

SEED MIX

SEED MIX: AREAS DISTURBED BY THE EARTHWORK AND NOT RECEIVING PAVEMENT OR OTHER TREATMENT SHALL BE PERMANENTLY REVEGETATED WITH THE FOLLOWING SEED MIX. SEED OF GRASS SPECIES AS LISTED BELOW WITH NOT LESS THAN 85% GERMINATION, NOT LESS THAN 95% PURE SEED AND NOT MORE THAN 0.5% WEED SEED:

SPECIES	Percent of Mix
CREeping OREGON GRAPE	15%
SNAPEED	15%
SIDE OATS GRASS	25%
DOTTED GAYFEATHER	20%
BUFFALOGRASS	25%
<i>Muhlenbergia repens</i>	15%
<i>Bouteloua curtipendula</i>	25%
<i>Liatris punctata</i>	20%
<i>Buchloe dactyloides</i>	25%

SEED AT NOT LESS THAN 30 PLS/ACRE
SEEDING APPLICATION: DRILL SEED 1/4" TO 1/2" INTO TOPSOIL. IN AREAS INACCESSIBLE TO A DRILL, HAND BROADCAST AT DOUBLE THE RATE AND MAKE 1/4" TO 1/2" INTO THE TOPSOIL. MULCHING APPLICATION: 1-1/2 TONS NATIVE HAY PER ACRE, MECHANICALLY CRIMPED INTO THE TOPSOIL.

LEGEND

---	PROPERTY OR ROW LINE
EX W	EXISTING WATER LINE
EX SS	EXISTING SANITARY SEWER
EX SW	EXISTING STORM SEWER
EX USE	EXISTING UNDERGROUND ELECTRIC LINE
EX T	EXISTING UNDERGROUND TELEPHONE LINE
EX G	EXISTING GAS LINE
---	PROPOSED 100 YEAR FLOODPLAIN
---	EXISTING FENCE
---	EXISTING CONTOURS
---	PROPOSED CONTOURS
---	CUT/FILL DEMARCATION LINE
---	EXISTING SPOT ELEVATION
---	PROPOSED SPOT ELEVATION
---	EXISTING FLOW DIRECTION AND SLOPE
---	PROPOSED FLOW DIRECTION AND SLOPE
---	PROPOSED SLOPE
---	EXISTING FACILITIES TO BE DEMOLISHED
---	EX. SANITARY SEWER TO BE REMOVED OR RELOCATED
---	APPROXIMATE LIMIT OF DISTURBANCE
---	ROCK SOCK
---	CONCRETE WASHOUT AREA
---	INLET PROTECTION
---	MATERIALS STORAGE AREA
---	TEMPORARY SLOPE DRAIN
---	TEMPORARY SEDIMENT BASIN
---	ROUGH-CUT STREET CONTROL
---	SEDIMENT CONTROL LOG
---	SILT FENCE EROSION BARRIER
---	SEEDING AND MULCHING
---	STOCKPILE AREA
---	STABILIZED STAGING AREA
---	VEHICLE TRACKING CONTROL

- GRADING NOTES:**
- ALL EARTHWORK AND EROSION CONTROL REQUIRED OF THIS CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE PROJECT SPECIFICATIONS AND THE COUNTY STANDARDS.
 - A GEOTECHNICAL ENGINEERING REPORT WAS PREPARED FOR THE SUBJECT SITE. THE RECOMMENDATIONS INCLUDED IN THE REPORT SHOULD BE FOLLOWED DURING CONSTRUCTION UNLESS OTHERWISE NOTED. REFER TO THE REPORT FOR SOIL BORING LOGS.
 - FILL SHOULD BE PLACED AND COMPACTED IN THIN HORIZONTAL LIFTS, USING EQUIPMENT AND PROCEDURES THAT WILL PRODUCE RECOMMENDED MOISTURE CONTENTS AND DENSITIES THROUGHOUT THE LIFT. THE PLACEMENT AND COMPACTION OF FILL AND BACKFILL SHOULD BE OBSERVED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER.
 - FILL MATERIAL SHOULD BE PLACED IN MAXIMUM 8-INCH LOOSE LIFTS, UNLESS OTHERWISE NOTED.
 - FILL SHOULD BE COMPACTED TO 95% OF THE MATERIALS STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) AND TO 0 TO +2% OF THE OPTIMUM MOISTURE CONTENT FOR CLAY SOILS AND -2 TO +2% OF THE OPTIMUM MOISTURE CONTENT FOR SANDY SOILS, UNLESS OTHERWISE NOTED.
 - ON-SITE SOILS SHOULD BE SCARIFIED TO A DEPTH OF NO LESS THAN 12 INCHES BELOW PLANNED GRADE, MOISTURE CONDITIONED AND RE-COMPACTED IN ACCORDANCE WITH THE GEOTECHNICAL REQUIREMENTS.
 - ALL SOILS USED FOR FILL AND BACKFILL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO INSTALLATION. THE GEOTECHNICAL ENGINEER SHALL OBSERVE AND TEST THE FILL COMPACTION, APPROVE THE FILL MATERIALS AND COMMENT, AS NEEDED, ON THE METHOD OF PLACING AND COMPACTION, IN WRITING, TO THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE GEOTECHNICAL ENGINEER WHEN TESTS ARE TO BE MADE.
 - RUBBISH AND DEBRIS INCLUDING TIMBER, CONCRETE, RUBBLE, TREES, BRUSH, AND ASPHALT SHALL NOT BE BACKFILLED ADJACENT TO ANY OF THE STRUCTURES OR BE IN THE PLACEMENT OF ANY UNCLASSIFIED FILL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND HAULING OF SUCH MATERIALS TO A SUITABLE SPOIL AREA.
 - GRADING CONTOURS SHOWN ON THIS PLAN ARE TO FINAL GRADE.
 - ALL VERTICAL SPOT ELEVATIONS SHOWN ON THE GRADING PLAN ARE FLOWLINE OF CURB (FL) OR FINISH GROUND (FG), UNLESS OTHERWISE NOTED.
 - GRADING ABBREVIATIONS: FL=FLOWLINE, TC=TOP OF CURB, TOC=TOP OF CONCRETE, TOA=TOP OF ASPHALT, EOC=EDGE OF CONCRETE, EOA=EDGE OF ASPHALT, HP=HIGH POINT, LP=LOW POINT, FF=FINISH FLOOR ELEVATION.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF ADEQUATE SHORING AND/OR BRACING NECESSARY TO FACILITATE THE EXCAVATION ASSOCIATED WITH THE CONSTRUCTION OF THE WALLS, PIPELINES AND FOUNDATIONS. THE BRACING AND/OR SHORING OF EXCAVATED WALLS OR TRENCHES SHALL BE IN COMPLIANCE WITH OSHA REGULATIONS AND SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.
 - IMMEDIATELY PUMP OR BAIL OUT WATER FOUND IN EXCAVATIONS, WHETHER RAIN OR SEEPAGE. EXCAVATIONS MUST BE KEPT FREE FROM WATER AT ALL TIMES. TAKE ALL MEASURES AND FURNISH ALL EQUIPMENT AND LABOR NECESSARY TO CONTROL THE FLOW, DRAINAGE AND ACCUMULATION OF WATER AS REQUIRED TO PERMIT COMPLETION OF THE WORK AND TO AVOID DAMAGE TO THE WORK.
 - WHEN FREEZING TEMPERATURES MAY BE EXPECTED, DO NOT EXCAVATE TO THE FULL DEPTH INDICATED UNLESS THE FOOTING OR SLABS ARE TO BE POURED IMMEDIATELY AFTER THE EXCAVATION HAS BEEN COMPLETED. IF PLACING OF CONCRETE IS DELAYED, PROTECT THE BOTTOMS OF EXCAVATIONS FROM FROST UNTIL CONCRETE IS PLACED.
 - NO FILL MATERIAL SHALL BE PLACED, SPREAD OR ROLLED WHILE IT IS FROZEN OR THAWING OR DURING UNFAVORABLE WEATHER CONDITIONS. WHEN THE WORK IN PROGRESS IS INTERRUPTED BY HEAVY RAIN, FILL OPERATIONS SHALL NOT BE RESUMED UNTIL THE GEOTECHNICAL ENGINEER INDICATES THAT THE MOISTURE CONTENT AND DENSITY OF THE PREVIOUSLY PLACED FILL ARE AS SPECIFIED.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND HAULING OF UNSUITABLE FILL MATERIALS TO A SUITABLE SPOIL AREA. EXCESS EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE. THE COST OF HAULAGE AND SPOILING OF EXCESS EXCAVATED MATERIALS SHALL BE PAID FOR AS DOCUMENTED IN THE PROJECT SPECIFICATIONS.
 - AT LEAST TEN DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE ACRE OR MORE, THE OWNER OR OPERATOR OF THE CONSTRUCTION ACTIVITY SHALL OBTAIN A PERMIT APPLICATION FOR STORM WATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION. THE APPLICATION CERTIFICATION OF COMPLETION OF A STORM WATER MANAGEMENT PLAN (SWMP), OF WHICH THIS GRADING AND EROSION CONTROL PLAN MAY BE A PART, FOR INFORMATION OR APPLICATION MATERIALS CONTACT: COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION-PERMITS.
 - ALL EROSION CONTROL WILL BE DONE IN CONFORMANCE WITH THE COUNTY STANDARDS. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY COUNTY OR ENGINEER.
 - ALL SLOPES GREATER THAN 4:1 REQUIRE EROSION CONTROL BLANKET, NORTH AMERICAN GREEN SC150BN DOUBLE NETTED OR EQUAL AS A TEMP STABILIZATION MEASURE.
 - WATER SHALL BE USED AS A DUST PALLIATIVE AS REQUIRED AND SHALL BE INCLUDED IN THE COST FOR EARTHWORK ITEMS(S).
 - STORMWATER QUALITY VOLUME CERTIFICATION: THE CONTRACTOR SHALL PROVIDE A VOLUME CERTIFICATION FOR THE STORMWATER QUALITY AREA, SIGNED AND SEALED BY A LICENSED PROFESSIONAL LAND SURVEYOR.
 - WATER QUALITY BASIN: AT A MINIMUM, THE SURVEY SHALL INCLUDE THE OUTLET STRUCTURE FLOWLINE IN AND OUT, ORIFICE PLATE ELEVATIONS, TOP OF OUTLET STRUCTURE/ GRATE ELEVATIONS AT FRONT, MIDDLE AND BACK; SPILLWAY ELEVATION AND WIDTH, TOP OF EMBANKMENT ELEVATION AROUND WATER QUALITY BASIN; FOREBAY FLOWLINE AND TOP OF WALLS; LOW FLOW CHANNEL ELEVATIONS AND A SUFFICIENT AMOUNT OF GROUND ELEVATIONS WITHIN THE WATER QUALITY AREA TO DETERMINE THE AS-BUILT VOLUME.
 - BENCHMARK: FIMS MONUMENT NUMBER 81, A BERTENSEN TOP SECURITY ROD WITH A 3.25-INCH DIAMETER ALUMINUM FIMS CAP (NORTH SIDE OF U.S. HWY 24 EAST OF VALLEY STREET) ELEV=6272.26 (NGVD 1929).

APPROXIMATE EARTHWORK QUANTITIES

CUT (EXCESS) =	21,500 CY
FILL =	116,200 CY
SHRINKAGE (10% OF FILL) =	11,600 CY
NET FILL (w/SHRINKAGE) =	106,300 CY

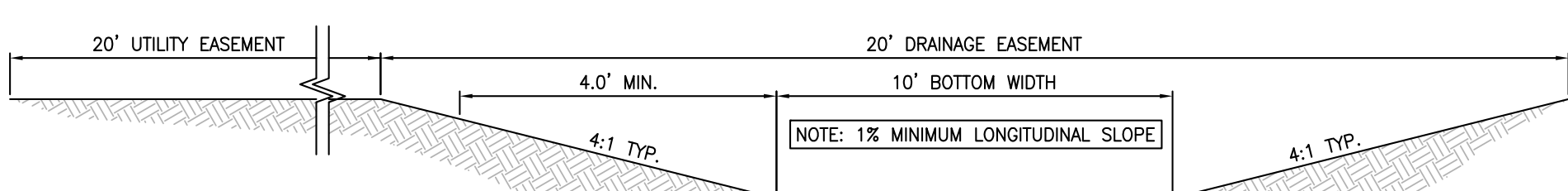
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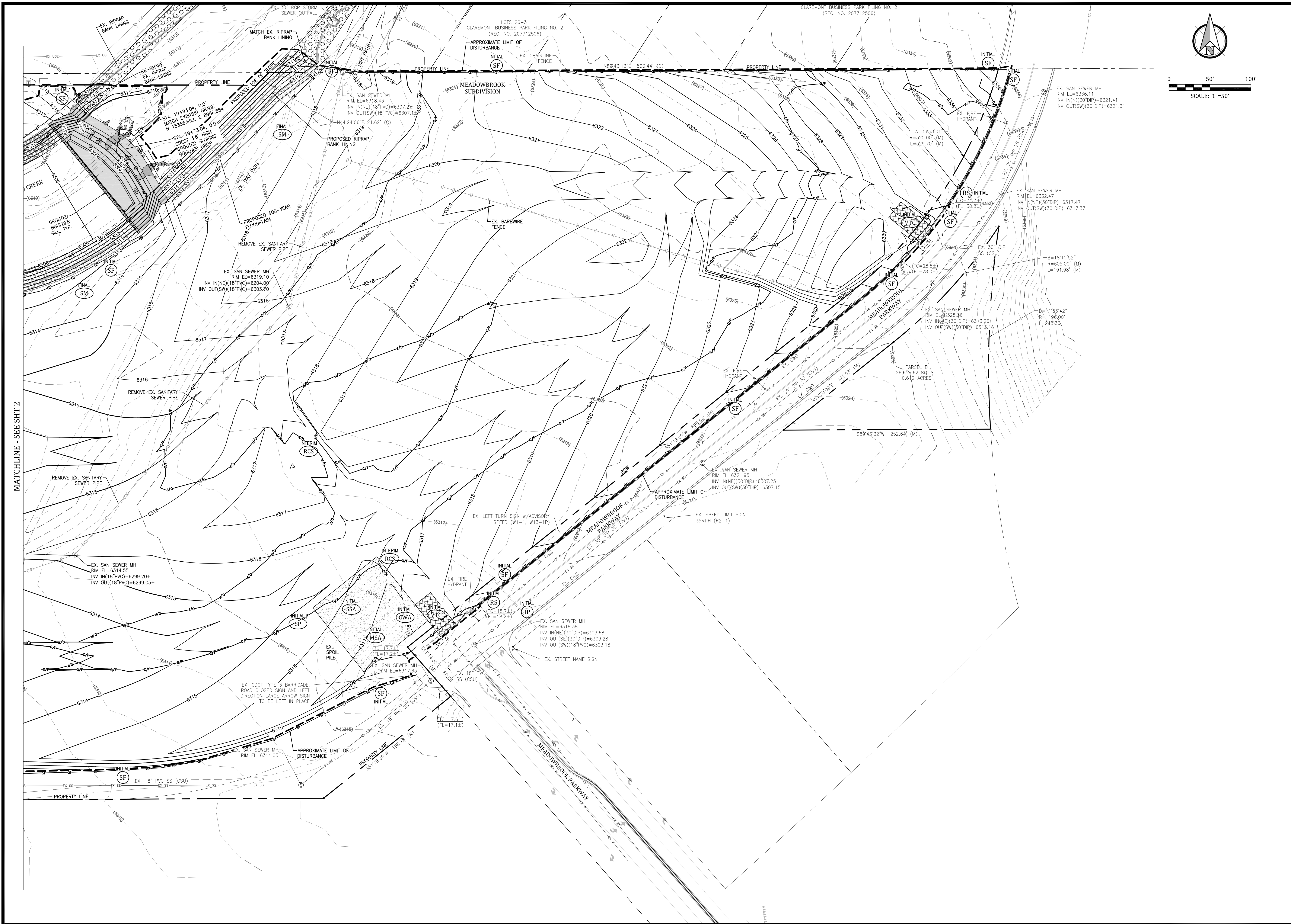
- EARTHWORK QUANTITIES SHOWN ABOVE ARE APPROXIMATE.
- SHRINKAGE FACTOR IS ASSUMED, CONSULT GEOTECHNICAL ENGINEER FOR SHRINKAGE FACTOR.

OPINION OF COST FOR EROSION CONTROL REQUIREMENTS

ITEM	QUANTITY	UNITS	PRICE	AMOUNT
PERMANENT SEEDING	6.50	AC	\$582	\$3,783.00
MULCHING	6.50	AC	\$507	\$3,295.50
VEHICLE TRACKING CONTROL	2	EA	\$1,625	\$3,250.00
INLET PROTECTION	7	EA	\$153	\$1,071.00
CONCRETE WASHOUT BASIN	1	EA	\$776	\$776.00
ROUGH CUT STREET CONTROL	3,930	LF	\$2	\$7,860.00
SILT FENCE	5,586	LF	\$4	\$22,344.00
TEMPORARY SEDIMENT BASIN	1	EA	\$1,625	\$1,625.00
ROCK SOCK	2	EA	\$110	\$220.00
SEDIMENT CONTROL LOGS	260	LF	\$3	\$715.00
TEMPORARY SLOPE DRAIN	1	EA	\$750	\$750.00
STABILIZED STAGING AREA	1,110	SY	\$2	\$2,220.00
TOTAL				\$47,909.50

SECTION A-A: GRASS LINED SWALE
SCALE: NTS





MATCHLINE - SEE SHT 2

Celebrating 30 years
Kiowa
 Engineering Corporation
 1604 South 21st Street
 Colorado Springs, Colorado 80904
 (719) 630-7342

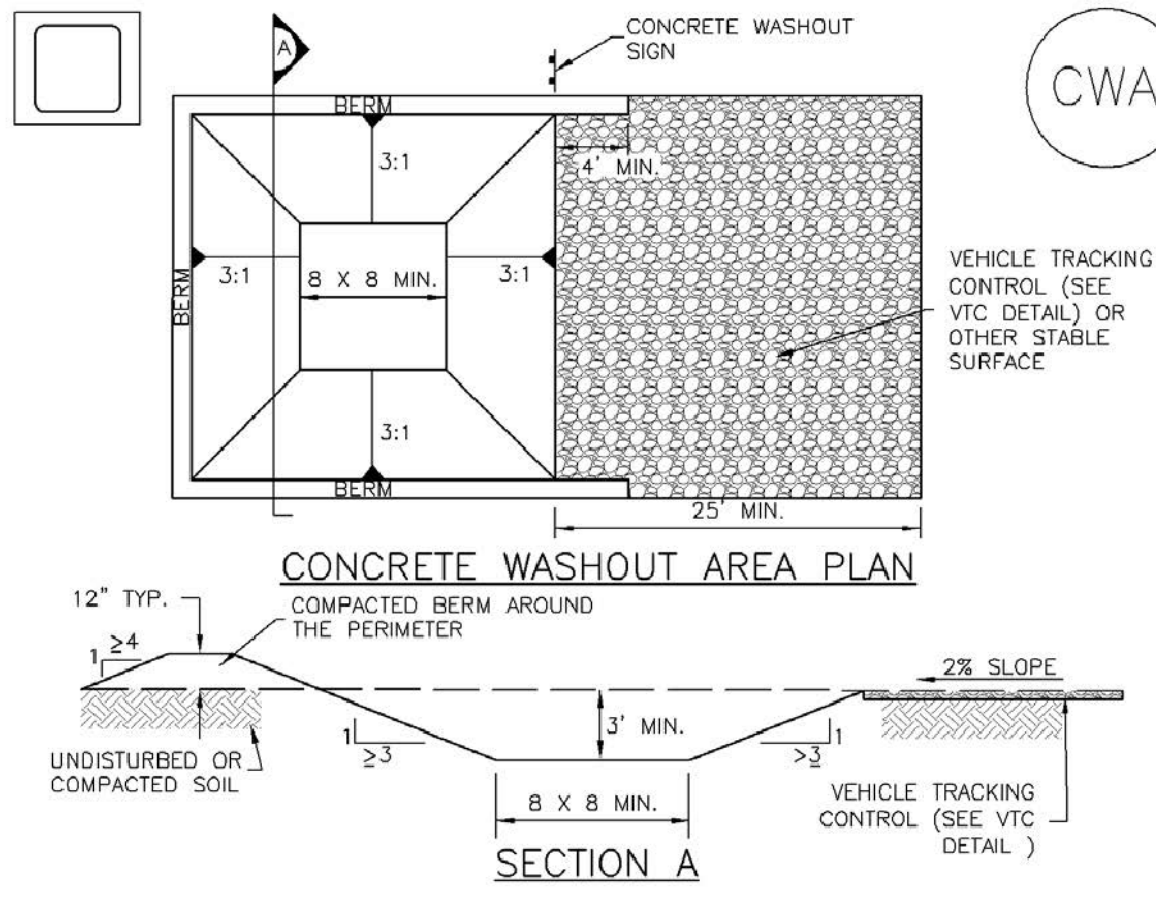
MEADOWBROOK CROSSING
OVERLOT GRADING AND EROSION CONTROL
AND CHANNEL IMPROVEMENTS PLAN
 EL PASO COUNTY, COLORADO

Project No.:	16039
Date:	July 25, 2017
Design:	CJC
Drawn:	ELS
Check:	MWE
Revisions:	

