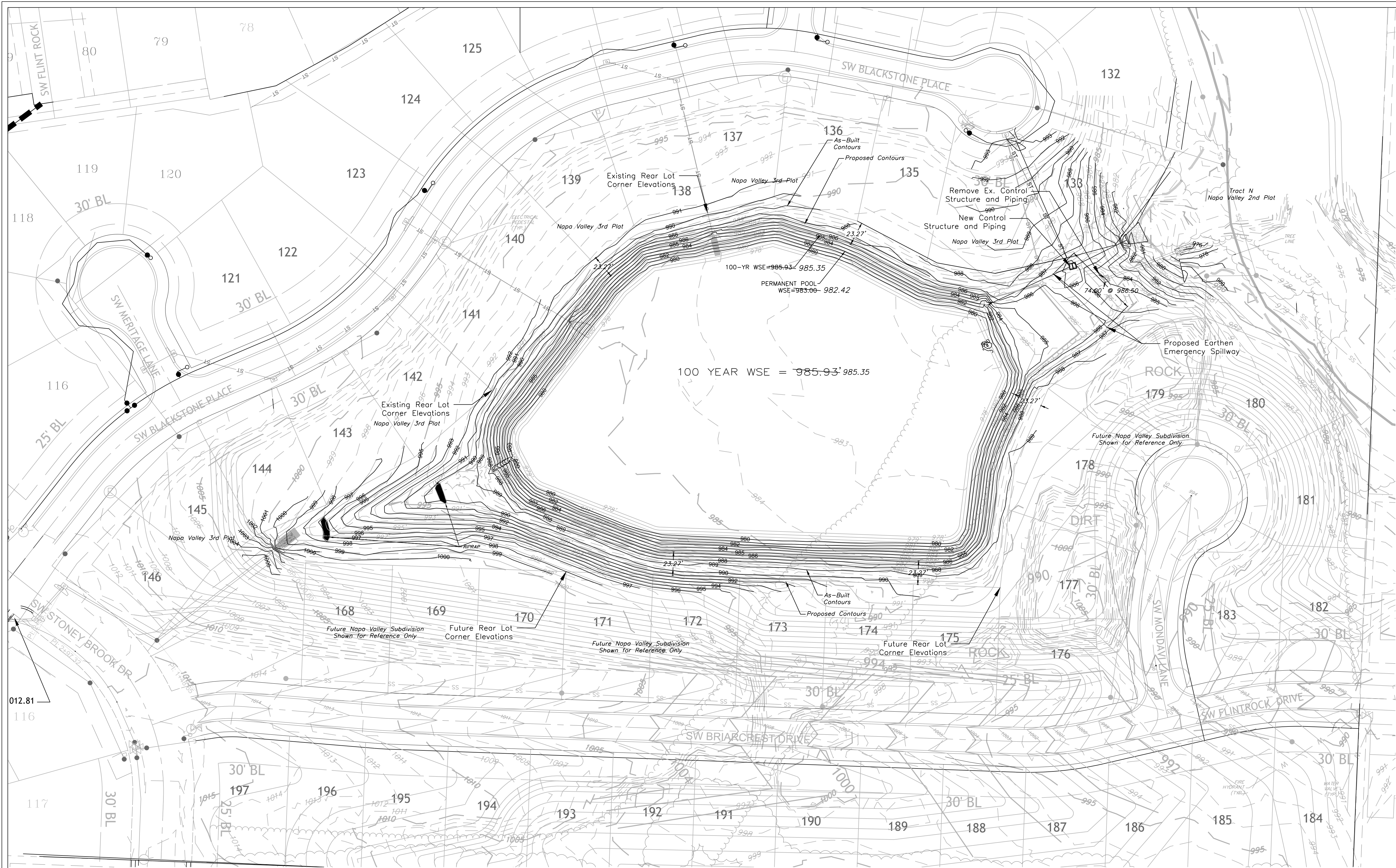
SITE PLAN
Construction Plans for:
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri



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REVISIONS
2/9/2021 As-Built
3/10/2021 As-Built

C.100



Notes

1. Contractor is responsible for verifying all existing utility locations prior to excavation
2. There are no known natural or artificial water storage detention areas, or wetlands in the area designated for construction
3. No part of the project lies within the 100 year flood plain
4. All erosion and sediment control measures need to be implemented prior to construction
5. Additional erosion control may be required by the City Engineer, Design Engineer or Owner at any time problematic areas are noted in the field or existing measures are found to be ineffective
6. Soil Stabilization of disturbed areas shall be completed within 14 days of construction inactivity
7. Contractor responsible for all density testing of roadway subgrade and granular base.
8. Contractor responsible to provide Engineering Solutions an Asbuilt topographic survey of the site to verify grades.

Estimated Cut / Fill Quantities

Pond Area	2.89 Acres
Cut Volume (Unadjusted)	44,489 c.y.
Fill Volume (Unadjusted)	940 c.y.
Net Export Required	43,549 c.y. (Unadjusted)

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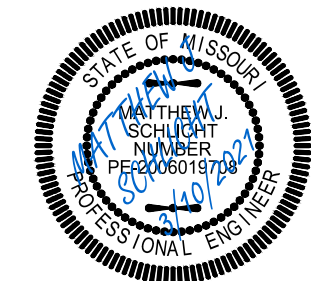
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Napa Valley Pond
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri

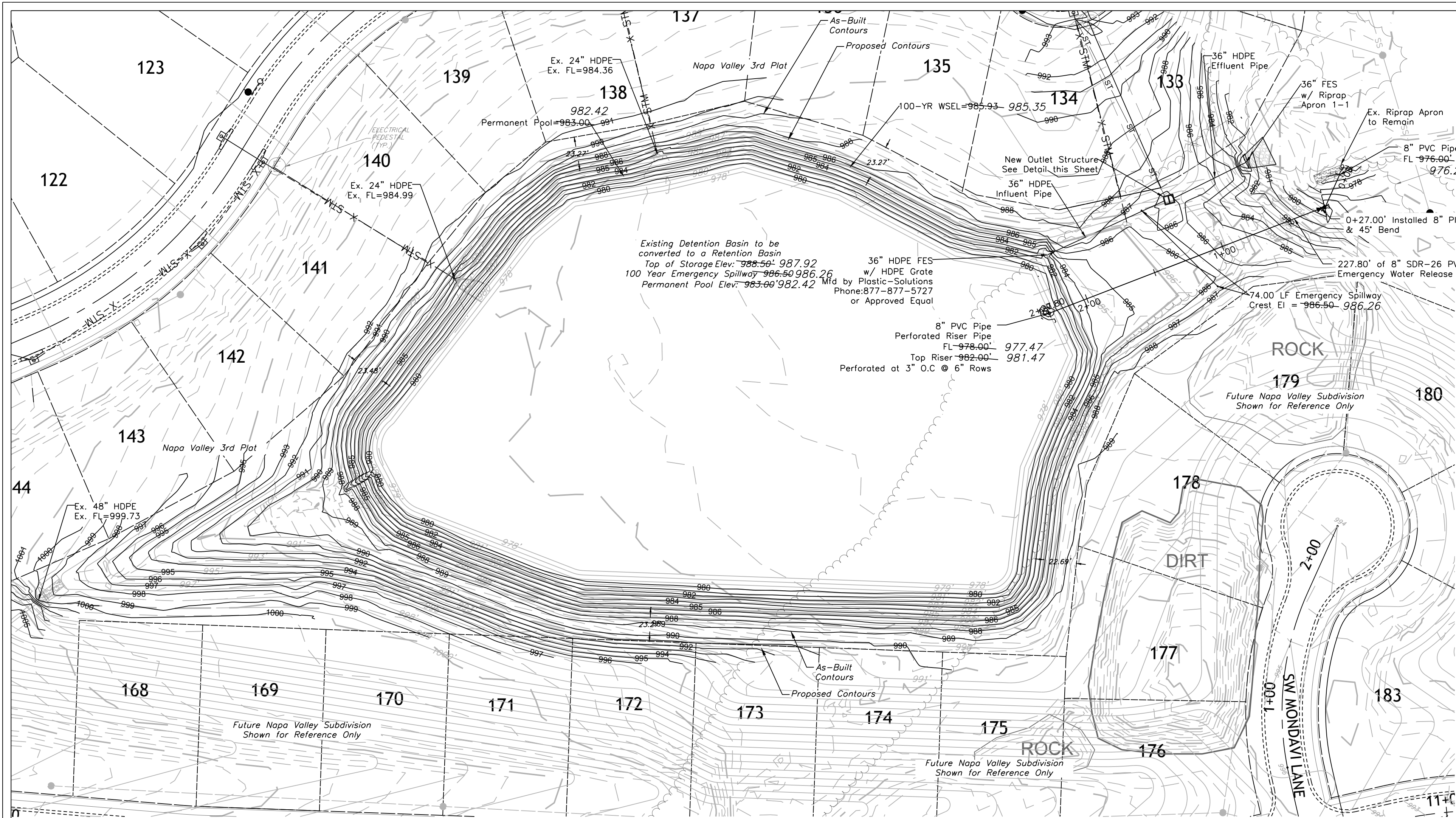
Project:
NAPA VALLEY, LSMO
Issue Date:
October 24, 2017

GRADING PLAN
Construction Plans for:
Tract N, Napa Valley 2nd Plat
Lee's Summit, Jackson County, Missouri