SHEET

G3

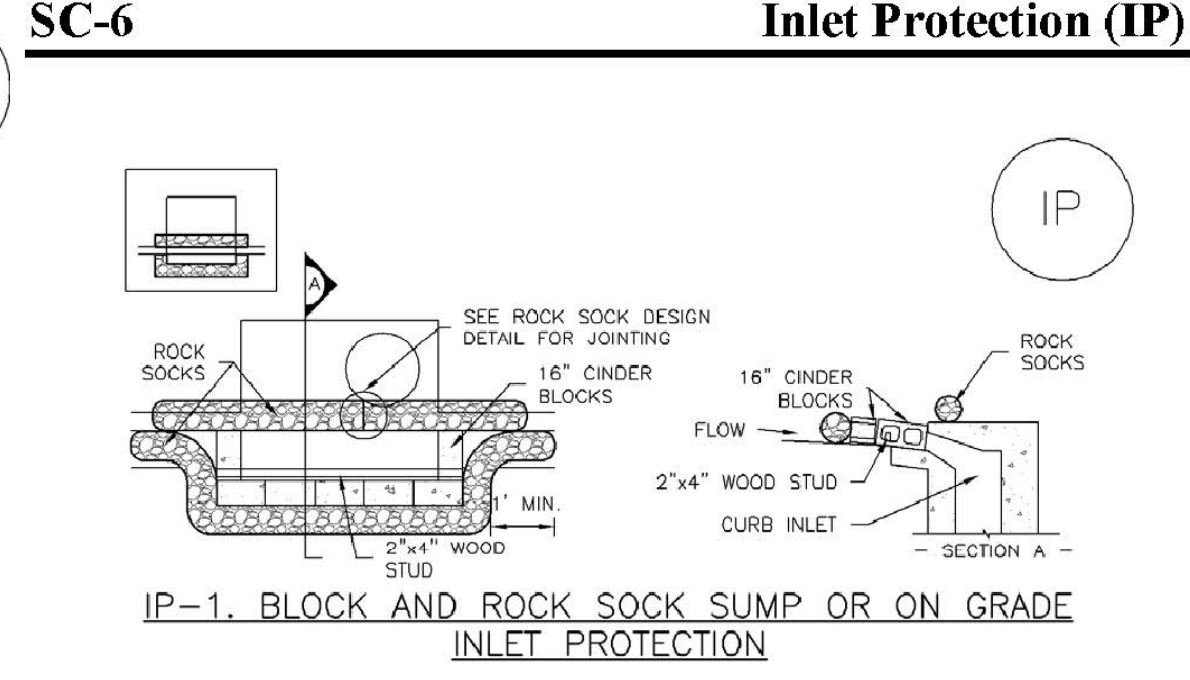
OF 14 SHEETS



CWA-1. CONCRETE WASHOUT AREA

- CWA INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - CWA INSTALLATION LOCATION.
 - DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS UNDESIRABLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
 - THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
 - CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8' BY 8' SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
 - BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
 - VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
 - SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP TRUCKS.
 - USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

- CWA MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - THE CWA SHALL BE REPAIRED, CLEANED, OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.
 - CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.
 - THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
 - WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

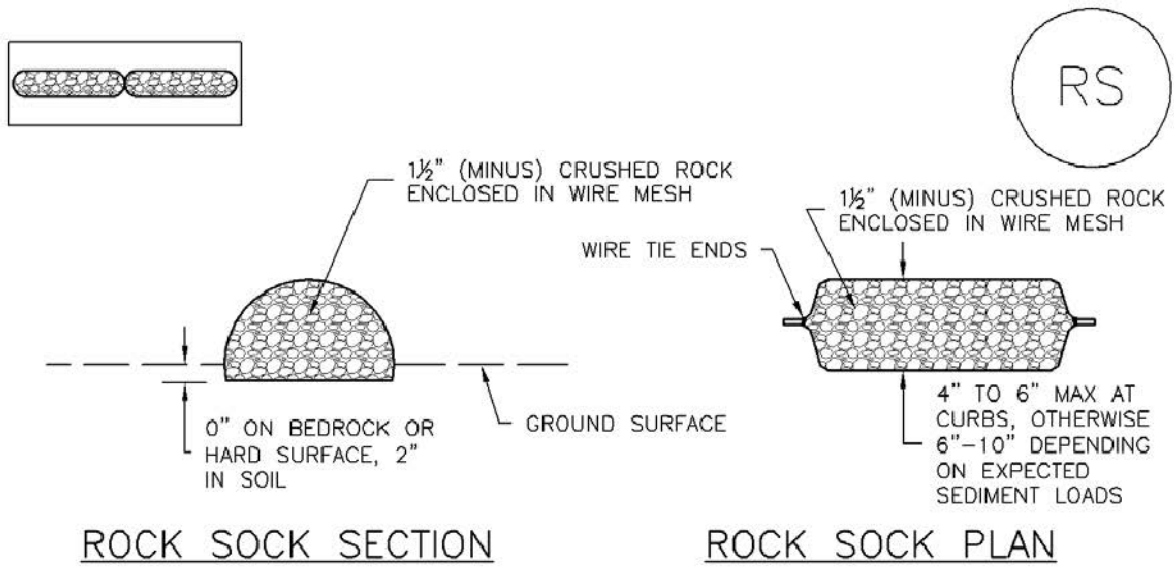


IP-1. BLOCK AND ROCK SOCK SUMP OR ON GRADE INLET PROTECTION

- BLOCK AND CURB SOCK INLET PROTECTION INSTALLATION NOTES**
- SEE ROCK SOCK DESIGN DETAIL FOR INSTALLATION REQUIREMENTS.
 - CONCRETE "CINDER" BLOCKS SHALL BE LAID ON THEIR SIDES AROUND THE INLET IN A SINGLE ROW ABUTTING ONE ANOTHER WITH THE OPEN END FACING AWAY FROM THE CURB.
 - SBRNEL BAGS SHALL BE PLACED AROUND CONCRETE BLOCKS, CLOSELY ABUTTING ONE ANOTHER AND JOINED TOGETHER IN ACCORDANCE WITH ROCK SOCK DESIGN DETAIL.
- IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION**
- CURB ROCK SOCK INLET PROTECTION INSTALLATION NOTES**
- SEE ROCK SOCK DESIGN DETAIL INSTALLATION REQUIREMENTS.
 - PLACEMENT OF THE SOCK SHALL BE APPROXIMATELY 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
 - SOCKS ARE TO BE FLUSH WITH THE CURB AND SPACED A MINIMUM OF 5 FEET APART.
 - AT LEAST TWO CURB SOCKS IN SERIES ARE REQUIRED UPSTREAM OF ON-GRADE INLETS.

IP-2. CURB ROCK SOCKS UPSTREAM OF INLET PROTECTION

- GENERAL INLET PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF INLET PROTECTION.
 - TYPE OF INLET PROTECTION (IP-1, IP-2, IP-3, IP-4, IP-5, IP-6)
 - INLET PROTECTION SHALL BE INSTALLED PROMPTLY AFTER INLET CONSTRUCTION OR PAVING IS COMPLETE (TYPICALLY WITHIN 48 HOURS). IF A RAINFALL/RUNOFF EVENT IS FORECAST, INSTALL INLET PROTECTION PRIOR TO ONSET OF EVENT.
 - MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- GENERAL INLET PROTECTION MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY. A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
 - INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN SITUATIONS.
 - WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.



ROCK SOCK SECTION

- ROCK SOCK INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION(S) OF ROCK SOCKS.
 - CRUSHED ROCK SHALL BE 1 1/2" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET (1/2" MINUS).
 - WIRE MESH SHALL BE FABRICATED OF 10 GAGE POULTRY MESH, OR EQUIVALENT, WITH A MAXIMUM OPENING OF 1/2", RECOMMENDED MINIMUM ROLL WIDTH OF 48"
 - WIRE MESH SHALL BE SECURED USING "HOG RINGS" OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.
 - SOME MUNICIPALITIES MAY ALLOW THE USE OF FILTER FABRIC AS AN ALTERNATIVE TO WIRE MESH FOR THE ROCK ENCLOSURE.

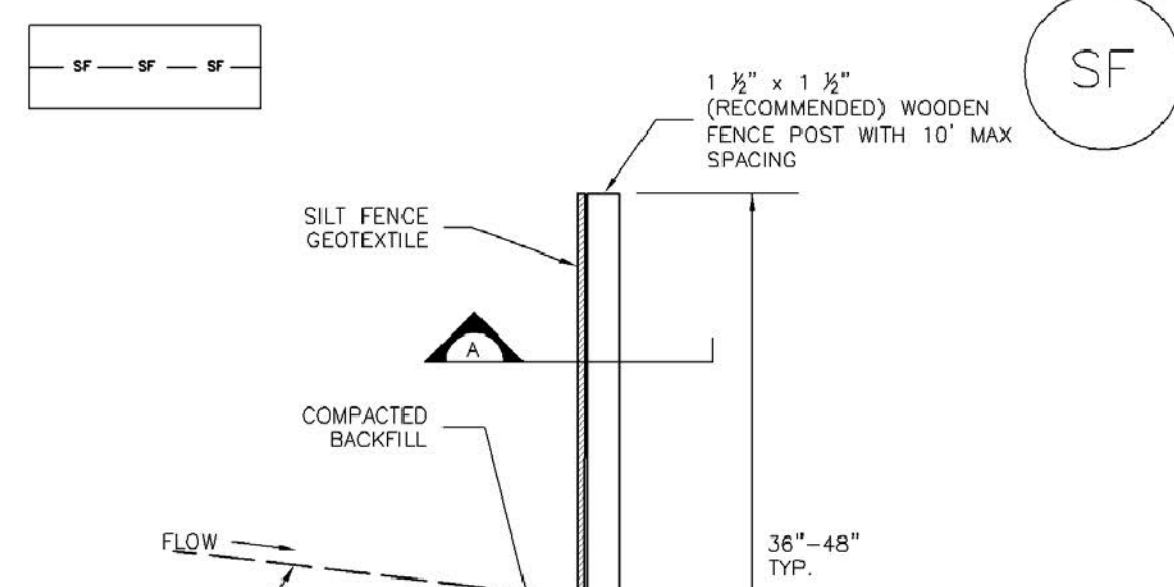
ROCK SOCK PERIMETER CONTROL

- ROCK SOCK MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED, OR DAMAGED BEYOND REPAIR.
 - SEDIMENT ACCUMULATED UPSTREAM OF ROCK SOCKS SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE ROCK SOCK.
 - ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION.
 - WHEN ROCK SOCKS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

ROCK SOCK PERIMETER CONTROL

RS-1. ROCK SOCK PERIMETER CONTROL

- GENERAL INLET PROTECTION MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED AS NECESSARY TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN STORAGE VOLUME REACHES 50% OF CAPACITY. A DEPTH OF 6" WHEN SILT FENCE IS USED, OR 1/4 OF THE HEIGHT FOR STRAW BALES.
 - INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS PERMANENTLY STABILIZED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN SITUATIONS.
 - WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEED AND MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.



SILT FENCE

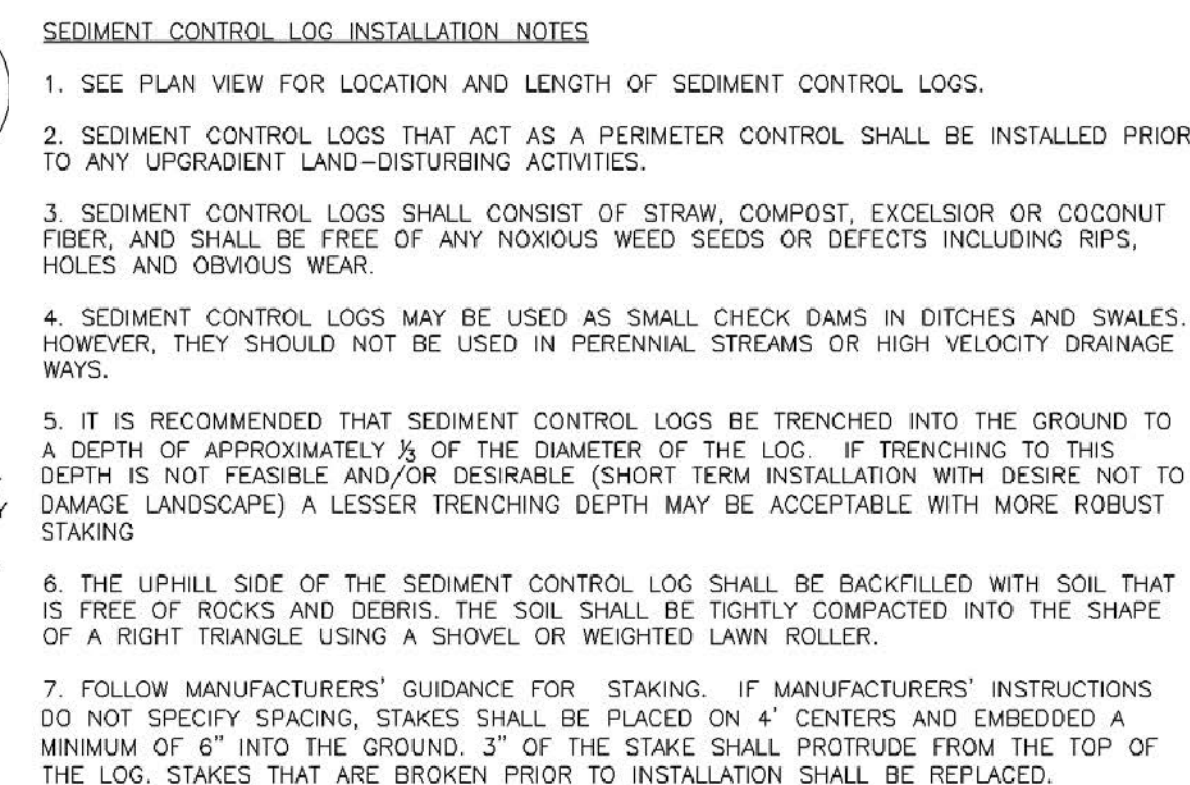
- SILT FENCE INSTALLATION NOTES**
- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
 - A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
 - COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTATION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
 - SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES, THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
 - SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
 - AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
 - SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

SILT FENCE

SF-1. SILT FENCE

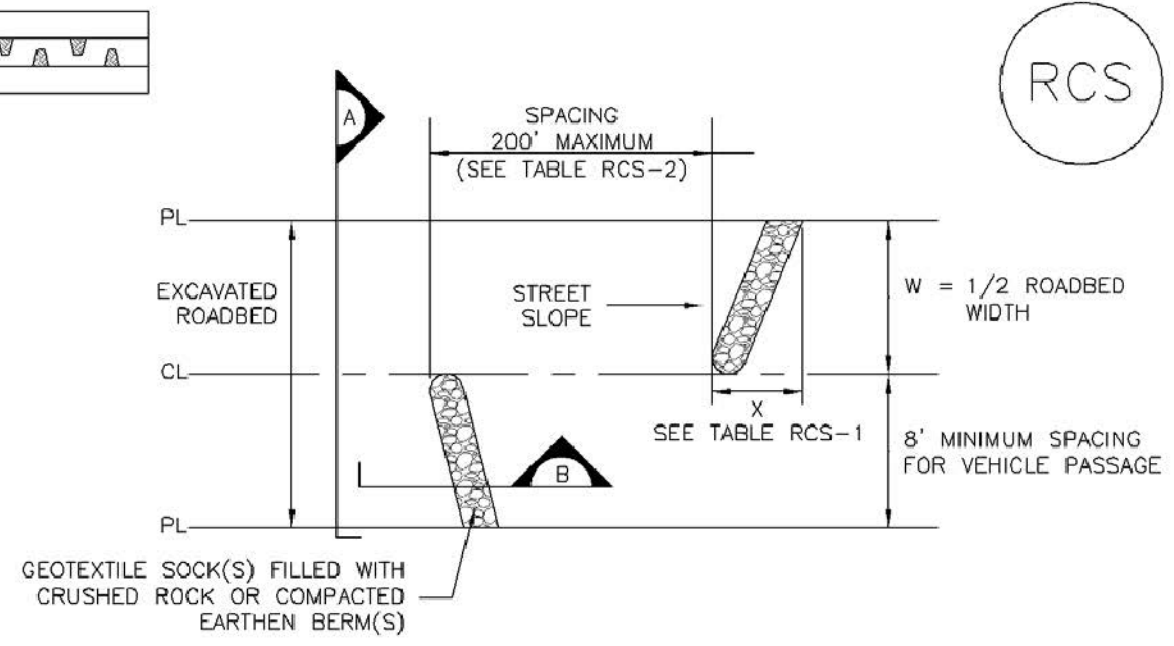


SCL-1. SEDIMENT CONTROL LOG

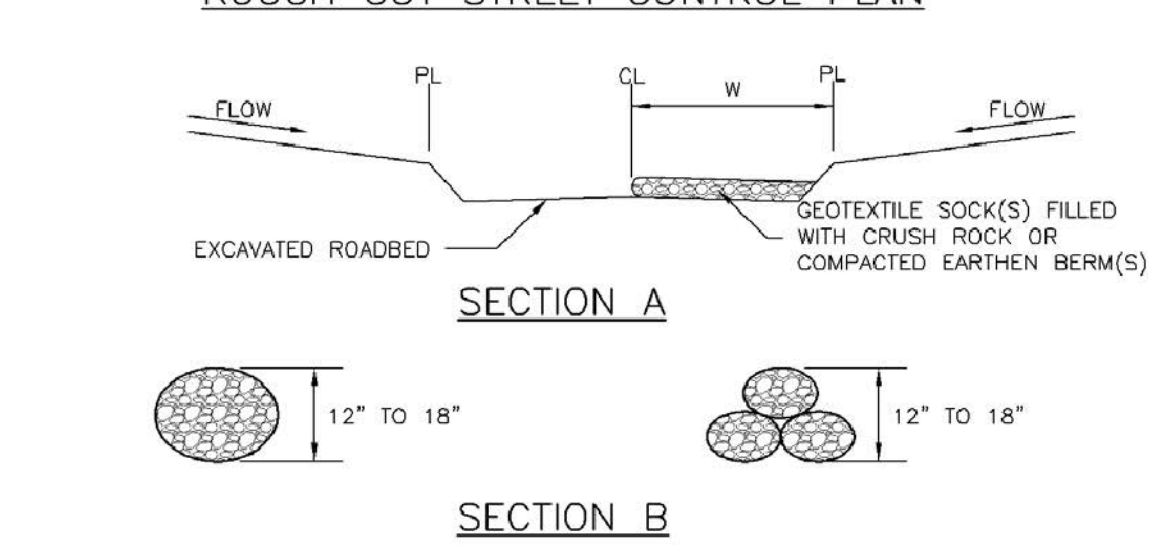
- SEDIMENT CONTROL LOG INSTALLATION NOTES**
- SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
 - SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL SHALL BE INSTALLED PRIOR TO ANY UPRADGRADE LAND-DISTURBING ACTIVITIES.
 - SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
 - SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS OR HIGH VELOCITY DRAINAGE WAYS.
 - IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/2 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING.
 - THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LAWN ROLLER.
 - FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 6" INTO THE GROUND. 3" OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED.
- SEDIMENT CONTROL LOG MAINTENANCE NOTES**
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
 - SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION, IF DISTURBED AREAS EXIST AFTER REMOVAL. THEY SHALL BE COVERED WITH TOP SOIL, SEED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

SEDIMENT CONTROL LOG JOINTS

SCL-1. SEDIMENT CONTROL LOG



ROUGH CUT STREET CONTROL PLAN



ROUGH CUT STREET CONTROL SECTION A

ROUGH CUT STREET CONTROL SECTION B

TABLE RCS-1

W (FT)	X (FT)
20-30	5
31-40	7
41-50	9
51-60	10.5
61-70	12

TABLE RCS-2

LONGITUDINAL STREET SLOPE (%)	SPACING (FT)
<2	NOT TYPICALLY NEEDED
2	200
3	200
4	150
5	100
6	50
7	25
8	25

RCS-1. ROUGH CUT STREET CONTROL

- SILT FENCE INSTALLATION NOTES**
- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
 - A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
 - COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTATION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
 - SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES, THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
 - SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
 - AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
 - SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

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MEADOWBROOK CROSSING
OVERLOT GRADING AND EROSION CONTROL
AND CHANNEL IMPROVEMENTS DETAILS
EL PASO COUNTY, COLORADO

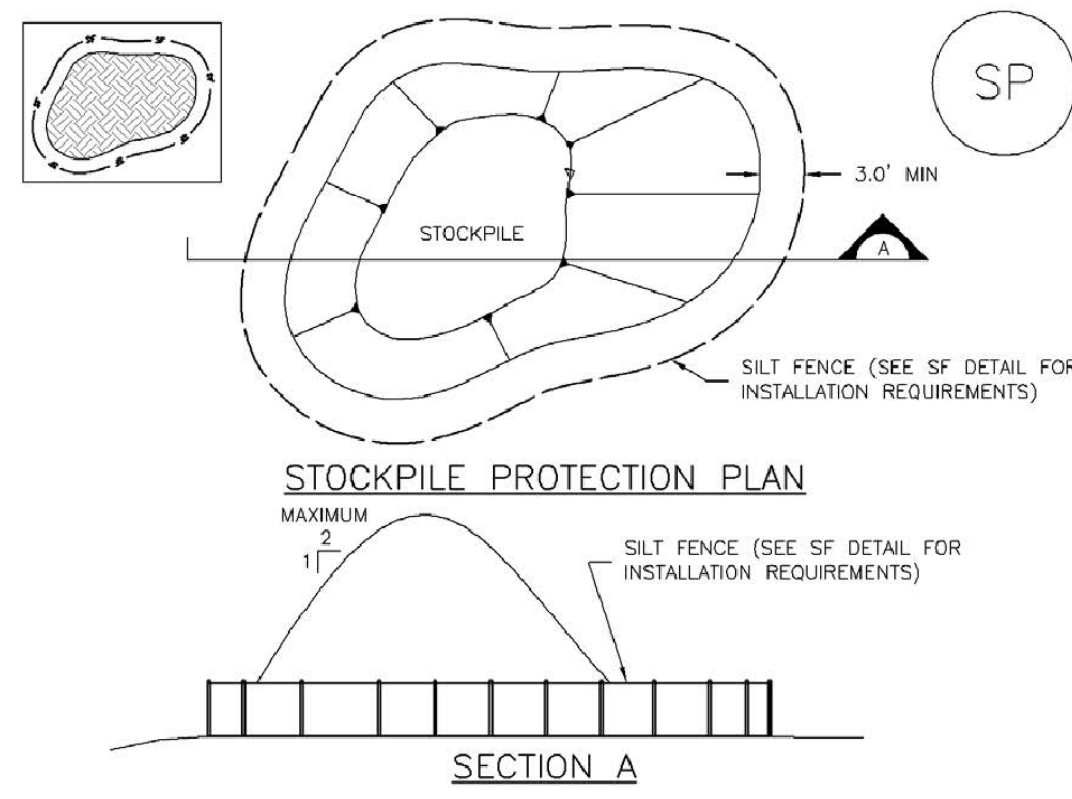
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Revisions:

SHEET
G4
OF 14 SHEETS

Stockpile Management (SP)

MM-2 Sediment Basin (SB)

SC-7



SP-1. STOCKPILE PROTECTION

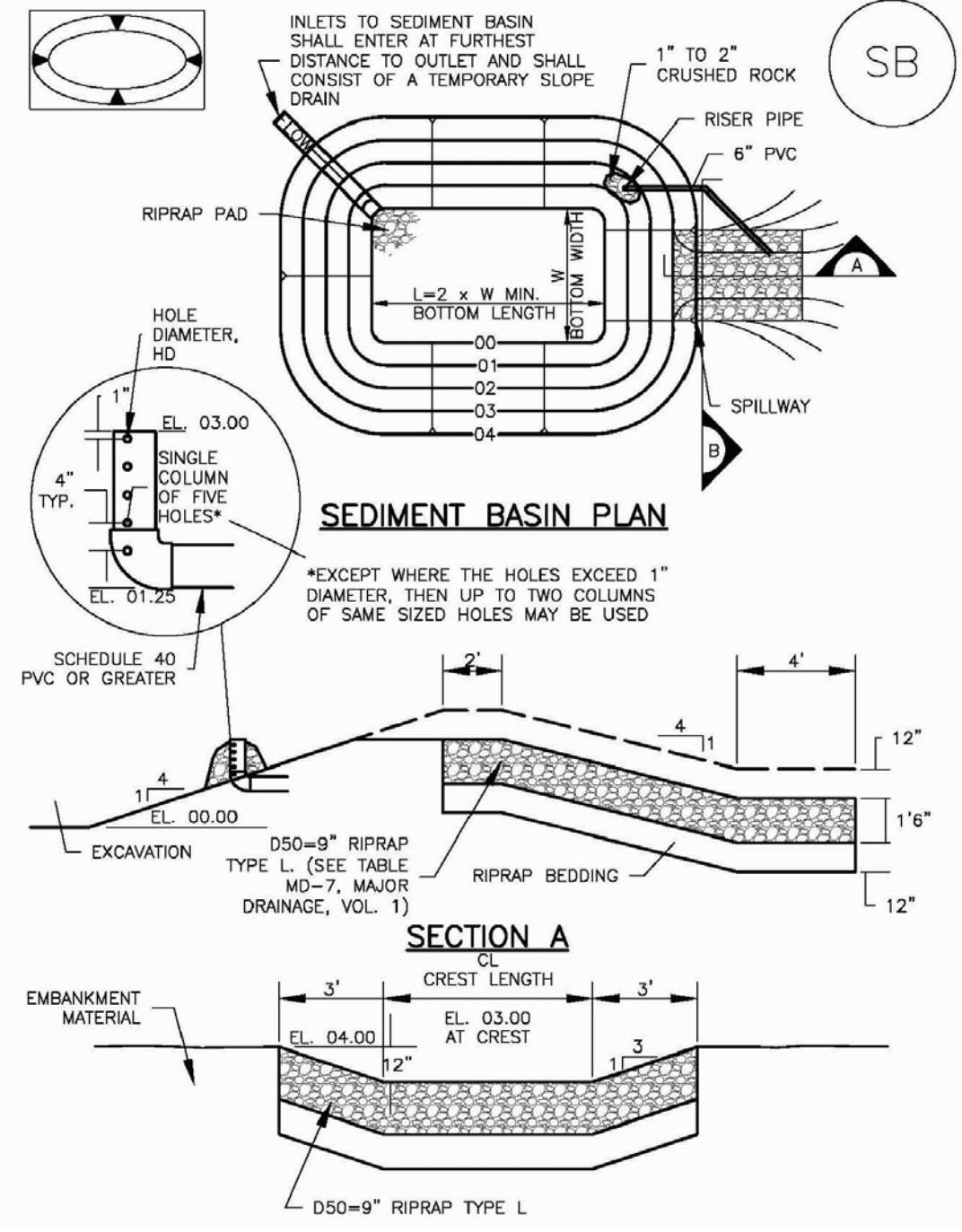
- STOCKPILE PROTECTION INSTALLATION NOTES**
- SEE PLAN VIEW FOR:
 - LOCATION OF STOCKPILES
 - TYPE OF STOCKPILE PROTECTION.
 - INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
 - STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
 - FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNGRADIENT CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

STOCKPILE PROTECTION MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

STOCKPILE PROTECTION MAINTENANCE NOTES

- IF PERIMETER PROTECTION MUST BE MOVED TO ACCESS SOIL STOCKPILE, REPLACE PERIMETER CONTROLS BY THE END OF THE WORKDAY.
- STOCKPILE PERIMETER CONTROLS CAN BE REMOVED ONCE ALL THE MATERIAL FROM THE STOCKPILE HAS BEEN USED.



NOTE:
SEE SHEET 2 FOR TEMPORARY SEDIMENT BASIN SIZING REQUIREMENTS

TABLE SB-1. SIZING INFORMATION FOR STANDARD SEDIMENT BASIN

Upstream Drainage Area (rounded to nearest acre), (ac)	Basin Bottom Width (W), (ft)	Spillway Crest Length (CL), (ft)	Hole Diameter (HD), (in)
1	12 1/2	2	3/8
2	21	3	1/2
3	28	5	3/4
4	33 1/2	6	1
5	38 1/2	8	1 1/8
6	43	9	1 1/4
7	47 1/2	11	1 3/8
8	51	12	1 1/2
9	55	13	1 5/8
10	58 1/2	15	1 3/4
11	61	16	1 7/8
12	64	18	2
13	67 1/2	19	2 1/8
14	70 1/2	21	2 1/4
15	73 1/2	22	2 3/8

SEDIMENT BASIN INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF SEDIMENT BASIN.
 - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
 - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
 - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
- FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
- SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON ON BASINS AS A STORMWATER CONTROL.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
- PIPE SCH 40 OR GREATER SHALL BE USED.
- THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
- SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
- WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

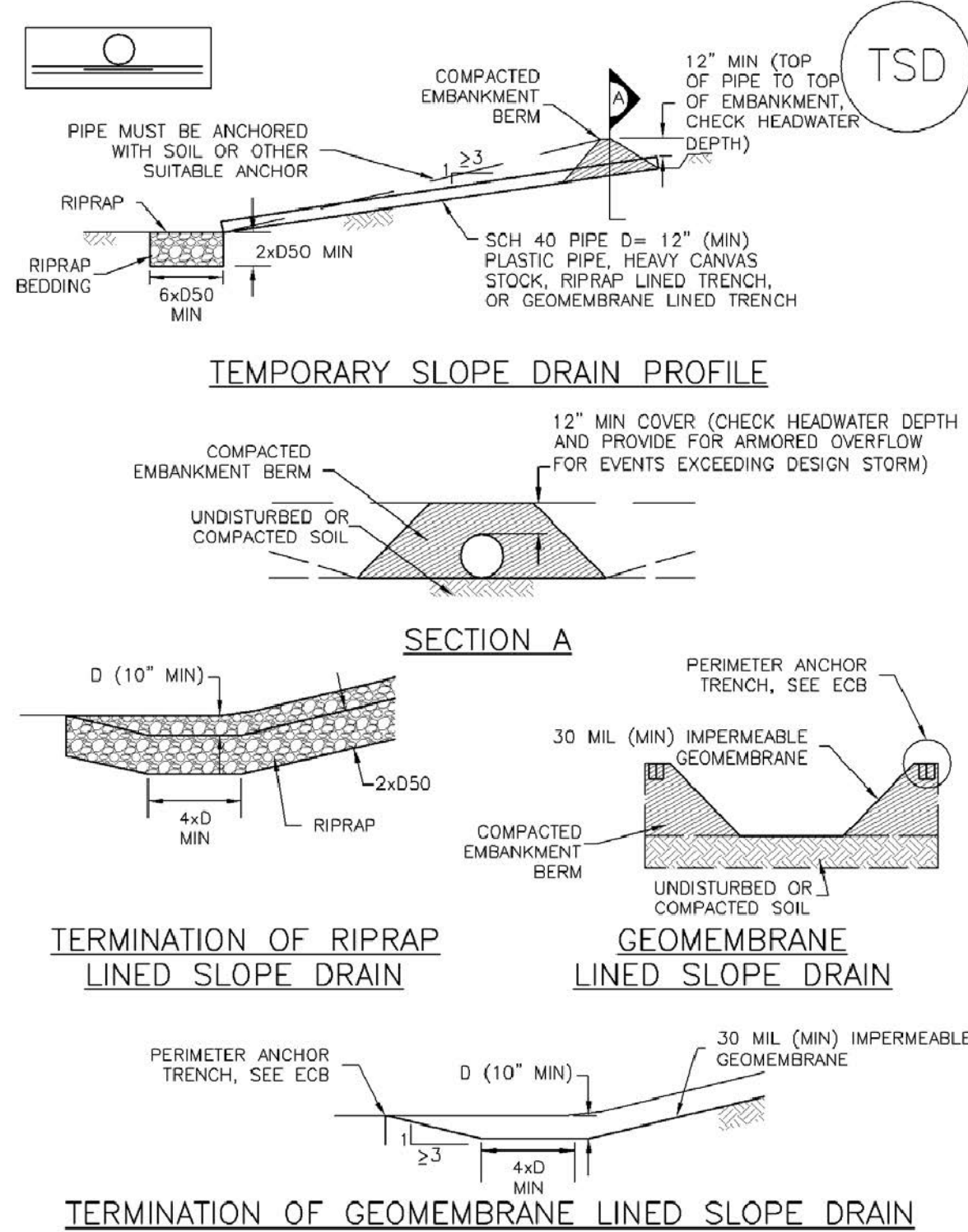
STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S).
 - TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH, CONSTRUCTION MAT OR TRM).
- CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
- A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
- STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.

STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED ENTRANCE/EXIT TO MAINTAIN A CONSISTENT DEPTH.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCO STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
(DETAILS ADAPTED FROM CITY OF BROOMFIELD, COLORADO, NOT AVAILABLE IN AUTOCAD)

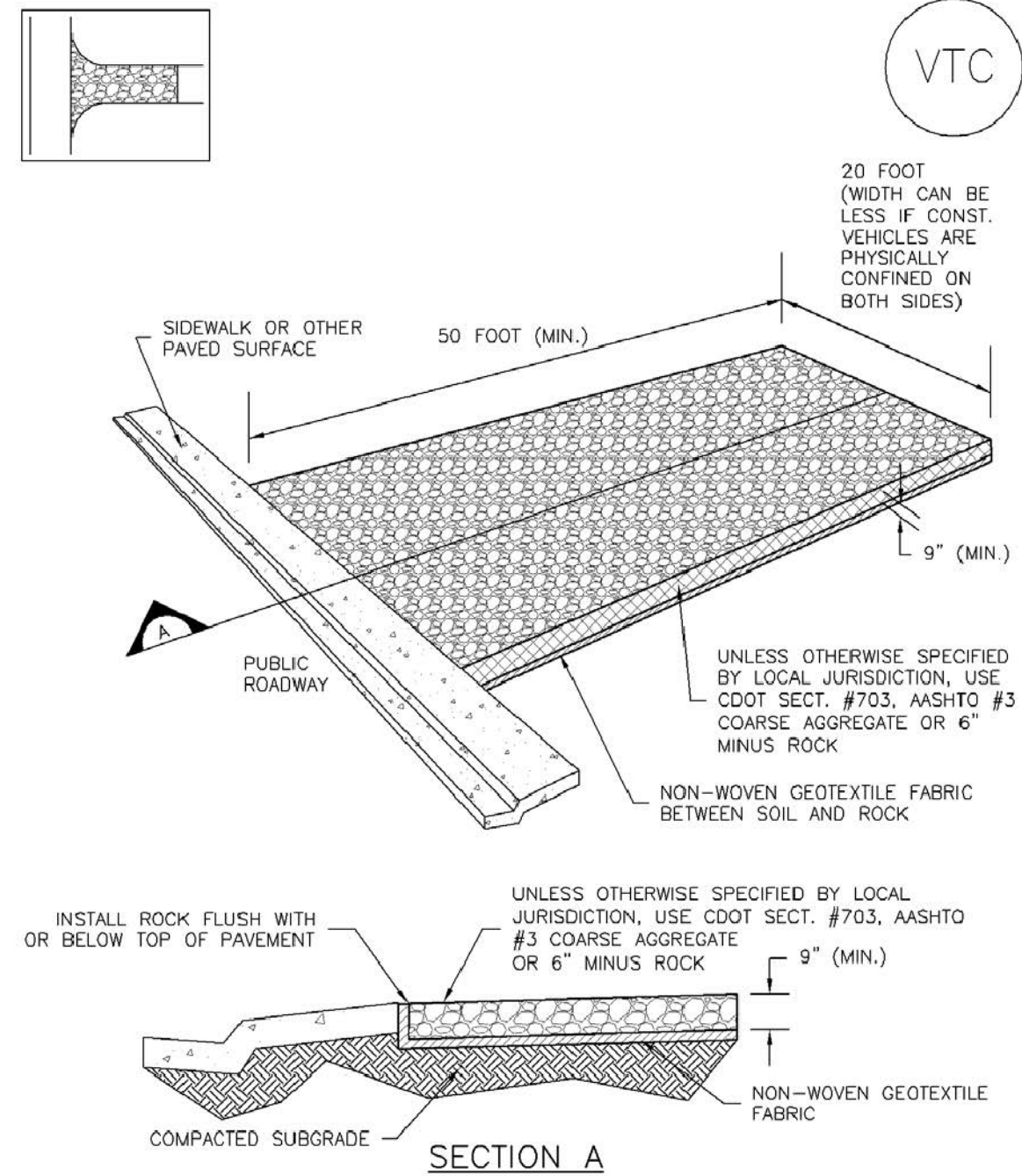


SLOPE DRAIN INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION AND LENGTH OF SLOPE DRAIN
 - PIPE DIAMETER, D, AND RIPRAP SIZE, D50.
- SLOPE DRAIN SHALL BE DESIGNED TO CONVEY PEAK RUNOFF FOR 2-YEAR 24-HOUR STORM AT A MINIMUM. FOR LONGER DURATION PROJECTS, LARGER MAY BE APPROPRIATE.
- SLOPE DRAIN DIMENSIONS SHALL BE CONSIDERED MINIMUM DIMENSIONS; CONTRACTOR MAY ELECT TO INSTALL LARGER FACILITIES.
- SLOPE DRAINS INDICATED SHALL BE INSTALLED PRIOR TO UPGRADE LAND-DISTURBING ACTIVITIES.
- CHECK HEADWATER DEPTHS FOR TEMPORARY AND PERMANENT SLOPE DRAINS. DETAILS SHOW MINIMUM COVER; INCREASE AS NECESSARY FOR DESIGN HEADWATER DEPTH.
- RIRAP PAD SHALL BE PLACED AT SLOPE DRAIN OUTFALL.
- ANCHOR PIPE BY COVERING WITH SOIL OR AN ALTERNATE SUITABLE ANCHOR MATERIAL.

SLOPE DRAIN MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- INSPECT INLET AND OUTLET POINTS AFTER STORMS FOR CLOGGING OR EVIDENCE OF OVERTOPPING. BRANCHES IN PIPE OR OTHER CONVEYANCE SHALL BE REPAIRED AS SOON AS PRACTICABLE IF OBSERVED.
- INSPECT RIPRAP PAD AT OUTLET FOR SIGNS OF EROSION. IF SIGNS OF EROSION EXIST, ADDITIONAL ARMORING SHALL BE INSTALLED.
- TEMPORARY SLOPE DRAINS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION. WHEN SLOPE DRAINS ARE REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEED, MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.



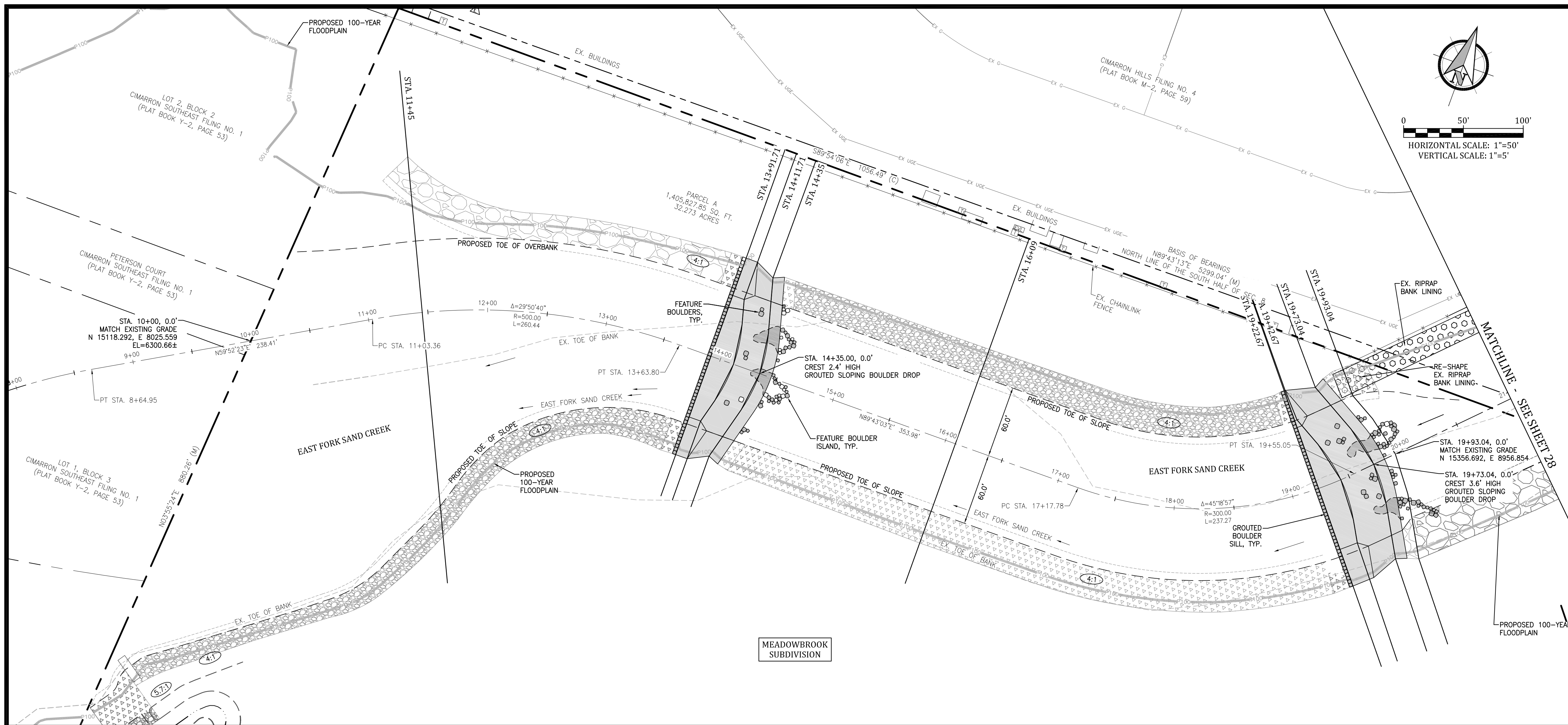
VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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MEADOWBROOK CROSSING
OVERLOT GRADING AND EROSION CONTROL
AND CHANNEL IMPROVEMENTS DETAILS
EL PASO COUNTY, COLORADO