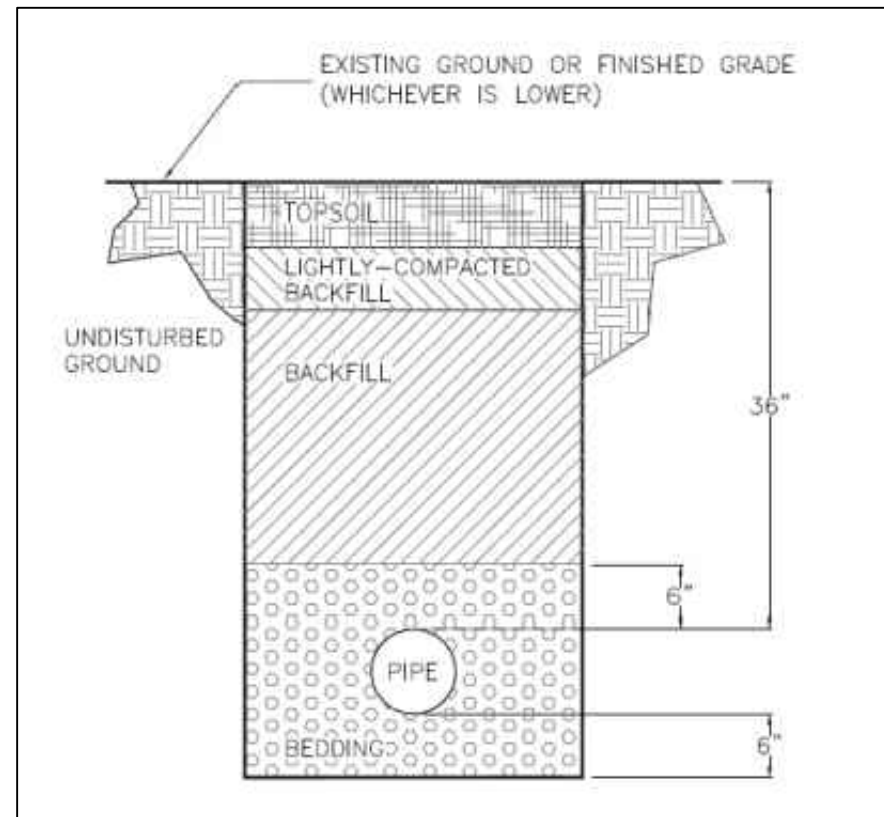
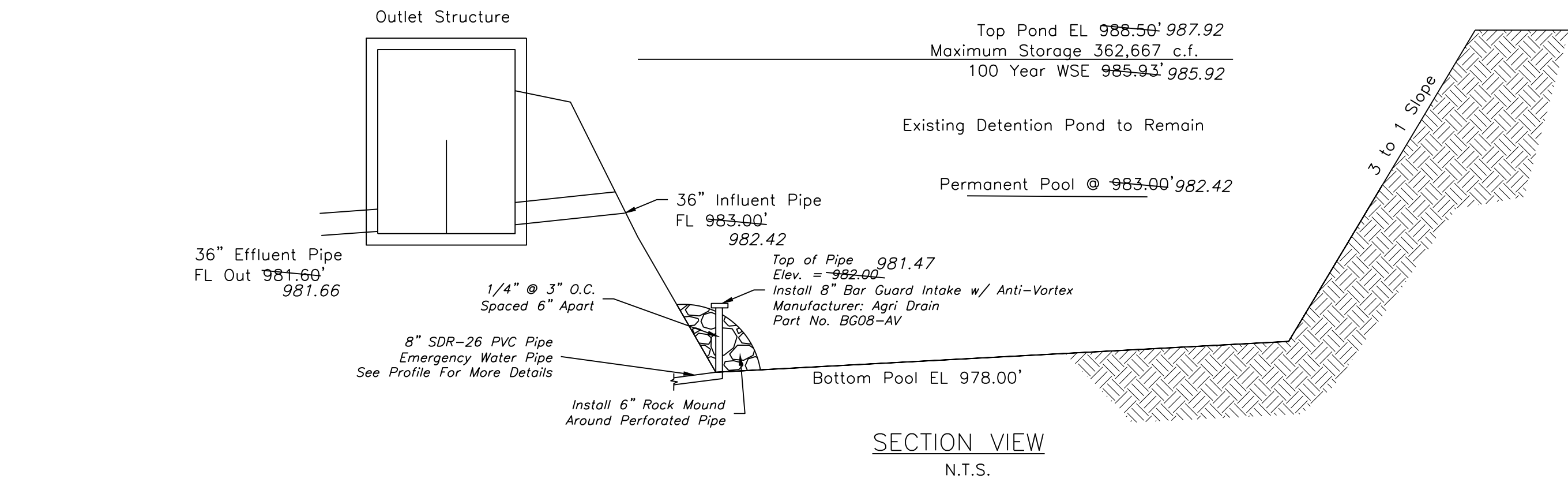
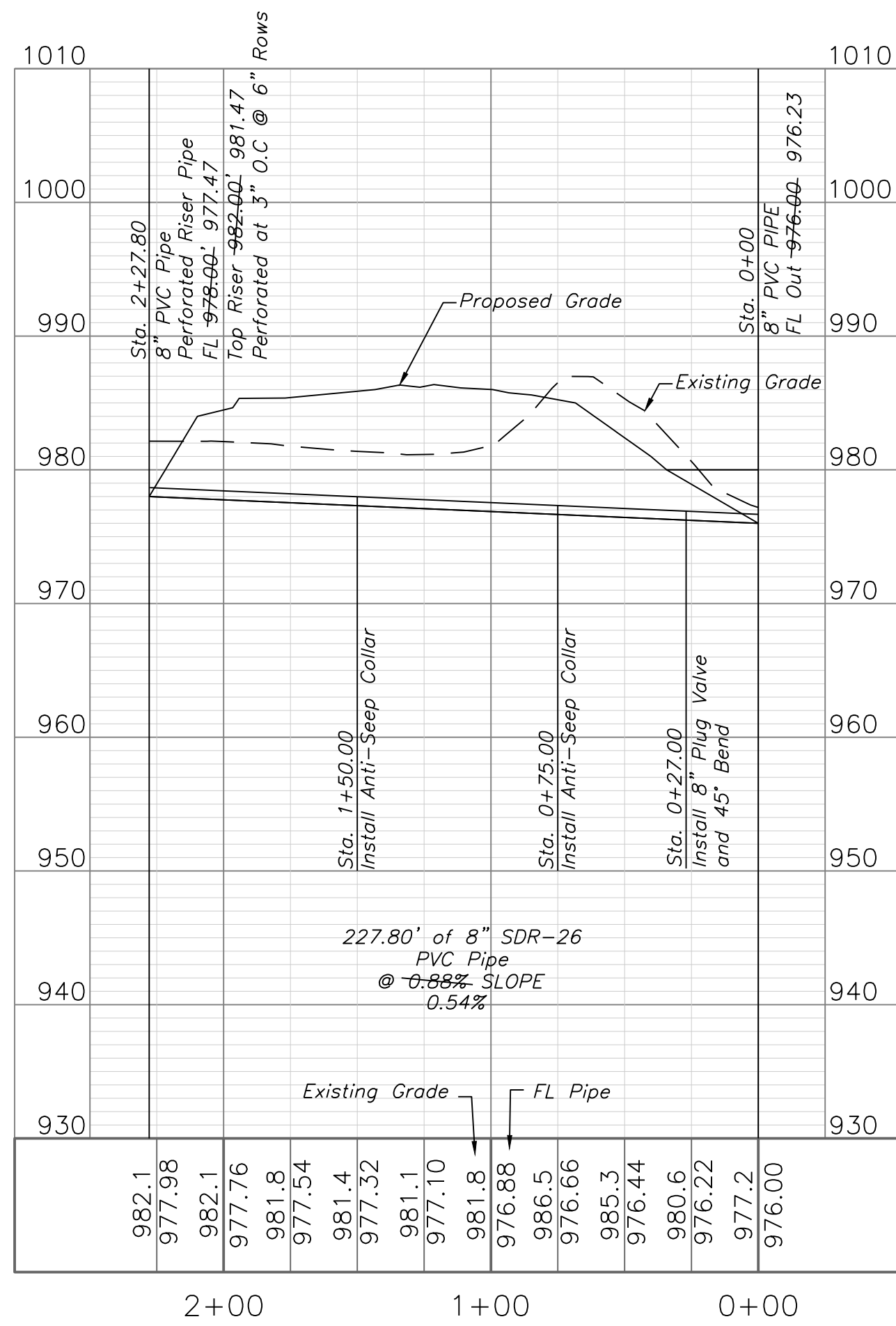


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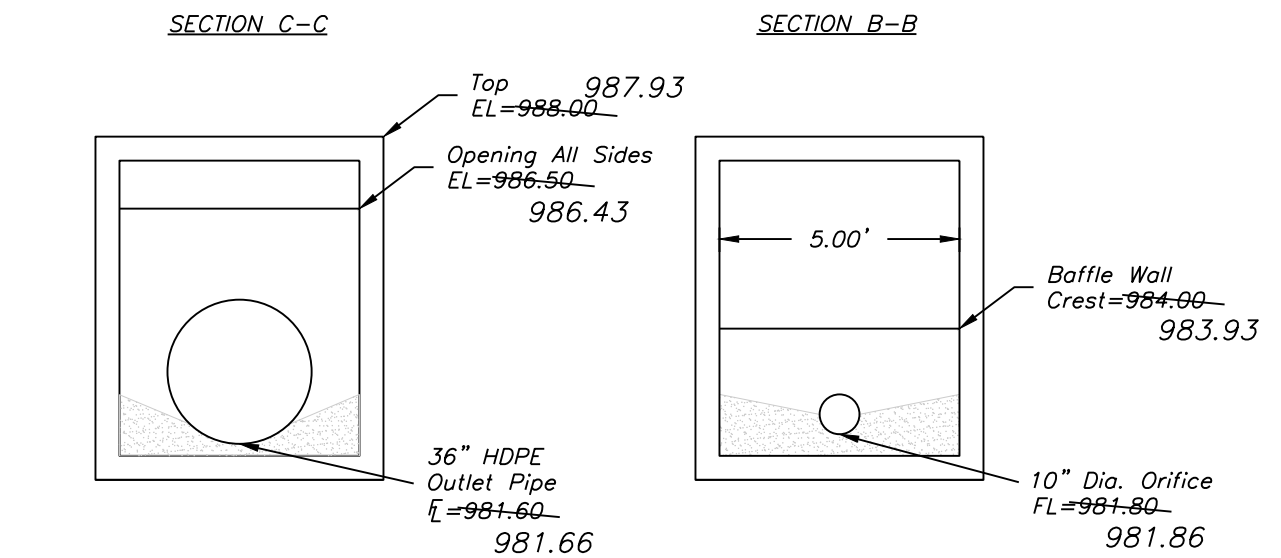
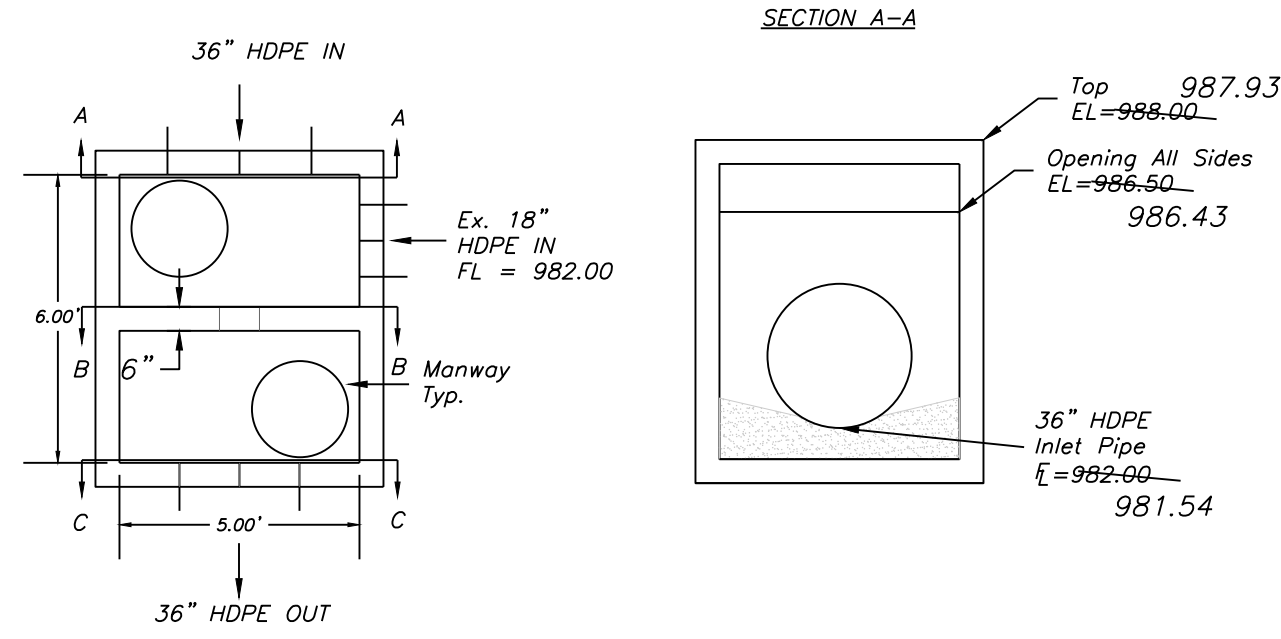
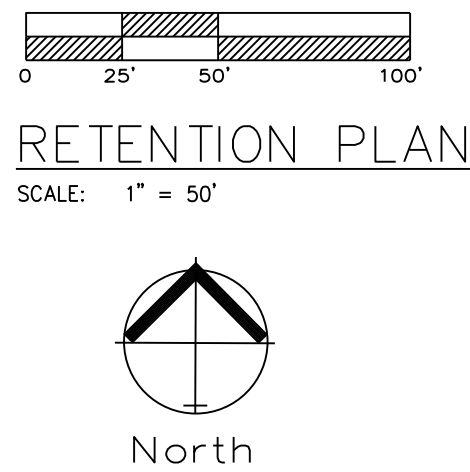
REVISIONS
2/9/2021 As-Built
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EMERGENCY WATER PIPE



TRENCHING NOTES: (8" EMERGENCY WATER PIPE & 36" HDPE INFLUENT PIPE)
LOW PERMEABILITY BEDDING AND BACKFILL SHALL BE PLACED ALONG PIPE. TWO ANTI-SEEP COLLARS SHALL BE PLACED ALONG THE PIPE AT 1/3RD POINTS. ANTI-SEEP COLLARS SHALL BE CONCRETE, 6" THICK FORMED AROUND THE PIPE WITH #3 REBAR SPACED 15" HORIZONTALLY AND VERTICALLY. OVERALL SQUARE COLLAR DIMENSION SHALL BE 36" + PIPE DIA. EXAMPLE A 12" PIPE SHALL HAVE COLLAR DIMENSIONS OF 48" SQUARE. A MINIMUM 12" OF EARTHEN BACKFILL SHALL BE PROVIDED ABOVE COLLARS REGARDLESS OF COLLAR DIMENSION, MODIFY COLLAR AS REQUIRED.