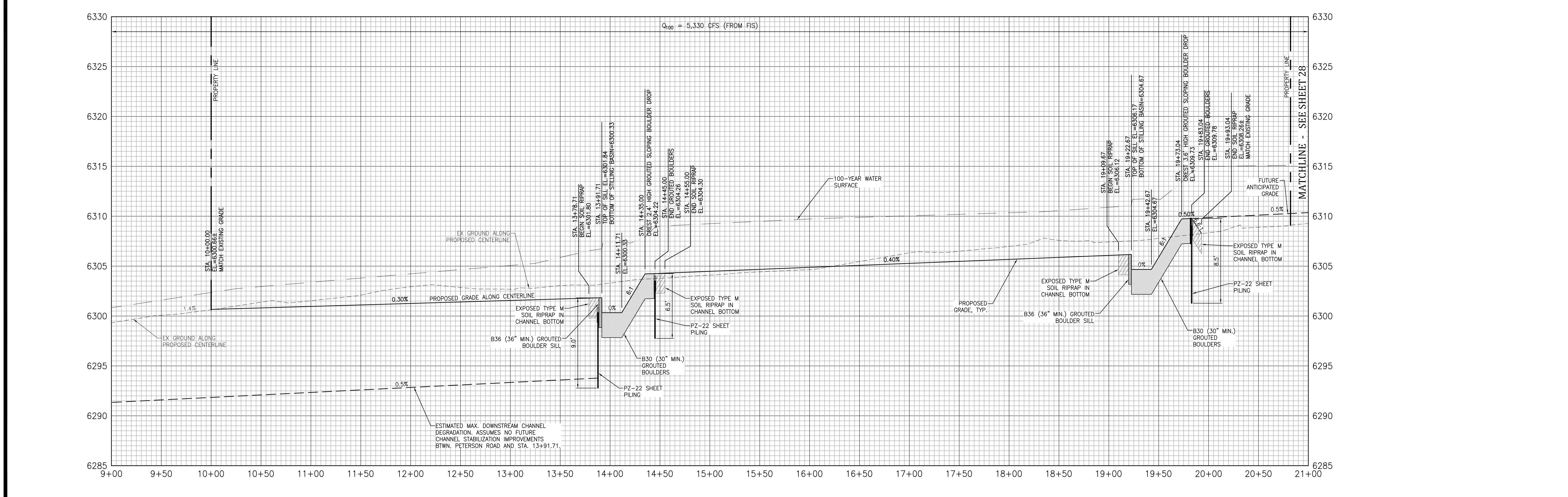
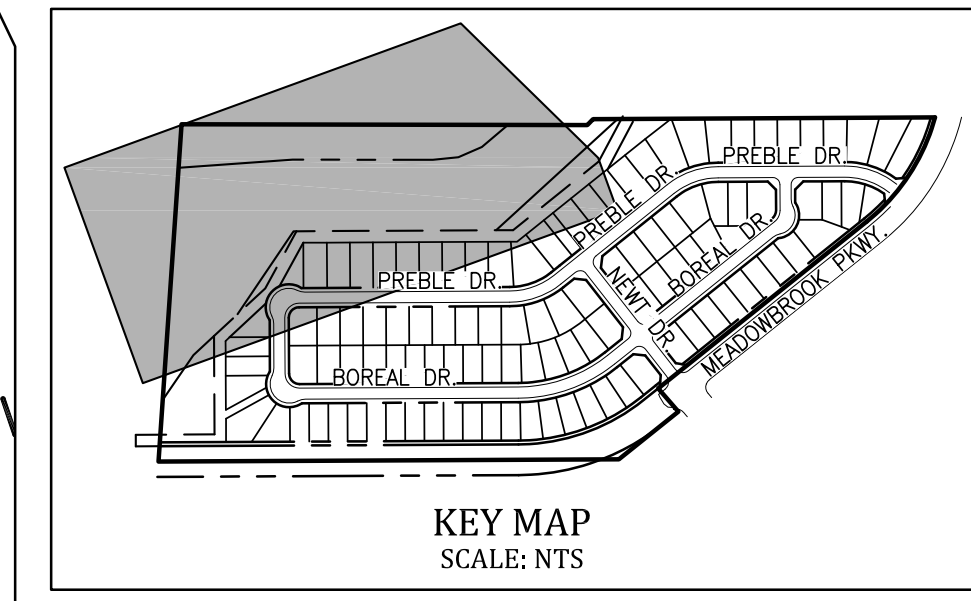
Project No.:	16039
Date:	July 25, 2017
Design:	CJC
Drawn:	ELS
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Revisions:	

SHEET
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OF 14 SHEETS



LEGEND

[Symbol]	EXISTING PROPERTY LINE
[Symbol]	SECTION LINE
[Symbol]	EXISTING LOT LINE
[Symbol]	PROPOSED LOT LINE
[Symbol]	PROPOSED TRACT BOUNDARY
[Symbol]	PROPOSED EASEMENT
[Symbol]	PROPOSED RIGHT-OF-WAY LINE
[Symbol]	PROPOSED 100-YEAR FLOODPLAIN
[Symbol]	EXISTING FENCE
[Symbol]	EXISTING BUILDING TO REMAIN
[Symbol]	EXISTING WATER LINE
[Symbol]	EXISTING SANITARY SEWER
[Symbol]	EX. SANITARY SEWER TO BE REMOVED OR RELOCATED
[Symbol]	EXISTING STORM SEWER
[Symbol]	EXISTING UNDERGROUND ELECTRIC LINE
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[Symbol]	EXISTING SANITARY SEWER MANHOLE
[Symbol]	EXISTING TELEPHONE PEDESTAL
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[Symbol]	EXISTING RIPRAP
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[Symbol]	BURIED TYPE L SOIL RIPRAP
[Symbol]	BURIED TYPE M SOIL RIPRAP
[Symbol]	BURIED TYPE H SOIL RIPRAP
[Symbol]	GROUTED BOULDERS
[Symbol]	FEATURE BOULDERS



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MEADOWBROOK CROSSING
LOWER EAST FORK SAND CREEK PLAN AND PROFILE
STA. 9+00 TO STA. 21+00
EL PASO COUNTY, COLORADO

Project No.:	16039
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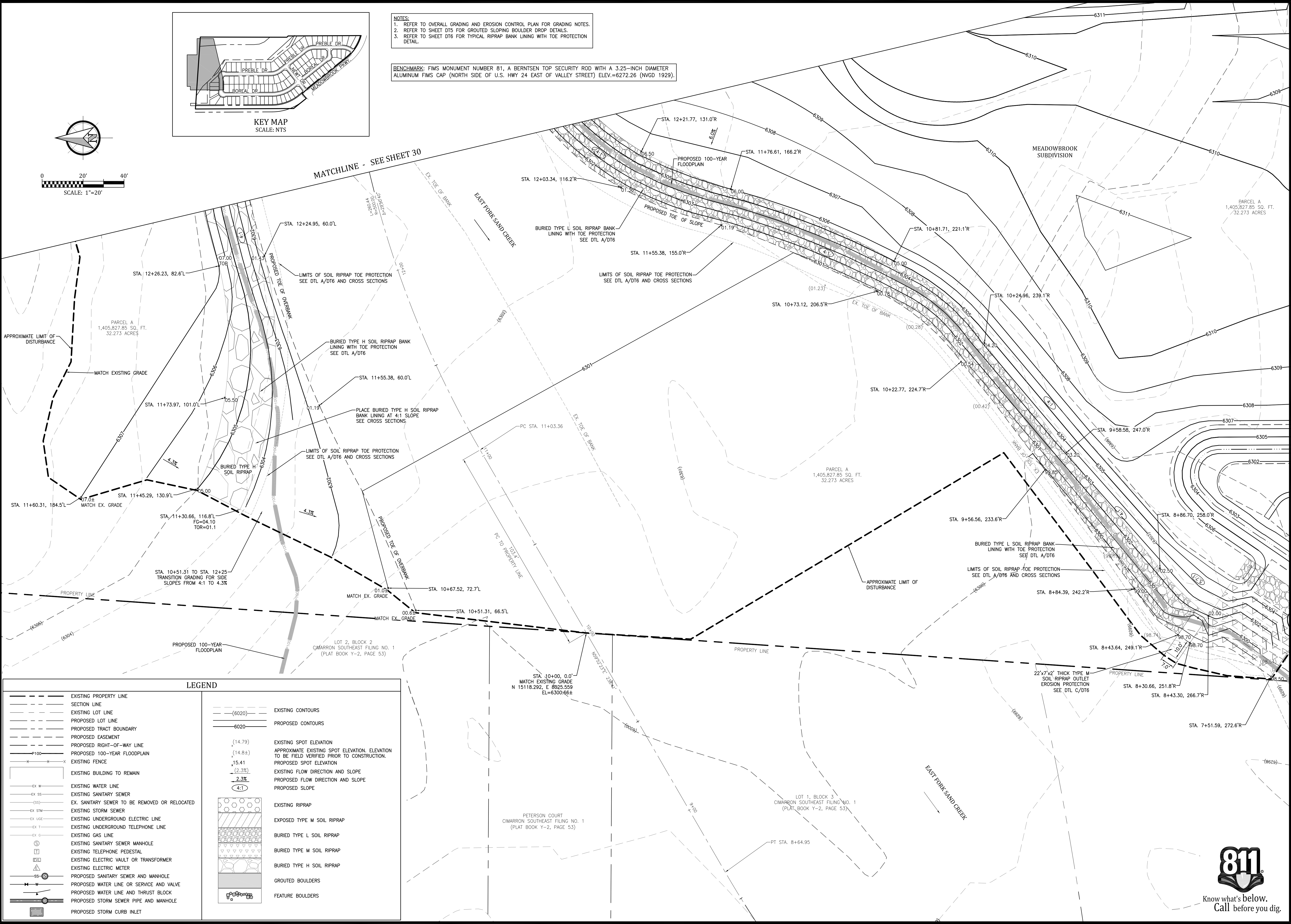
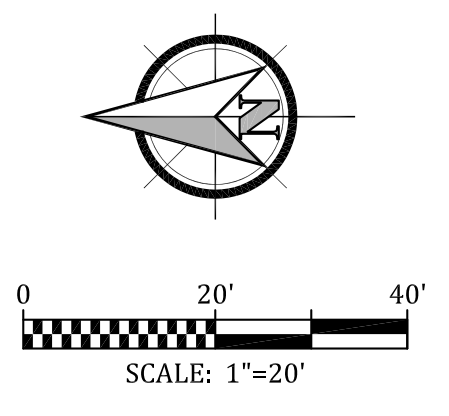
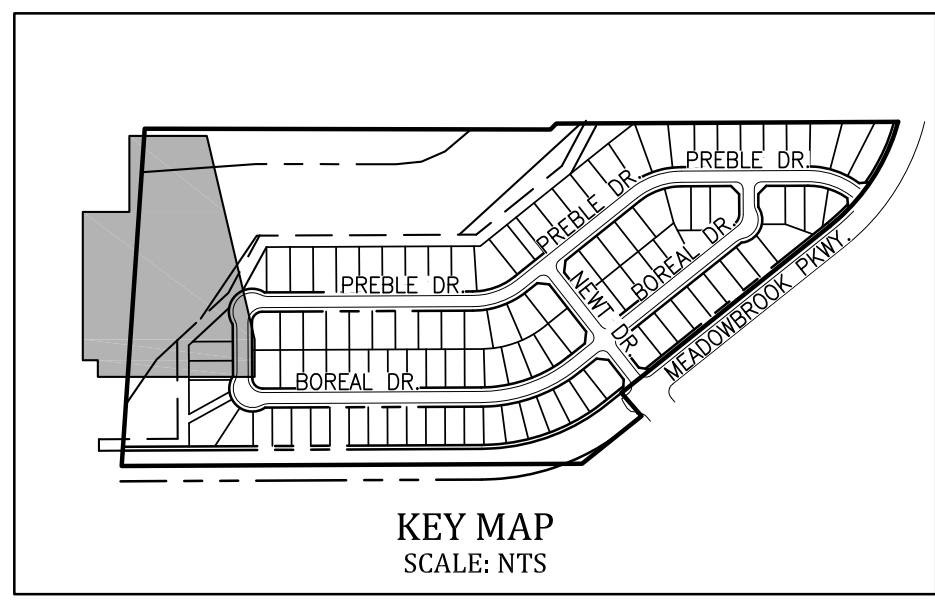
SHEET
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OF 14 SHEETS

MEADOWBROOK CROSSING
LOWER EAST FORK SAND CREEK GRADING PLAN
 STA. 9+00 TO STA. 12+50
 CITY OF COLORADO SPRINGS, COLORADO

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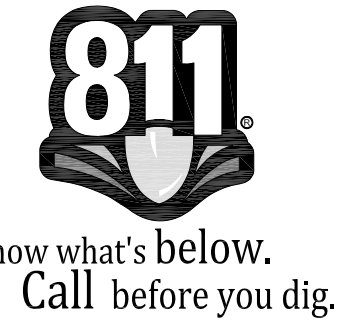
NOTES:
 1. REFER TO OVERALL GRADING AND EROSION CONTROL PLAN FOR GRADING NOTES.
 2. REFER TO SHEET DT5 FOR GROUTED SLOPING BOULDER DROP DETAILS.
 3. REFER TO SHEET DT6 FOR TYPICAL RIPRAP BANK LINING WITH TOE PROTECTION DETAIL.

BENCHMARK: FIMS MONUMENT NUMBER 81, A BERNTSEN TOP SECURITY ROD WITH A 3.25-INCH DIAMETER ALUMINUM FIMS CAP (NORTH SIDE OF U.S. HWY 24 EAST OF VALLEY STREET) ELEV.=6272.26 (NVGD 1929).

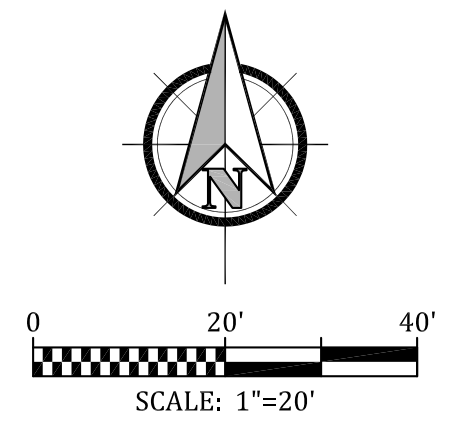
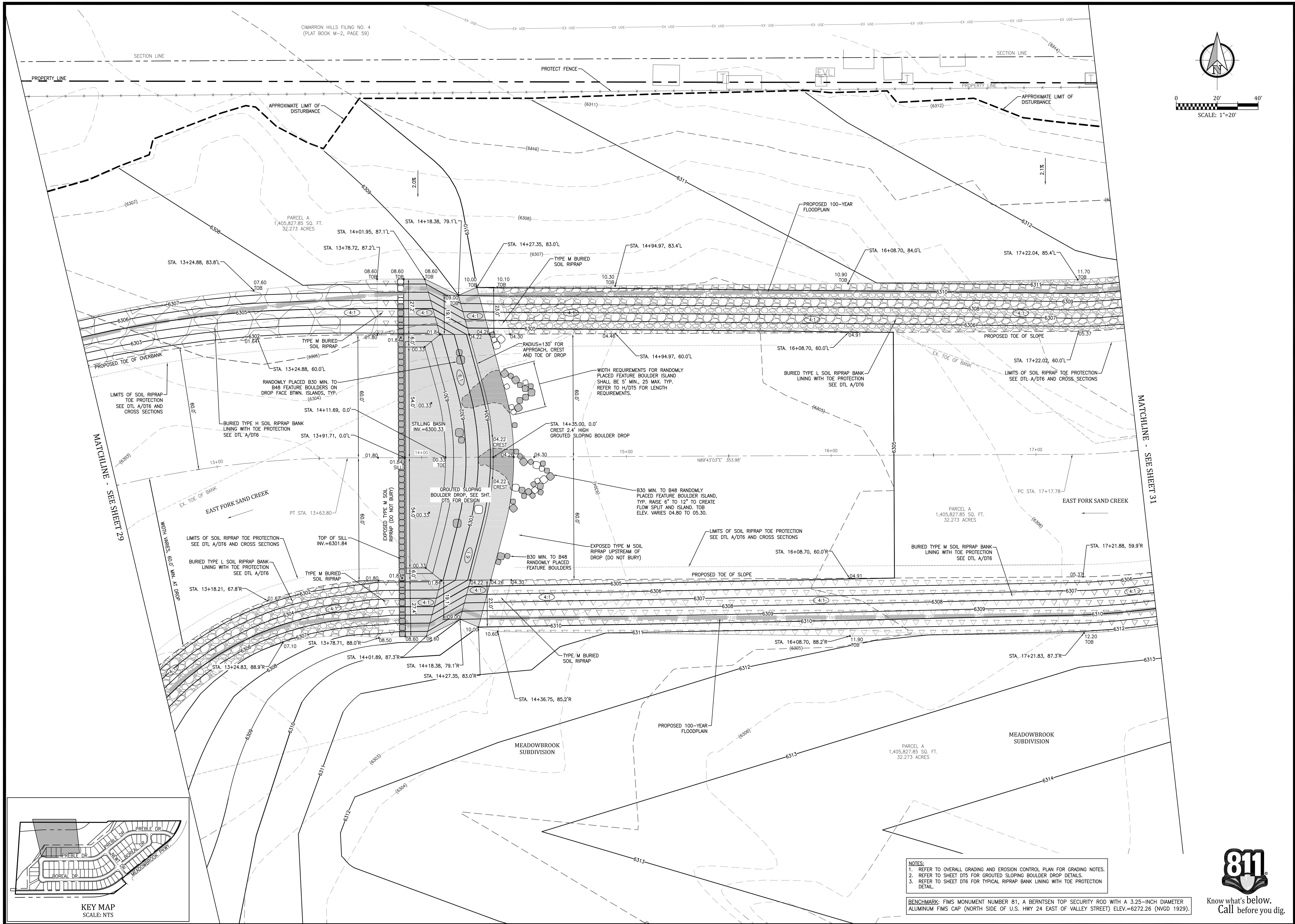


LEGEND

---	EXISTING PROPERTY LINE	---	EXISTING CONTOURS
---	SECTION LINE	---	PROPOSED CONTOURS
---	EXISTING LOT LINE	(14.79)	EXISTING SPOT ELEVATION
---	PROPOSED LOT LINE	(14.8±)	APPROXIMATE EXISTING SPOT ELEVATION. ELEVATION TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
---	PROPOSED TRACT BOUNDARY	15.41	PROPOSED SPOT ELEVATION
---	PROPOSED EASEMENT	(2.3%)	EXISTING FLOW DIRECTION AND SLOPE
---	PROPOSED RIGHT-OF-WAY LINE	(4:1)	PROPOSED FLOW DIRECTION AND SLOPE
---	PROPOSED 100-YEAR FLOODPLAIN		PROPOSED SLOPE
---	EXISTING FENCE		
---	EXISTING BUILDING TO REMAIN		
---	EXISTING WATER LINE		
---	EXISTING SANITARY SEWER		
---	EX. SANITARY SEWER TO BE REMOVED OR RELOCATED		
---	EXISTING STORM SEWER		
---	EXISTING UNDERGROUND ELECTRIC LINE		
---	EXISTING UNDERGROUND TELEPHONE LINE		
---	EXISTING GAS LINE		
---	EXISTING SANITARY SEWER MANHOLE		
---	EXISTING TELEPHONE PEDESTAL		
---	EXISTING ELECTRIC VAULT OR TRANSFORMER		
---	EXISTING ELECTRIC METER		
---	PROPOSED SANITARY SEWER AND MANHOLE		
---	PROPOSED WATER LINE OR SERVICE AND VALVE		
---	PROPOSED WATER LINE AND THRUST BLOCK		
---	PROPOSED STORM SEWER PIPE AND MANHOLE		
---	PROPOSED STORM CURB INLET		
---	EXISTING RIPRAP		
---	EXPOSED TYPE M SOIL RIPRAP		
---	BURIED TYPE L SOIL RIPRAP		
---	BURIED TYPE M SOIL RIPRAP		
---	BURIED TYPE H SOIL RIPRAP		
---	GROUTED BOULDERS		
---	FEATURE BOULDERS		



16039 Base - Engr. Grading and Aug. 01, 2017



Celebrating 30 years
Kiowa
 Engineering Corporation
 1604 South 21st Street
 Colorado Springs, Colorado 80904
 (719) 630-7342

MEADOWBROOK CROSSING
LOWER EAST FORK SAND CREEK GRADING PLAN
 STA. 12+50 TO STA. 17+50
 CITY OF COLORADO SPRINGS, COLORADO

Project No.:	16039
Date:	July 25, 2017
Design:	CJC
Drawn:	ELS
Check:	MWE
Revisions:	

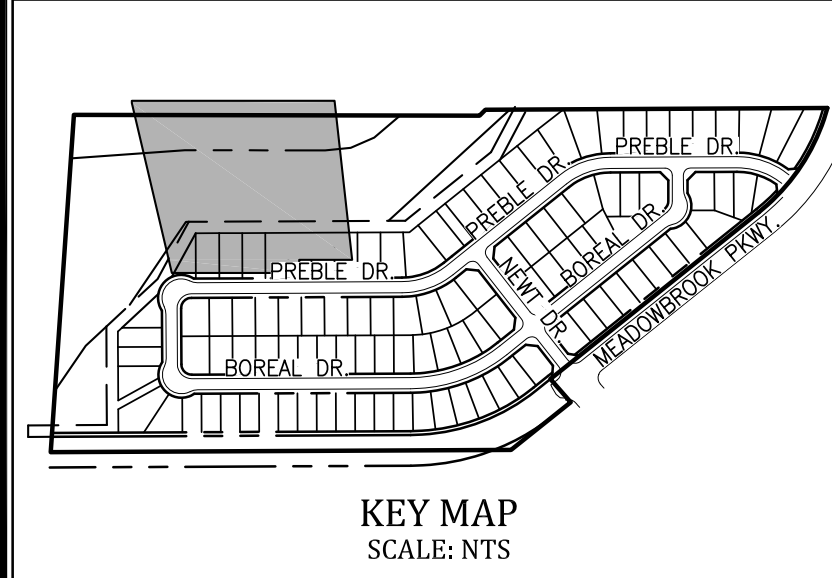
SHEET
G9
 OF 14 SHEETS

- NOTES:
1. REFER TO OVERALL GRADING AND EROSION CONTROL PLAN FOR GRADING NOTES.
 2. REFER TO SHEET D15 FOR GROUDED SLOPING BOULDER DROP DETAILS.
 3. REFER TO SHEET D16 FOR TYPICAL RIPRAP BANK LINING WITH TOE PROTECTION DETAIL.