OUTLET STRUCTURE - BASIN E

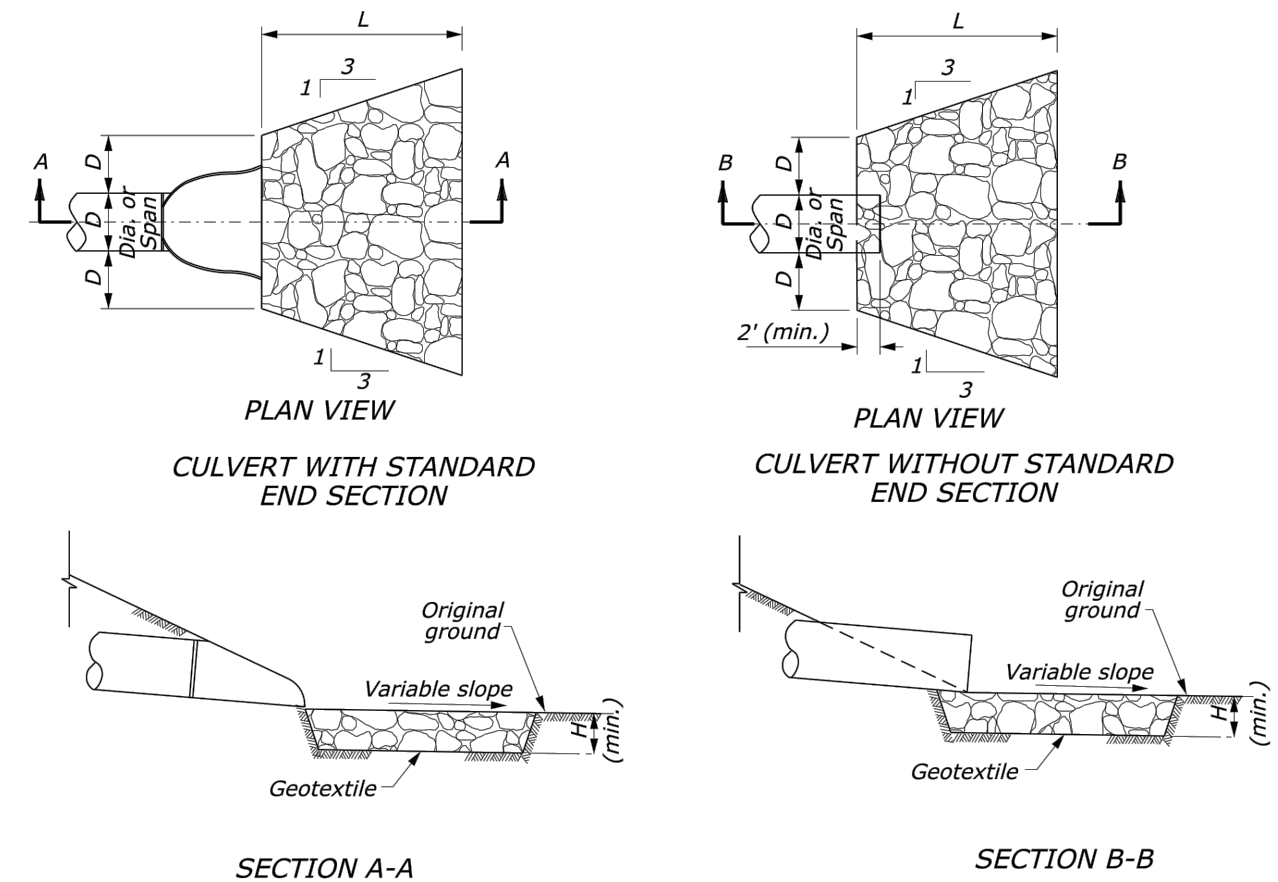
Field End Section #	1-1
Q =	50.57 cfs
D =	3 ft
Tw =	1.2 ft
g =	32.2 ft/s^2
D ₅₀ =	8.54 inches
S =	0.0156 ft/ft
n =	0.01
Qcap =	108.14 ft^3/s
Q/Qcap =	0.47
d/D =	0.48
d =	1.44 ft
Central <	87.71 deg
Aseg =	2.63 ft^2
V =	19.21 ft/s
Fr =	2.82
Flow =	Supercritical
D' =	2.22 ft
yn =	1.44 ft
D ₅₀ =	12.76 inches

D₅₀ = riprap size, m(ft)
Q = design discharge, m^3/s (ft^3/s)
D = culvert diameter (circular), m(ft)
Tw = tailwater depth, m(ft), if unknown use 0.4*D
g = acceleration due to gravity, 9.81 m/s^2 (32.2 ft/s^2)
Subcritical Flow
S = pipe slope, m/m(ft/ft)
n = manning's roughness coefficient, unitless
Qcap = full pipe capacity, m^3/s(ft^3/s)
Q/Qcap = design discharge/full pipe capacity, unitless
d/D = water depth/pipe diameter, unitless
d = depth of flow, m(ft)
lookup, degrees
lookup * pipe area, m^2(ft^2)
V = velocity of flow segment, m^2/s(ft^2/s)
Fr > 1 Supercritical, Fr = 1 Critical, Fr < 1 Subcritical
If flow is Supercritical adjust culvert diameter

D' = culvert diameter adjustment, m(ft)
yn = normal (supercritical) depth in culvert, m(ft)
See Riprap Apron Schedule for Size

RipRap Apron Area (ac.) Q100 (cfs)		Dia. (ft)		RipRap Apron			
1-1	30.61	46.78	3	4	14	18	31
					21	1.56	