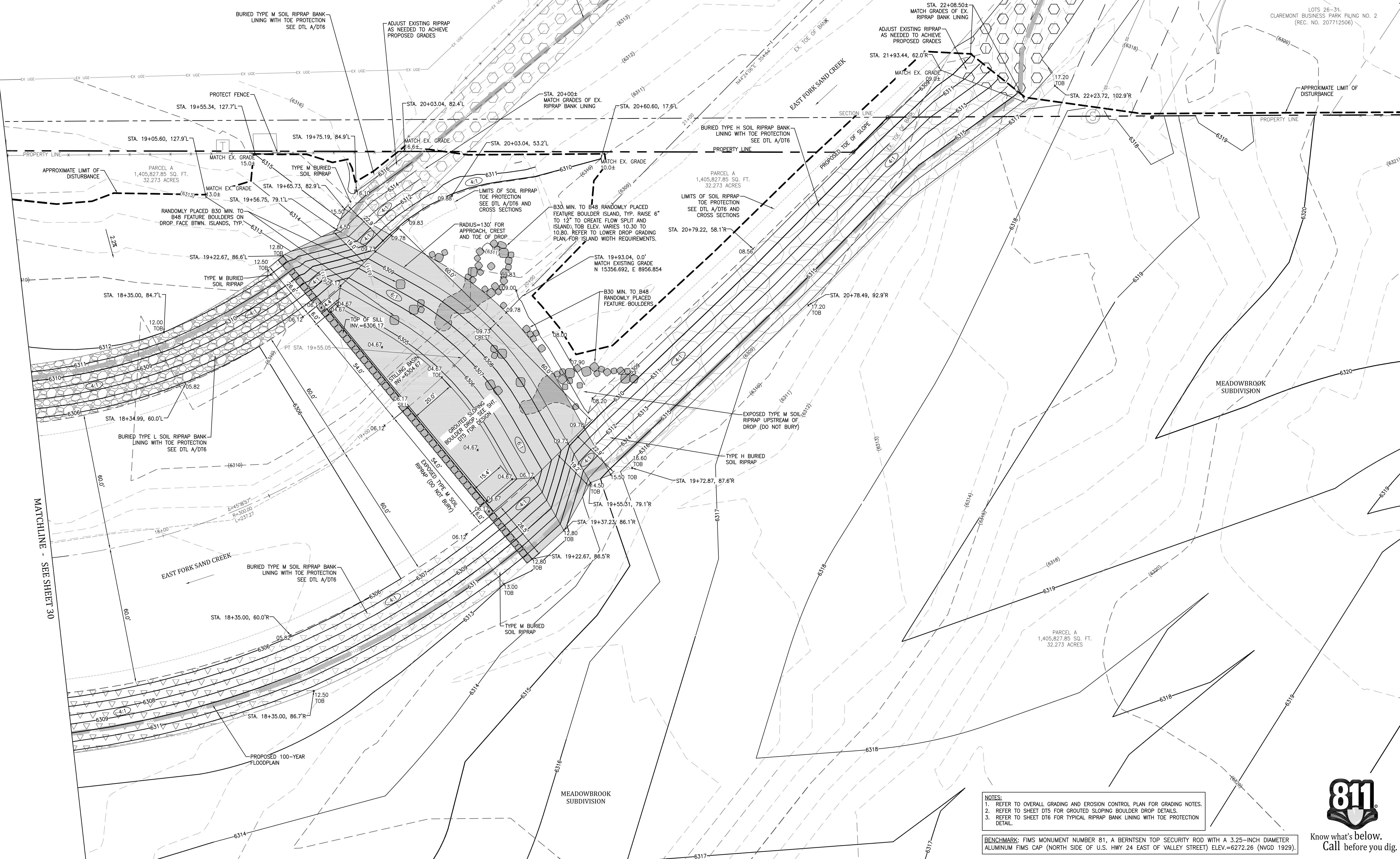
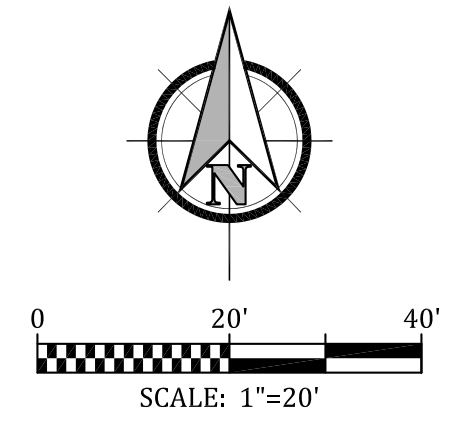
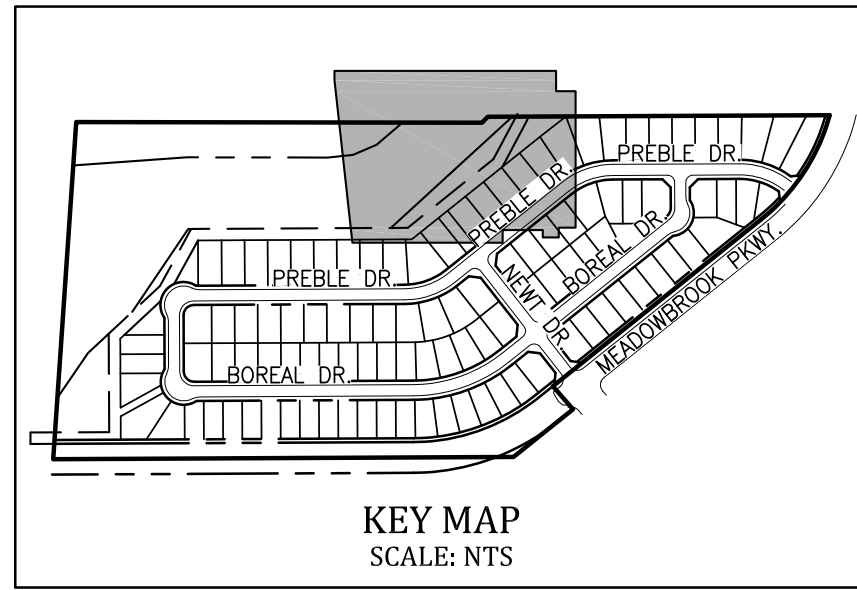
BENCHMARK: FIMS MONUMENT NUMBER 81, A BERNTSEN TOP SECURITY ROD WITH A 3.25-INCH DIAMETER ALUMINUM FIMS CAP (NORTH SIDE OF U.S. HWY 24 EAST OF VALLEY STREET) ELEV.=6272.26 (NGVD 1929).



Know what's below.
 Call before you dig.



KEY MAP
 SCALE: NTS



- NOTES:
1. REFER TO OVERALL GRADING AND EROSION CONTROL PLAN FOR GRADING NOTES.
 2. REFER TO SHEET DT5 FOR GROUTED SLOPING BOULDER DROP DETAILS.
 3. REFER TO SHEET DT6 FOR TYPICAL RIPRAP BANK LINING WITH TOE PROTECTION DETAIL.

BENCHMARK: FIMS MONUMENT NUMBER 81, A BERNTSEN TOP SECURITY ROD WITH A 3.25-INCH DIAMETER ALUMINUM FIMS CAP (NORTH SIDE OF U.S. HWY 24 EAST OF VALLEY STREET) ELEV.=6272.26 (NGVD 1929).



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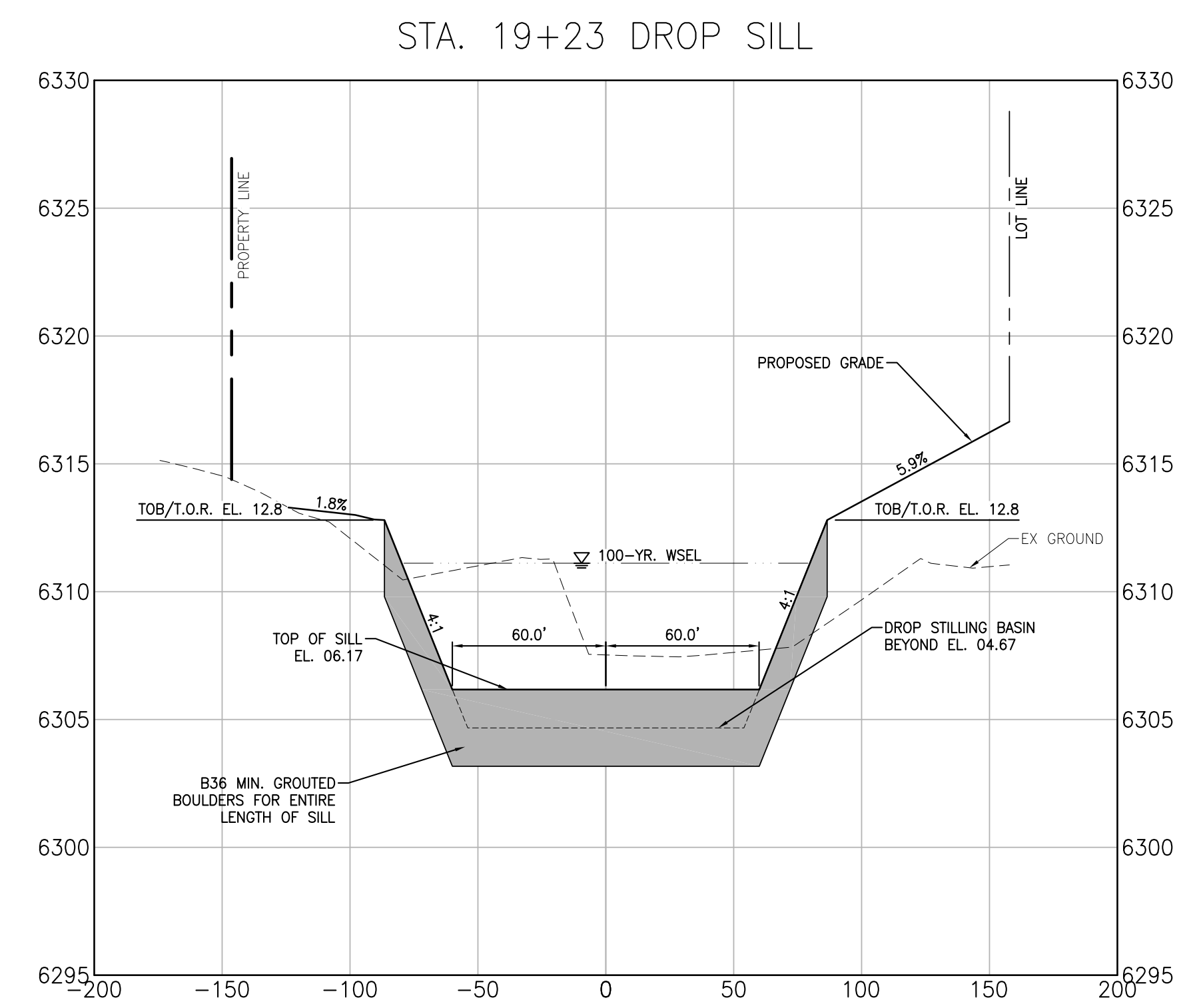
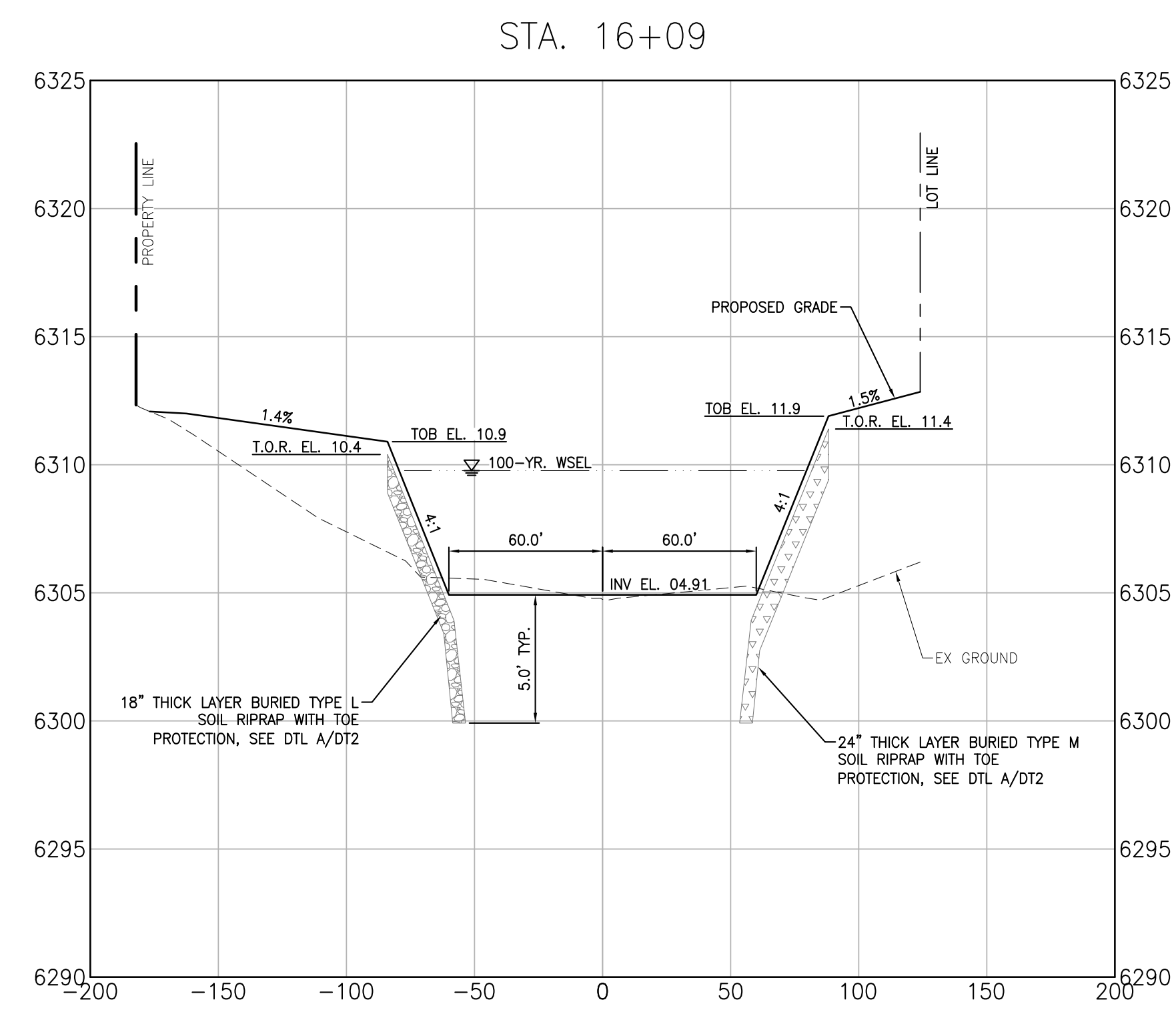
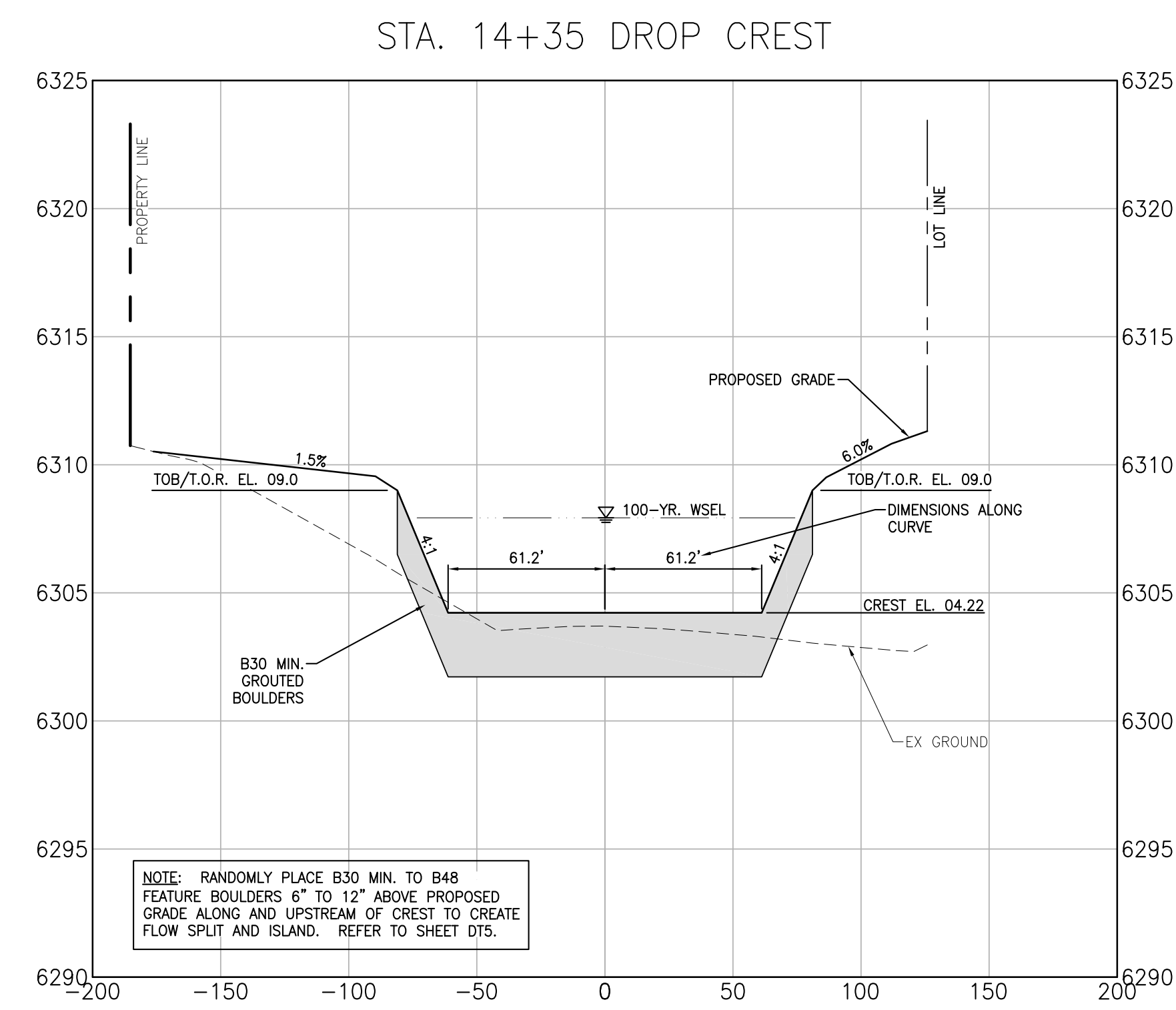
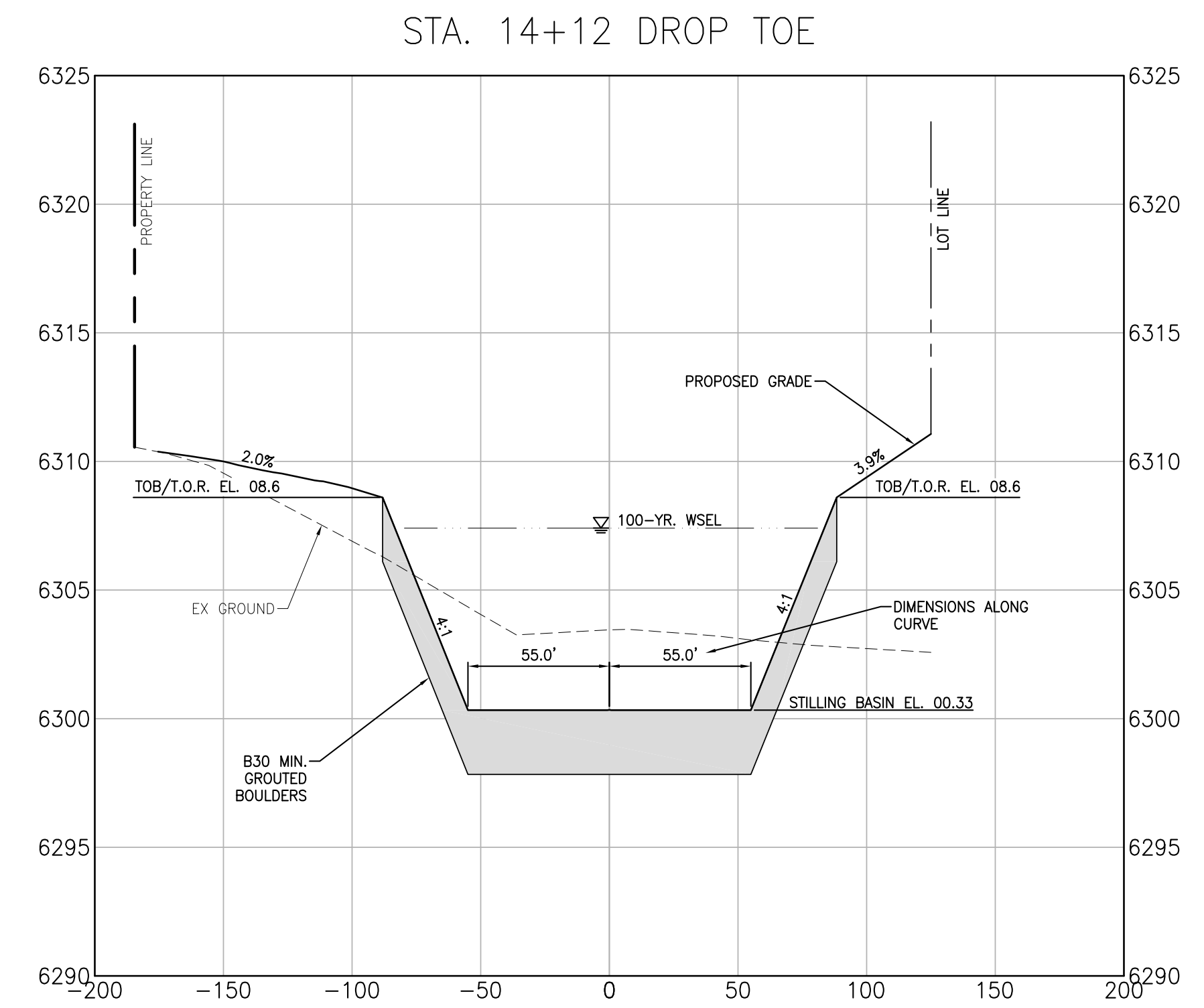
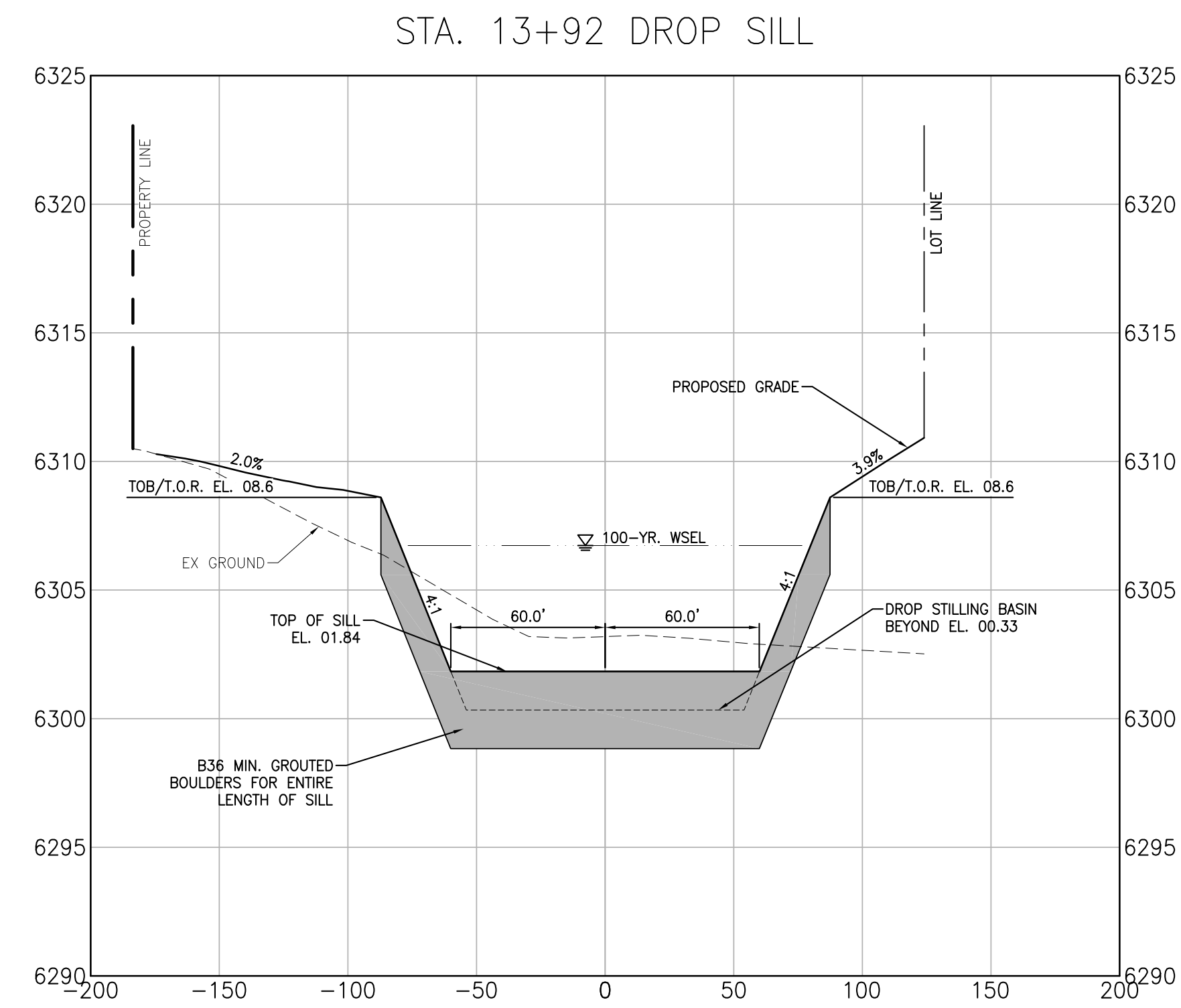
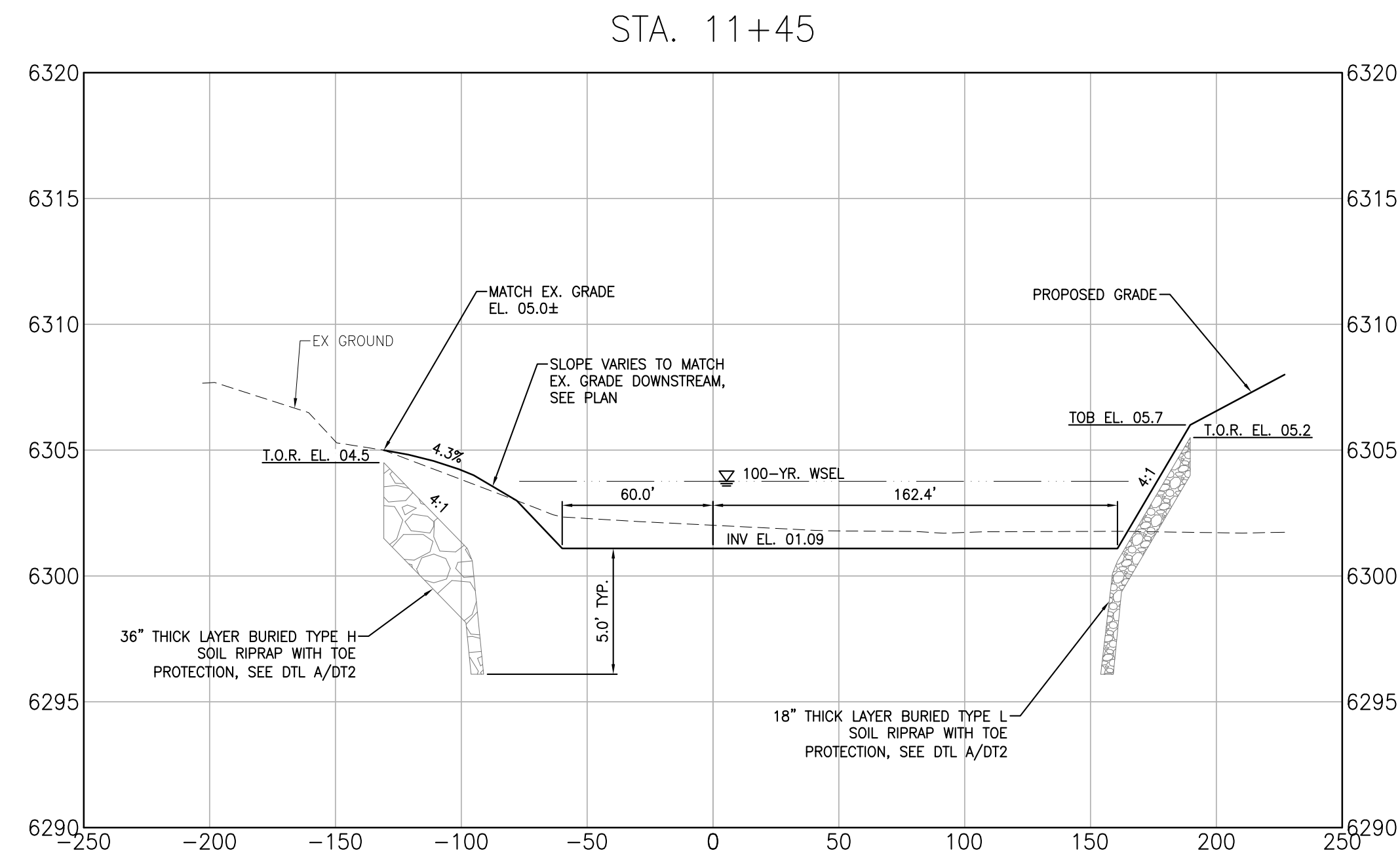
MEADOWBROOK CROSSING
LOWER EAST FORK SAND CREEK GRADING PLAN
STA. 17+50 TO STA. 22+50
CITY OF COLORADO SPRINGS, COLORADO