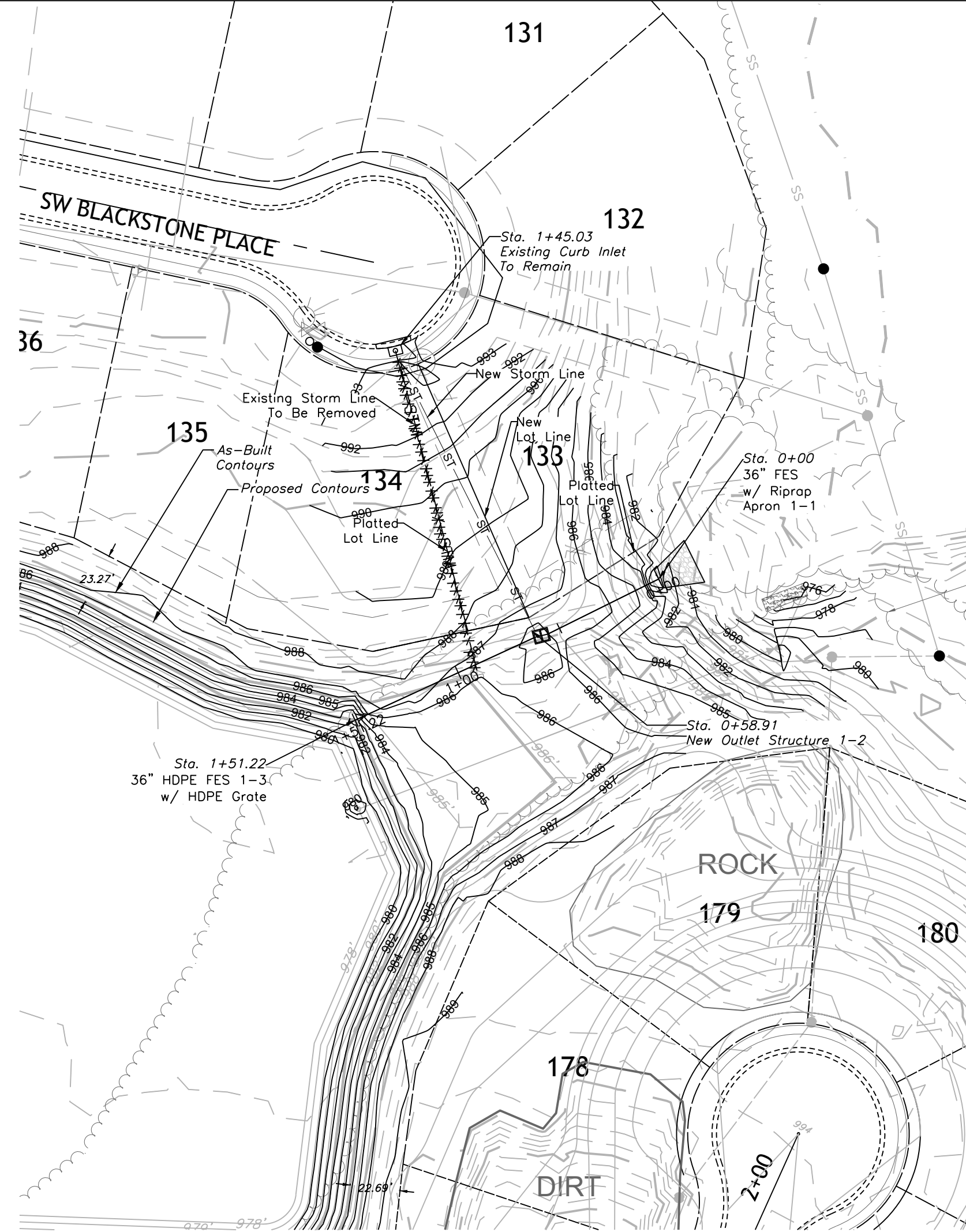
STANDARD RIPRAP APRON DETAIL



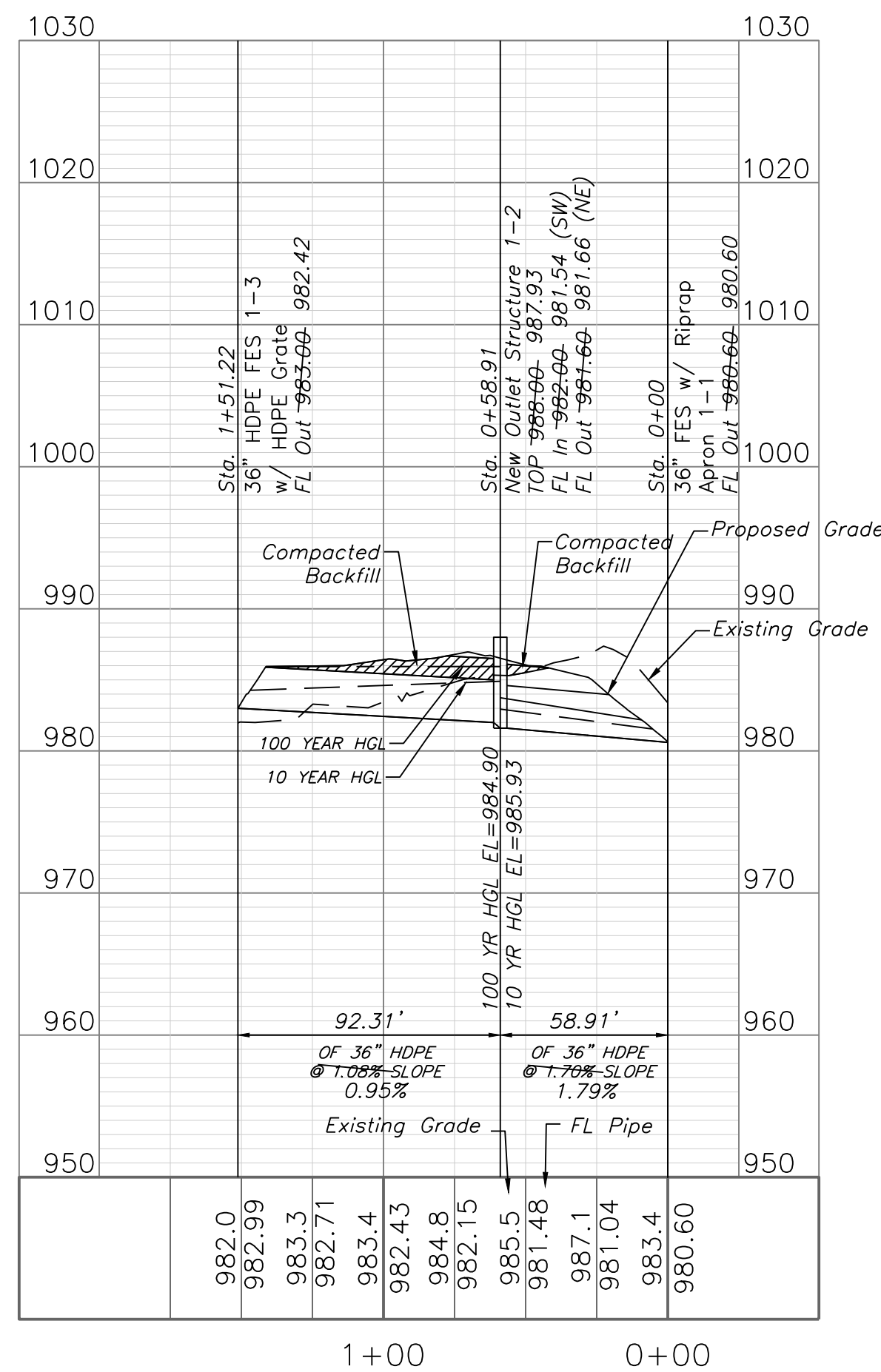
- NOTES:
1. ALL RIPRAP APRONS SHALL CONFORM TO THE STANDARD CONFIGURATION SHOWN IN THE STANDARD DETAIL ABOVE UNLESS OTHERWISE NOTED. PLAN VIEW DIMENSIONS SHOWN SHALL BE MET OR EXCEEDED INCLUDING AREAS OF LONGITUDINAL AND/OR TRANSVERSE SLOPE.
 2. DIMENSIONS FOR EACH RIPRAP APRON AND ASSOCIATED RIPRAP ARE DETAILED IN THE TABLE ABOVE.
 3. WIDTH REFERS TO DIMENSION OPPOSITE PIPE AND DEPTH IS DIMENSION H.
 4. GEOTEXTILE SHALL BE "ONE WORKS & OUNCE" NON-WOVEN FILTER FABRIC DESIGNED FOR FILTRATION, STABILIZATION AND SEPARATION. WRAPPED CONTINUOUSLY ALONG THE SIDEWALLS AND BOTTOM OF THE PREPARED AREA OR SLOPE.
- WATER FLOW = 120 GPM/SF
 - GRAB STRENGTH (MIN) = 400 N
 - PUNCTURE STRENGTH (MIN) = 178 N
 - TRAPEZOIDAL TEAR (MIN) = 133 N
 - ELONGATION (MIN) = 15%