Project No.:	16039
Date:	July 25, 2017
Design:	CJC
Drawn:	ELS
Check:	MWE
Revisions:	

SHEET
G10
OF 14 SHEETS

SCALE:
HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

NOTES:
1. ALL CROSS SECTIONS FACING UPSTREAM.
2. REFER TO CHANNEL PLAN AND PROFILES FOR CROSS SECTION LOCATIONS.

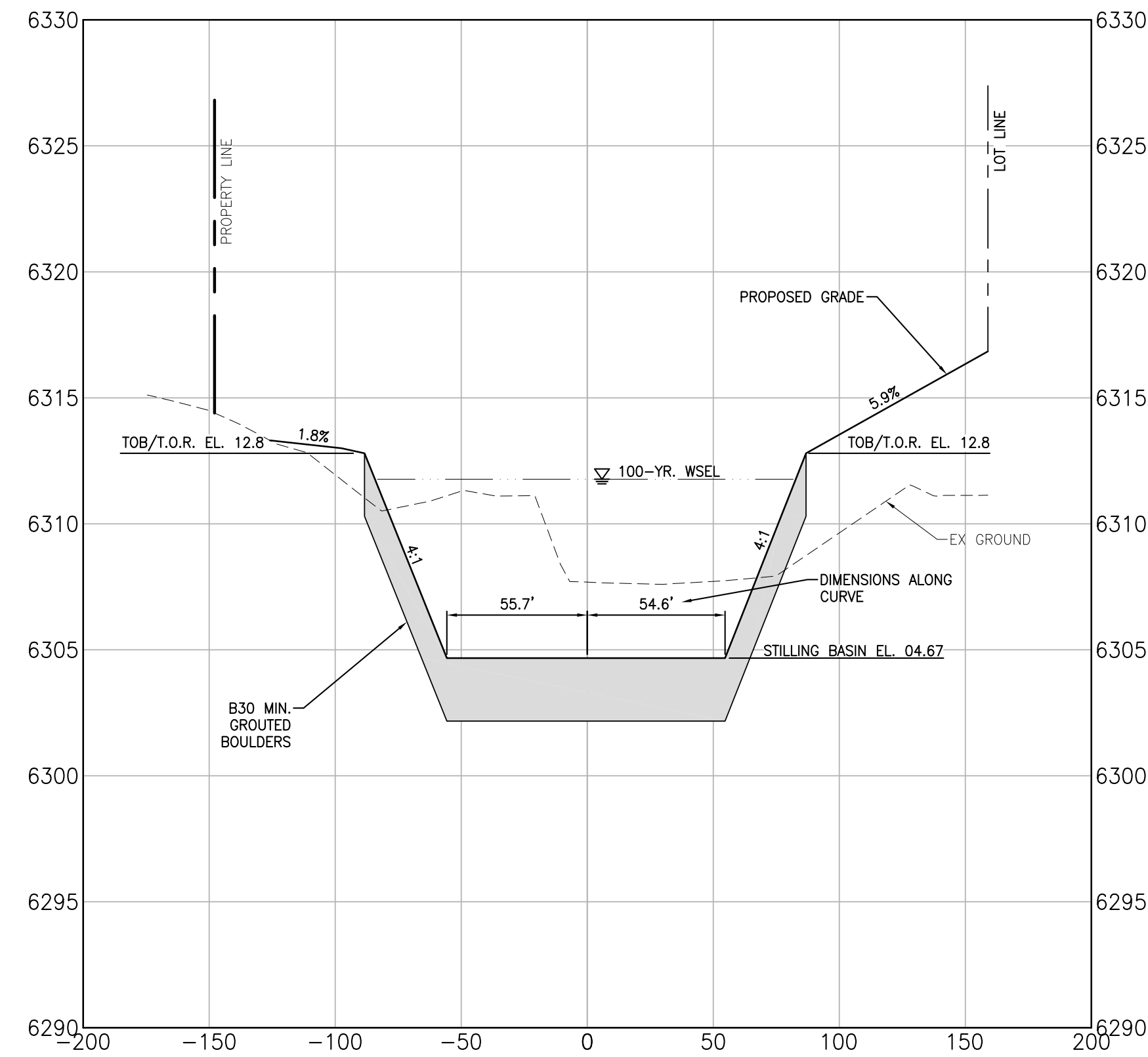


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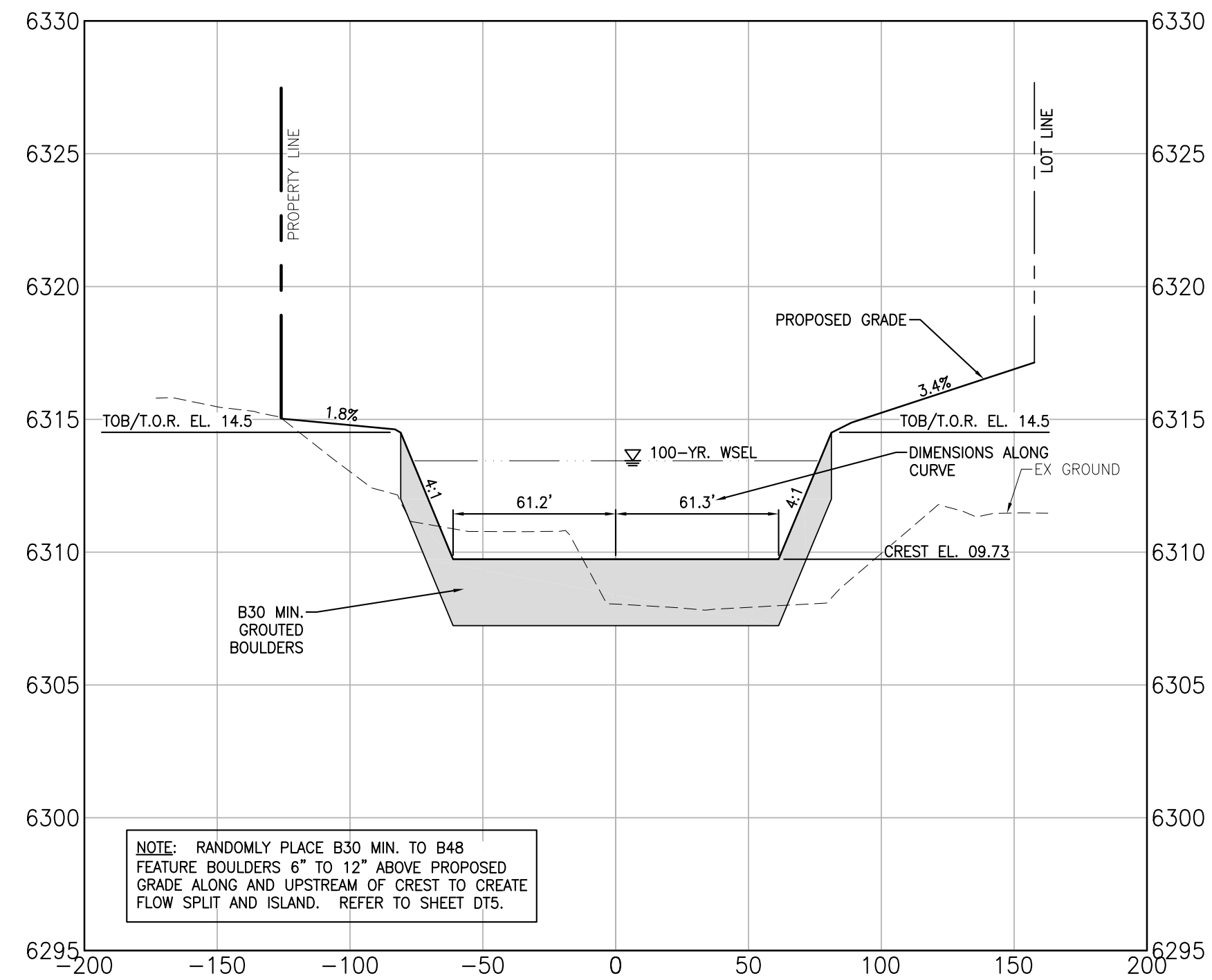
SCALE:
HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

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2. REFER TO CHANNEL PLAN AND PROFILES FOR CROSS SECTION LOCATIONS.

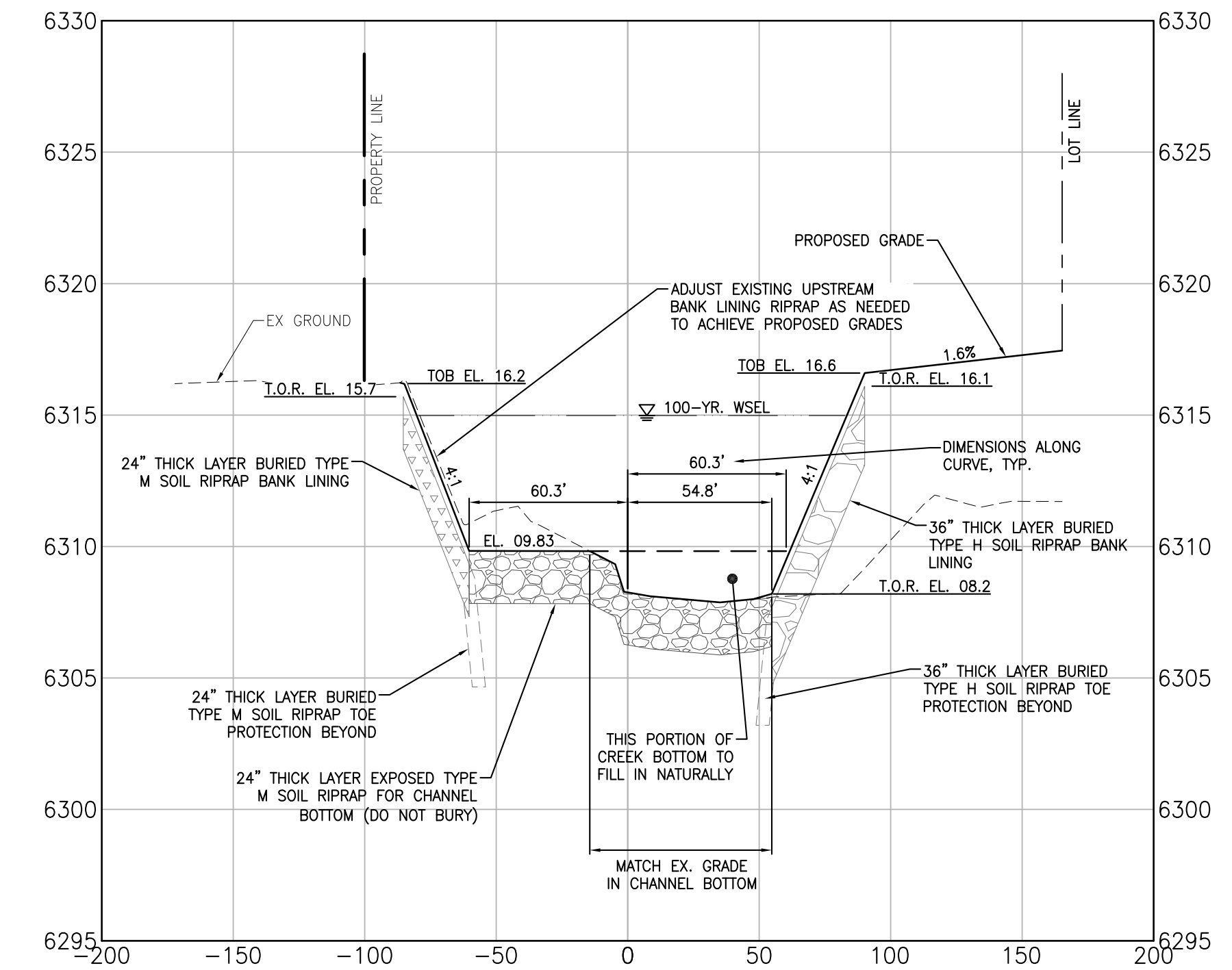
STA. 19+43 DROP TOE



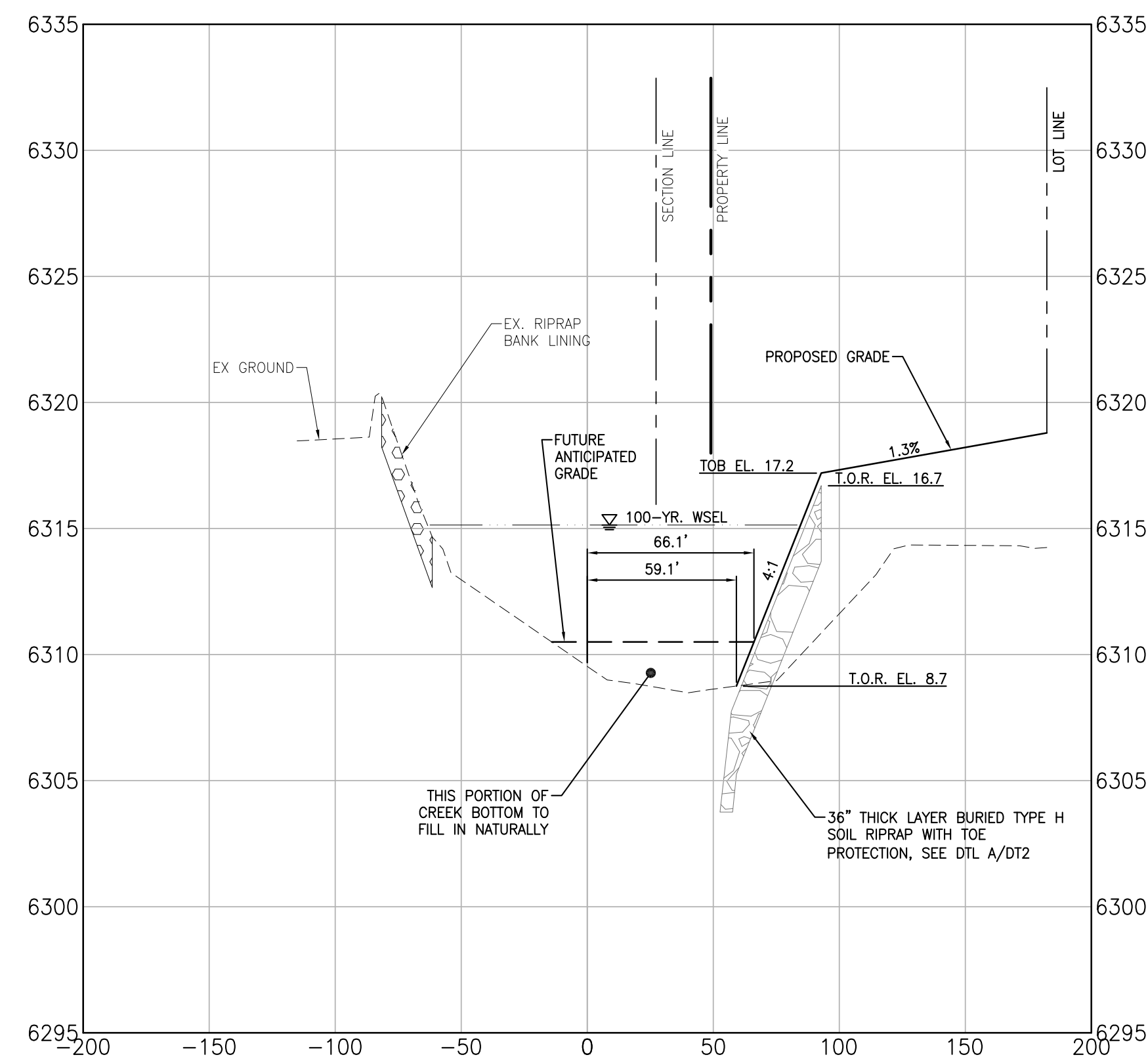
STA. 19+73 DROP CREST



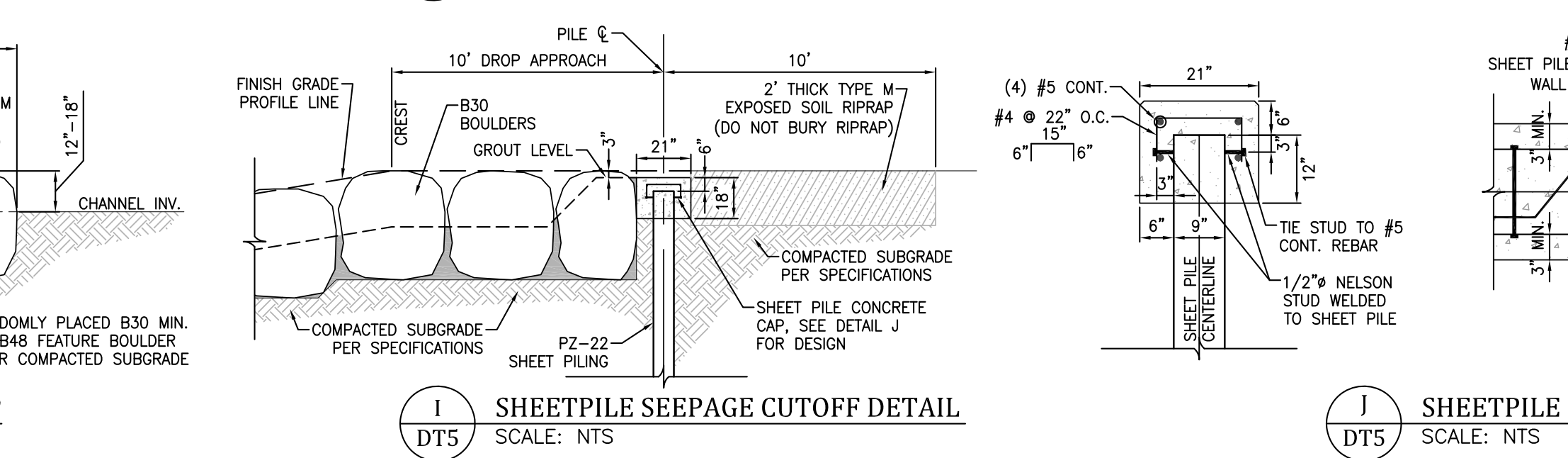
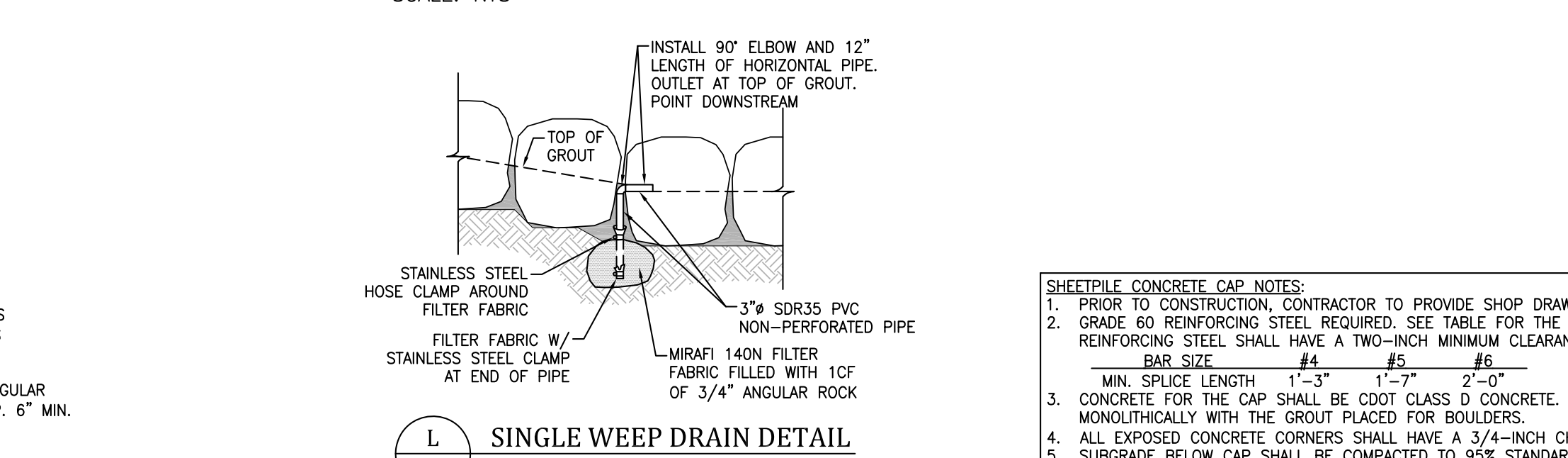
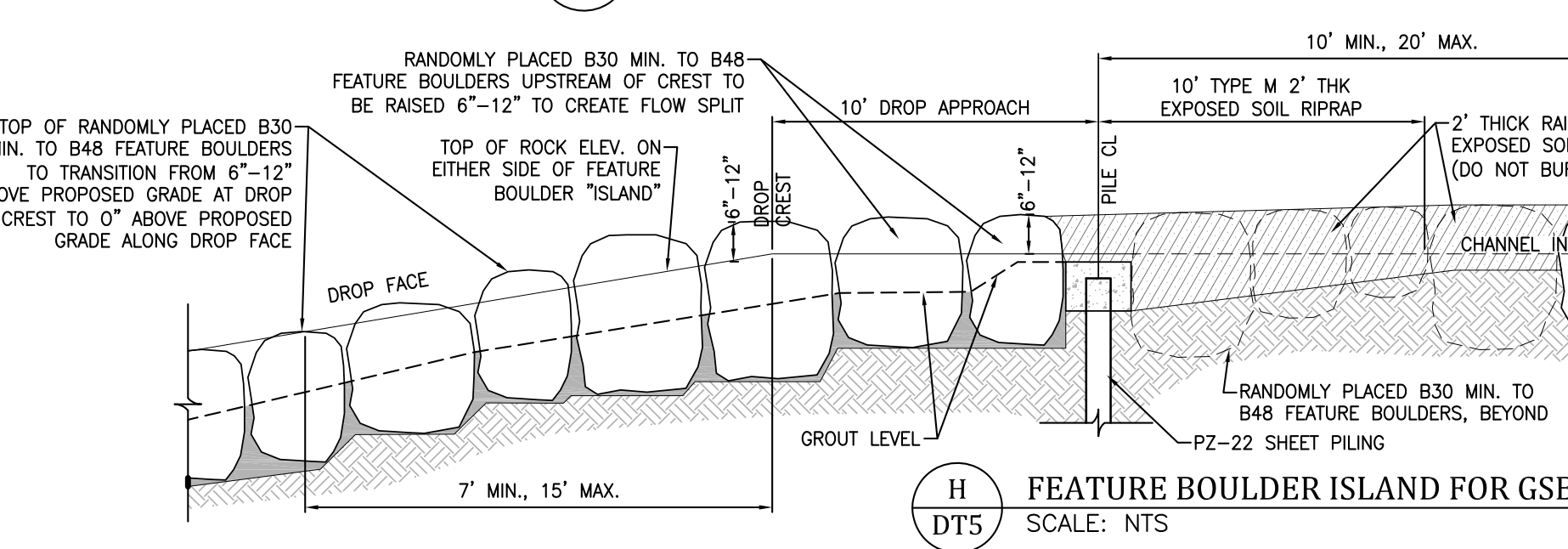
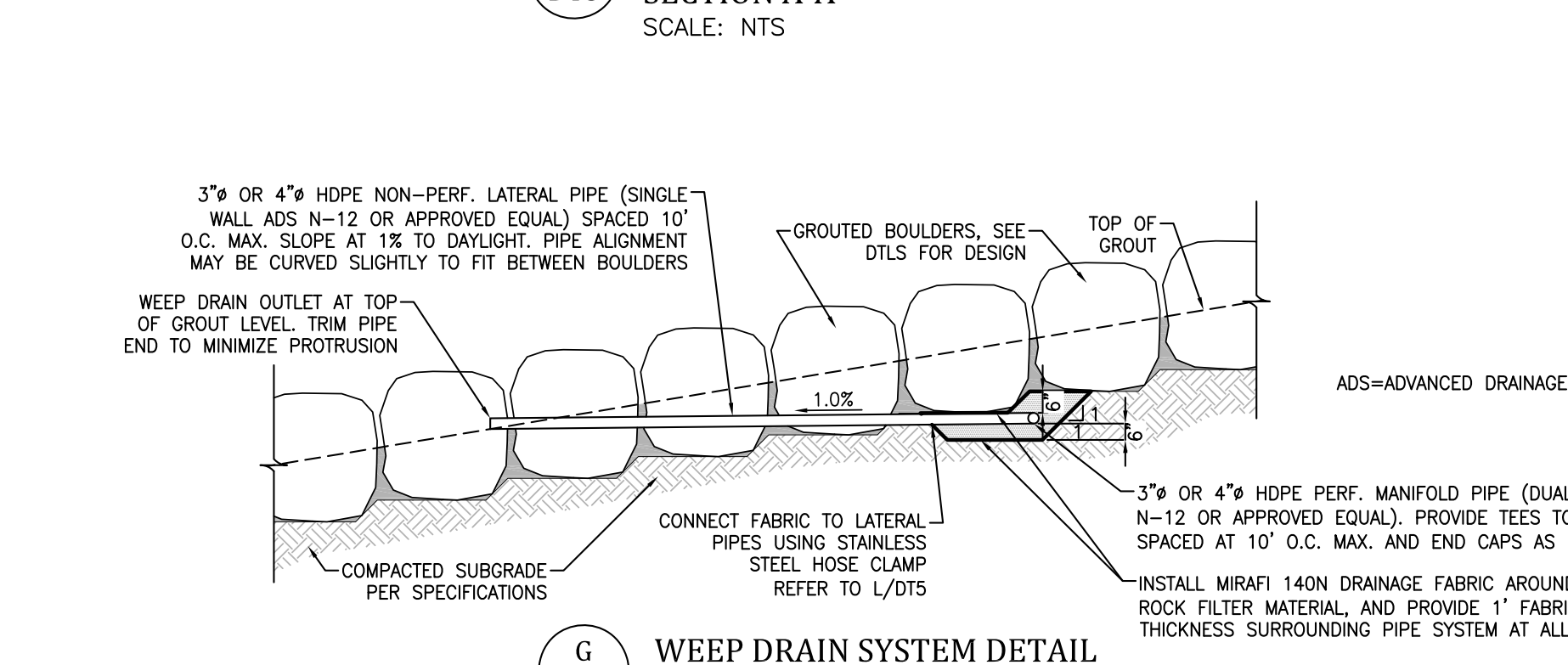
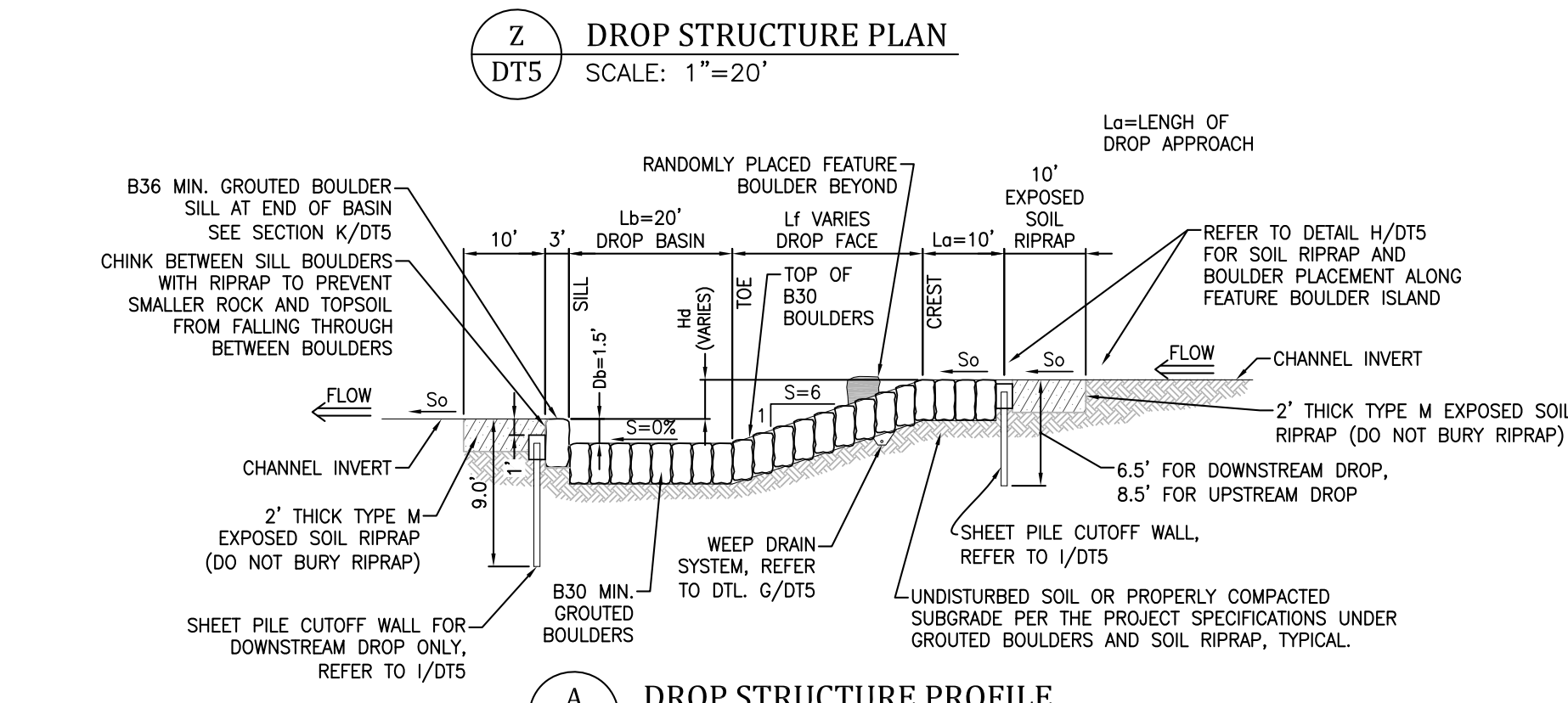
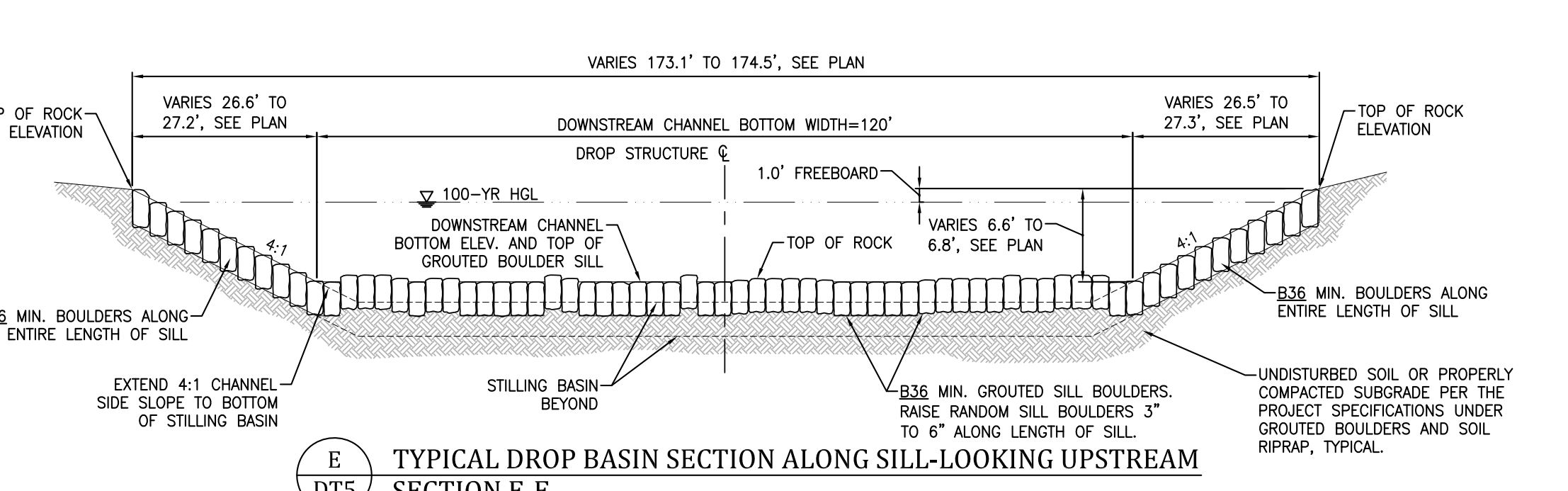
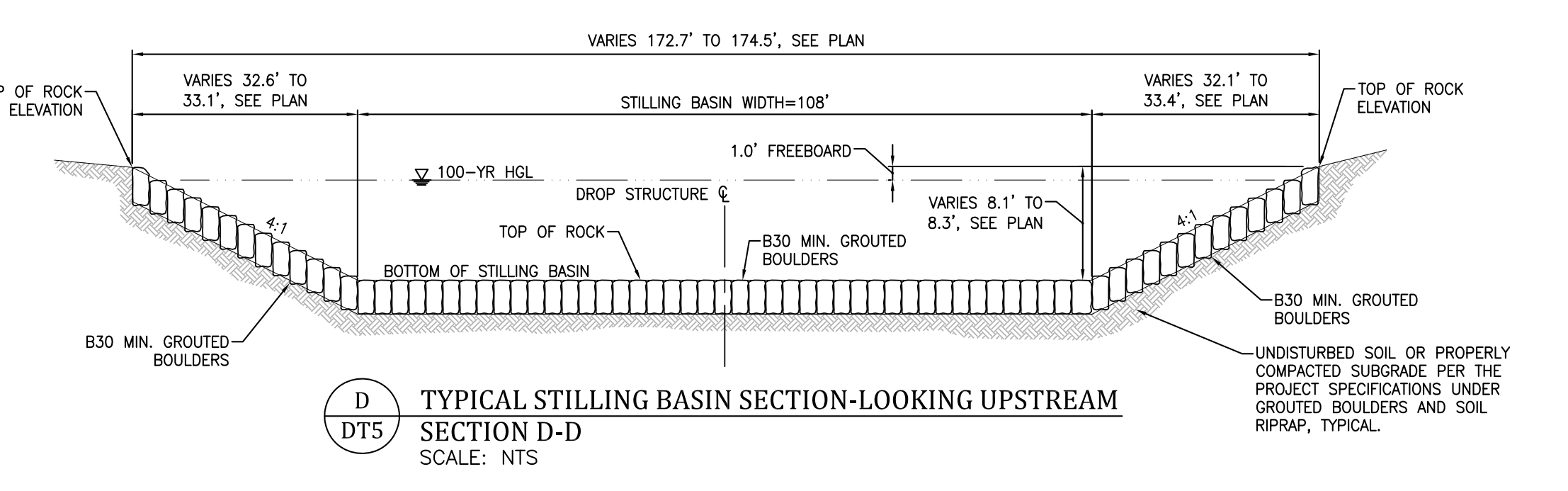
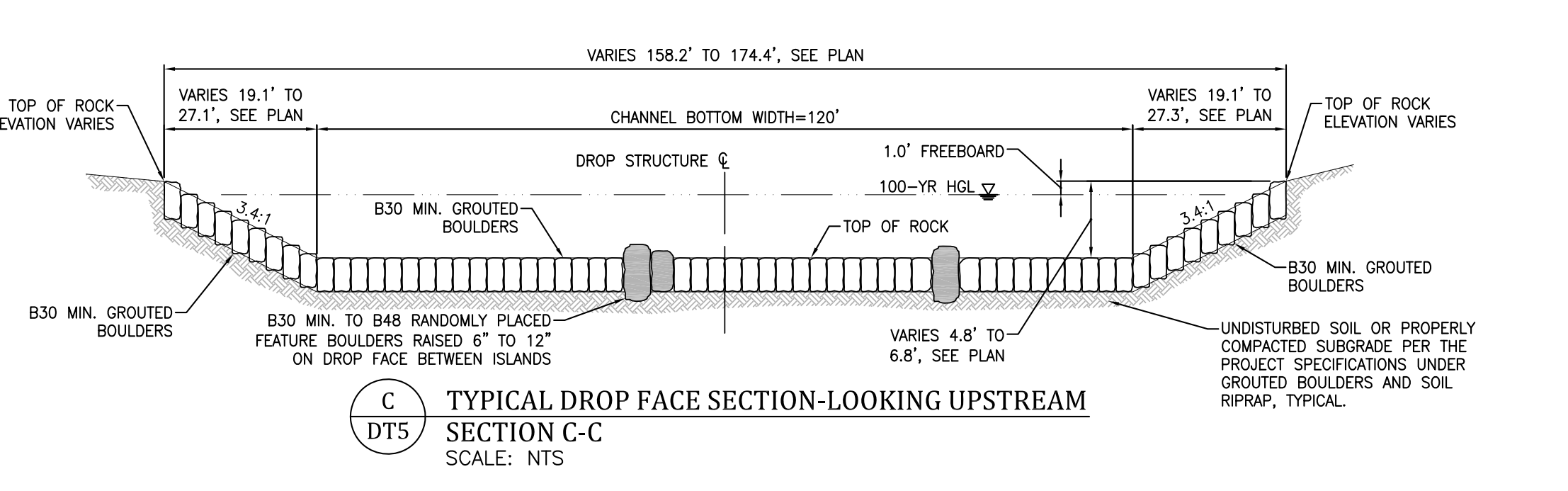
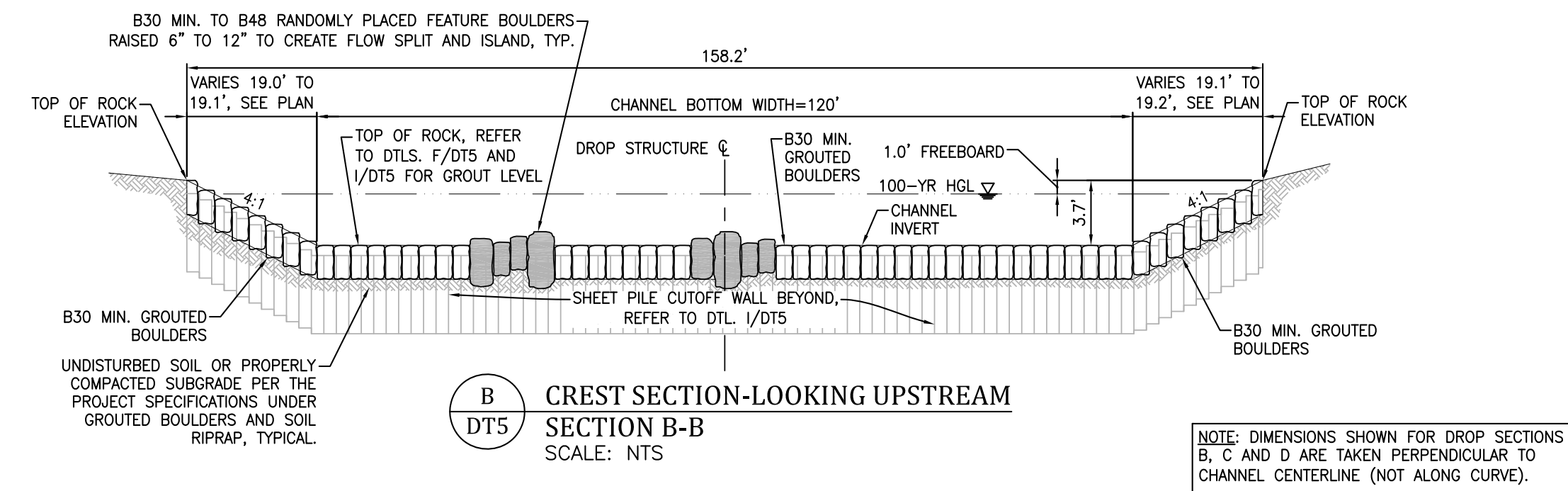
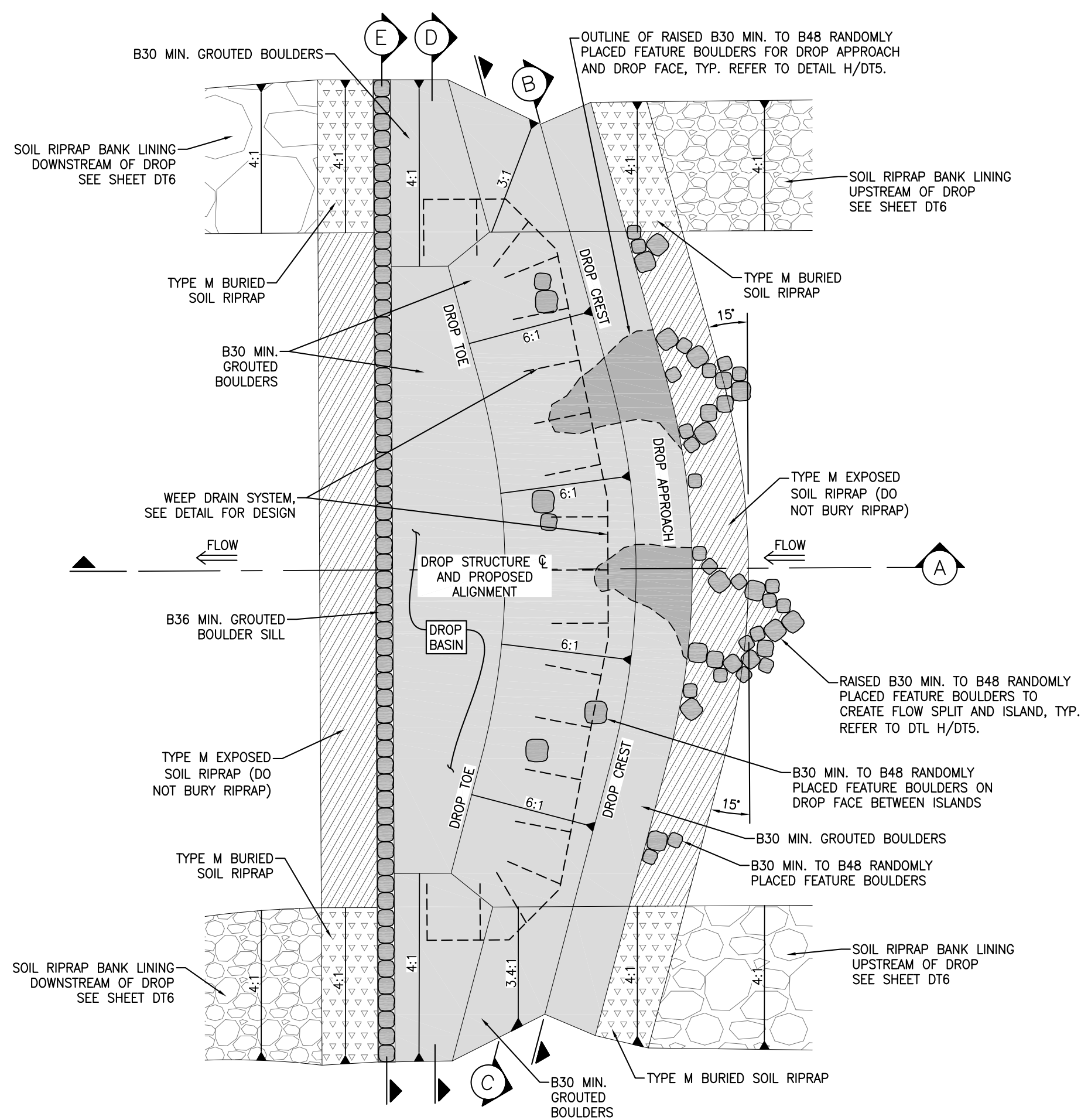
STA. 19+93 MATCH EXISTING GRADE