"AS-BUILT"

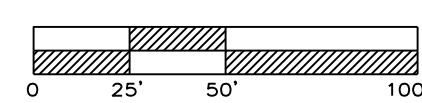
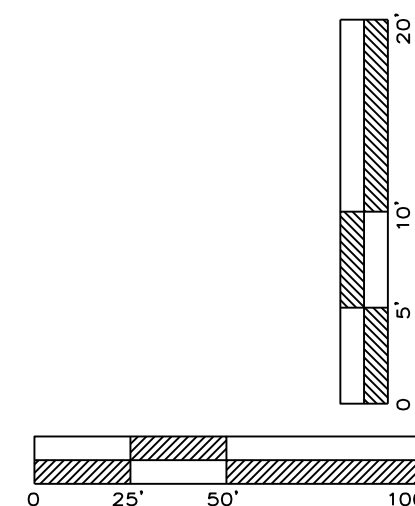
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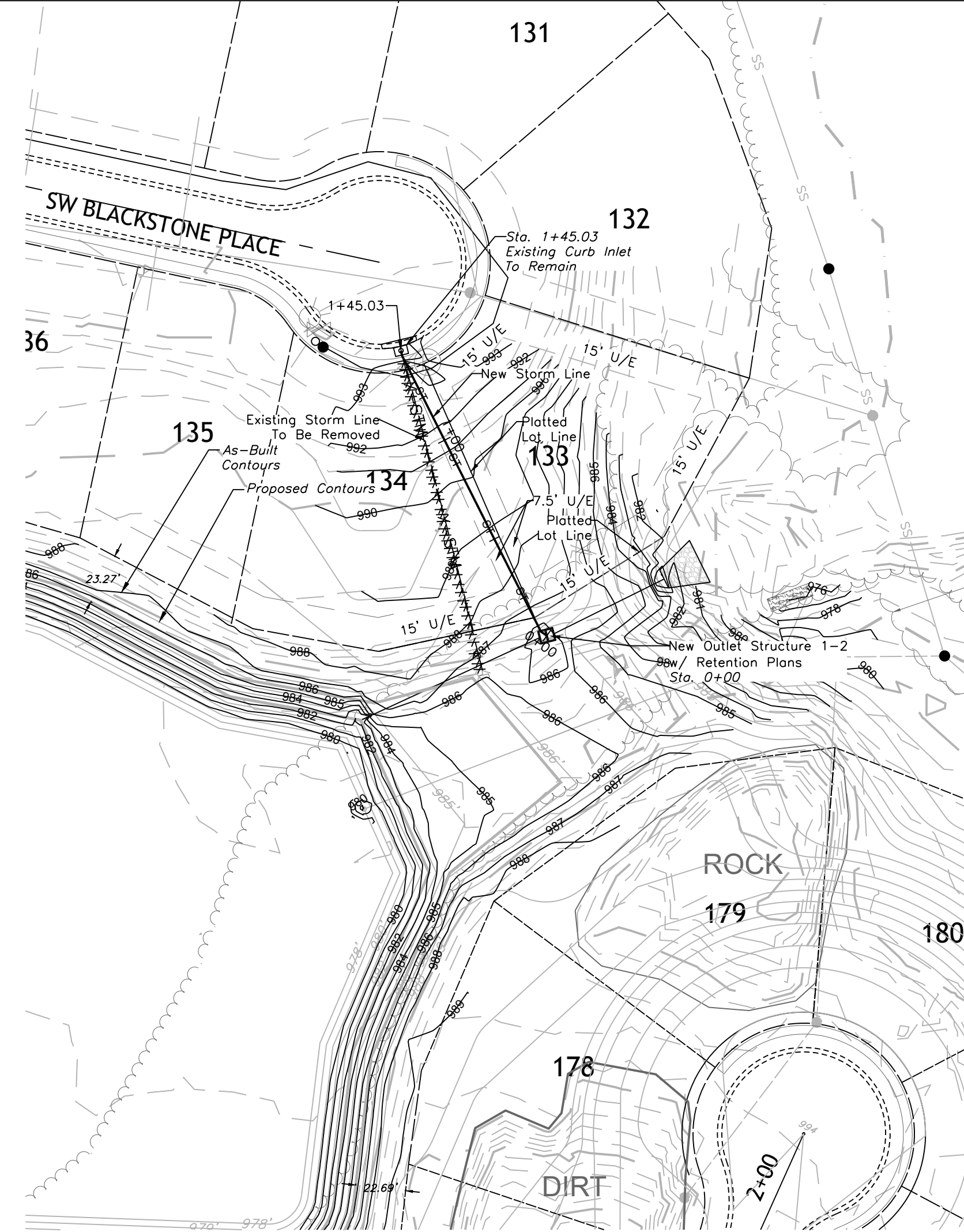
STORM LINE 1



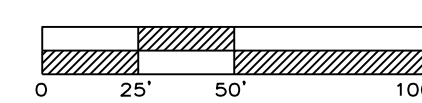
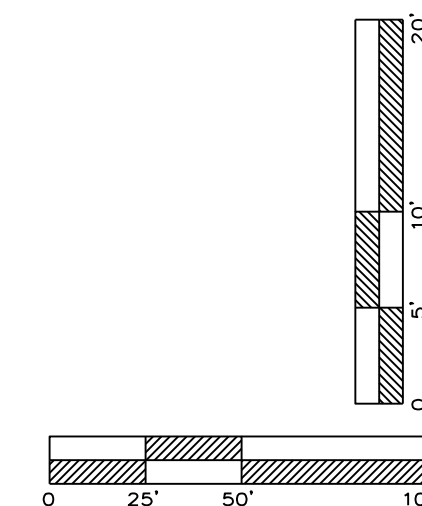
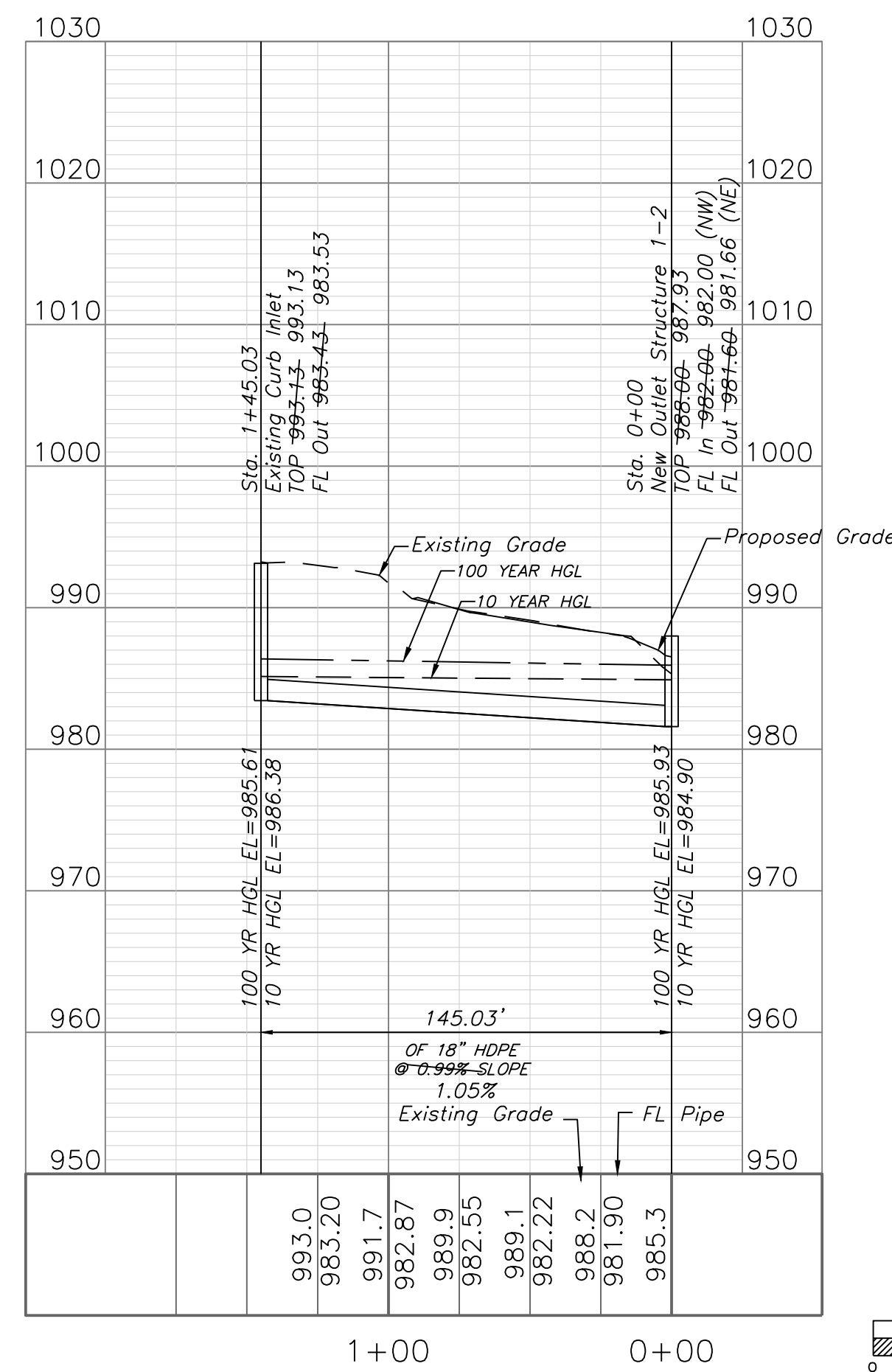
COMPACTED FILL SHALL BE PLACED TO A MINIMUM OF 18" ABOVE THE TOP OF PIPE PRIOR TO INSTALLATION.



PLAN AND PROFILE
SCALE: 1" = 50'



STORM LINE 2



PLAN AND PROFILE
SCALE: 1" = 50'

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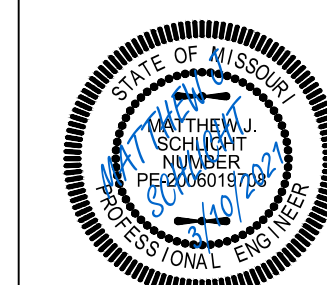


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