STA. 21+30



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Revisions:	



GENERAL NOTES:

- CONTRACTOR TO CONTACT ENGINEER TO REVIEW REPRESENTATIVE BOULDERS AND RIPRAP FOR APPROVAL PRIOR TO DELIVERY TO SITE.
- ENGINEER SHALL BE CONTACTED TO OBSERVE SUBGRADE PRIOR TO PLACEMENT OF RIPRAP AND BOULDERS.
- ENGINEER SHALL BE CONTACTED TO OBSERVE BOULDER PLACEMENT PRIOR TO GROUT PLACEMENT.
- ALTHOUGH THE COUNTY OR ENGINEER SHALL PROVIDE FIELD OBSERVATION, CONTRACTOR HAS FULL RESPONSIBILITY OF CONFORMING WITH THE PROJECT DRAWINGS AND SPECIFICATIONS. ANY REWORK COST SHALL BE BORNE BY THE CONTRACTOR.

GROUT MATERIAL SPECIFICATIONS:

- ALL GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH EQUAL TO 3200 PSI.
- ONE CUBIC YARD OF GROUT SHALL HAVE A MINIMUM OF SIX (6) SACKS OF TYPE II PORTLAND CEMENT.
- A MAXIMUM OF 25% TYPE F FLY ASH MAY BE SUBSTITUTED FOR THE PORTLAND CEMENT.
- THE AGGREGATE SHALL BE COMPRISED OF 70% FINE AGGREGATE (NATURAL SAND) AND 30% COARSE AGGREGATE (3/4-INCH MAXIMUM ROCK).
- THE GROUT SLUMP SHALL BE 4-INCHES TO 6-INCHES.
- AIR ENTRAINMENT SHALL BE 5.5%-7.5%.
- TO CONTROL SHRINKAGE AND CRACKING, 1.5 POUNDS OF FIBERMESH, OR EQUIVALENT, SHALL BE USED PER CUBIC YARD OF GROUT.
- COLOR ADDITIVE IN REQUIRED AMOUNTS SHALL BE USED WHEN SPECIFIED BY CONTRACT.

GROUT PLACEMENT SPECIFICATIONS:

- CLEAN BOULDERS BY BRUSHING AND WASHING BEFORE GROUTING TO IMPROVE THE BOND BETWEEN THE GROUT AND BOULDERS.
- GROUT SHALL BE DELIVERED BY MEANS OF A LOW PRESSURE (LESS THAN 10 PSI) CONCRETE PUMP USING A 2-INCH DIAMETER NOZZLE.
- FULL DEPTH PENETRATION OF THE GROUT INTO THE BOULDER VOIDS SHALL BE ACHIEVED BY INJECTING GROUT STARTING WITH THE NOZZLE NEAR THE BOTTOM AND RAISING IT AS GROUT FILLS, WHILE VIBRATING GROUT INTO PLACE USING A PENCIL VIBRATOR.
- AFTER GROUT PLACEMENT, EXPOSED BOULDER FACES SHALL BE CLEANED WITH A WET BROOM.
 - REMOVE ALL GROUT SPLATTER FROM EXPOSED FACES OF ROCK IMMEDIATELY DURING OR FOLLOWING GROUTING OPERATIONS.
 - NO GROUT WILL BE ALLOWED TO REMAIN ON THE EXPOSED BOULDER FACES. SANDBLASTING MAY BE REQUIRED TO REMOVE GROUT SPLATTER OR SPILLS THAT ARE ALLOWED TO DRY AND HARDEN ON THE BOULDER FACES.
- ALL GROUT BETWEEN BOULDERS SHALL BE SPRAYED WITH A CLEAR LIQUID MEMBRANE CURING COMPOUND AS SPECIFIED IN ASTM C-309.
- SPECIAL PROCEDURES SHALL BE REQUIRED FOR GROUT PLACEMENT WHEN THE AIR TEMPERATURES ARE LESS THAN 40°F OR GREATER THAN 90°F. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE DESIGN ENGINEER OF THE PROCEDURES TO BE USED FOR PROTECTING THE GROUT.

CLASSIFICATION OF BOULDERS

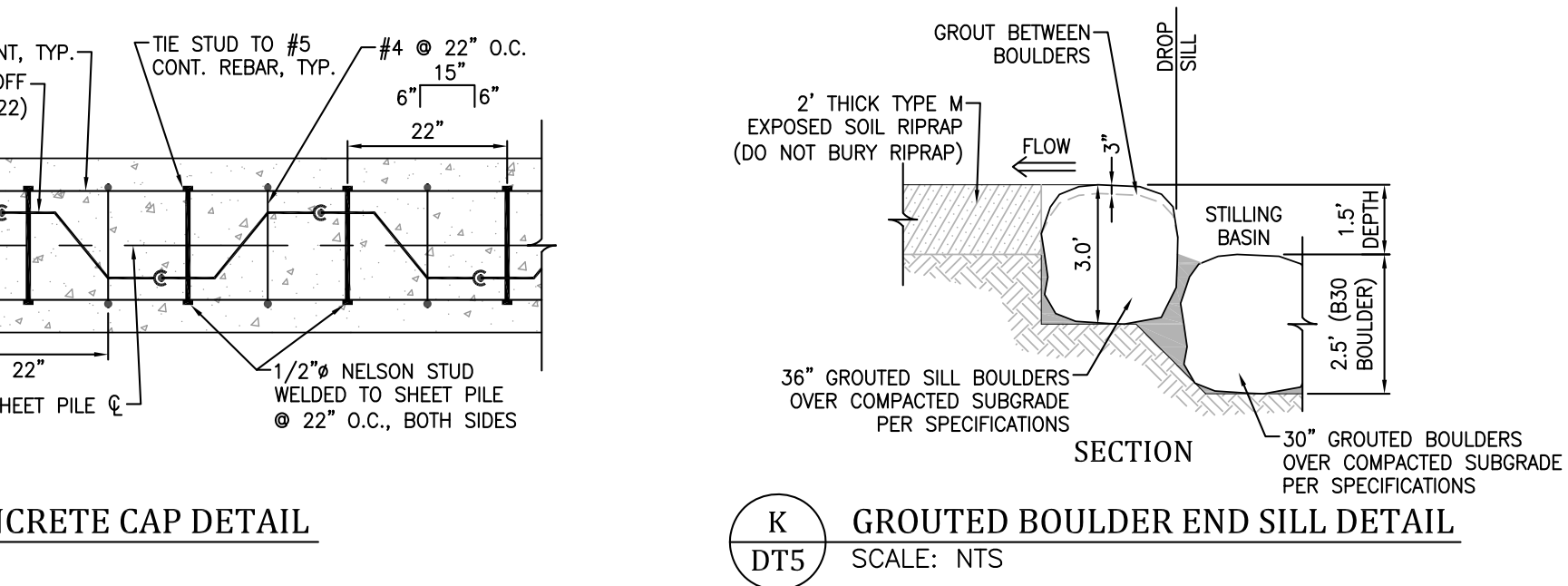
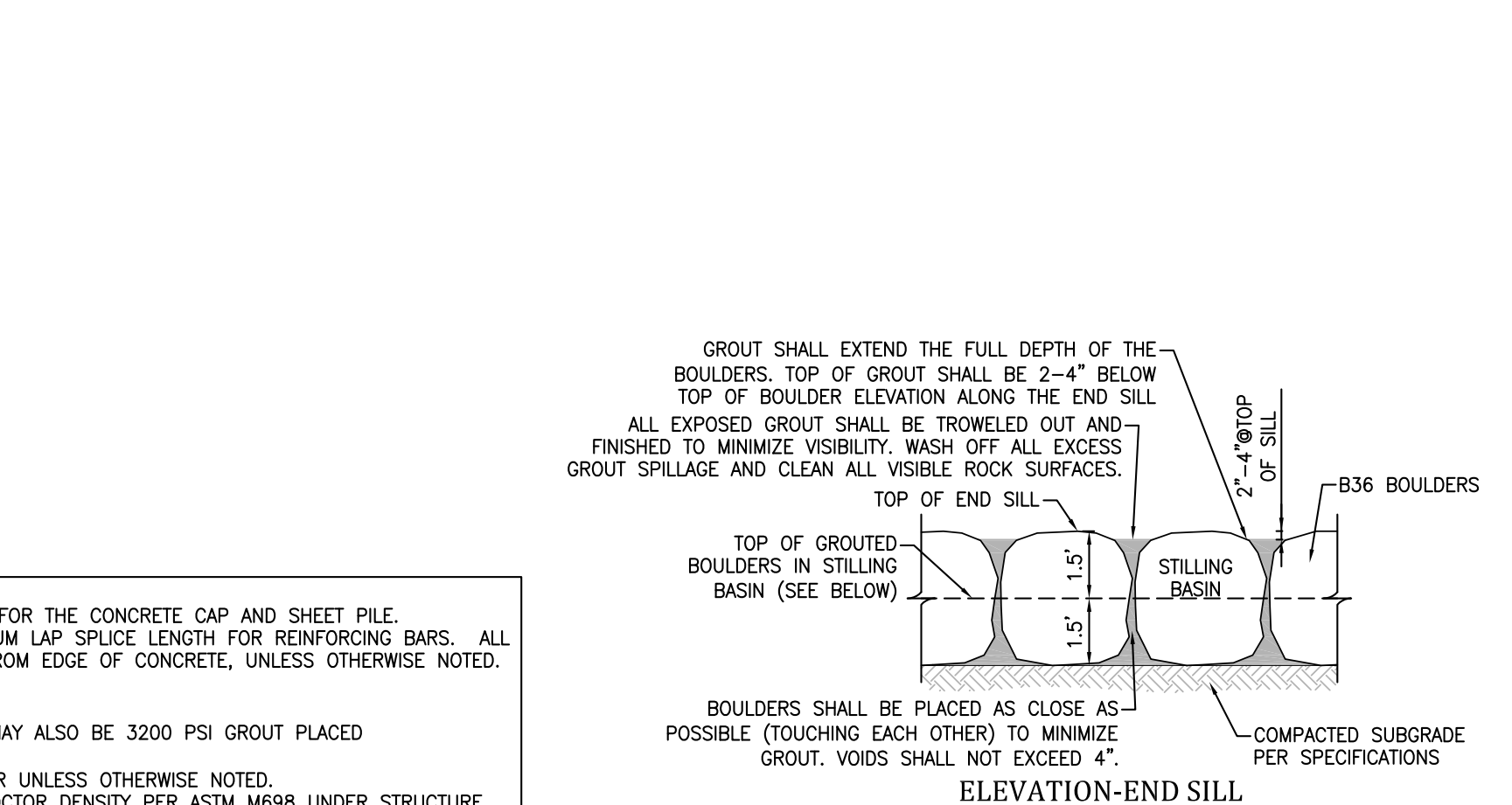
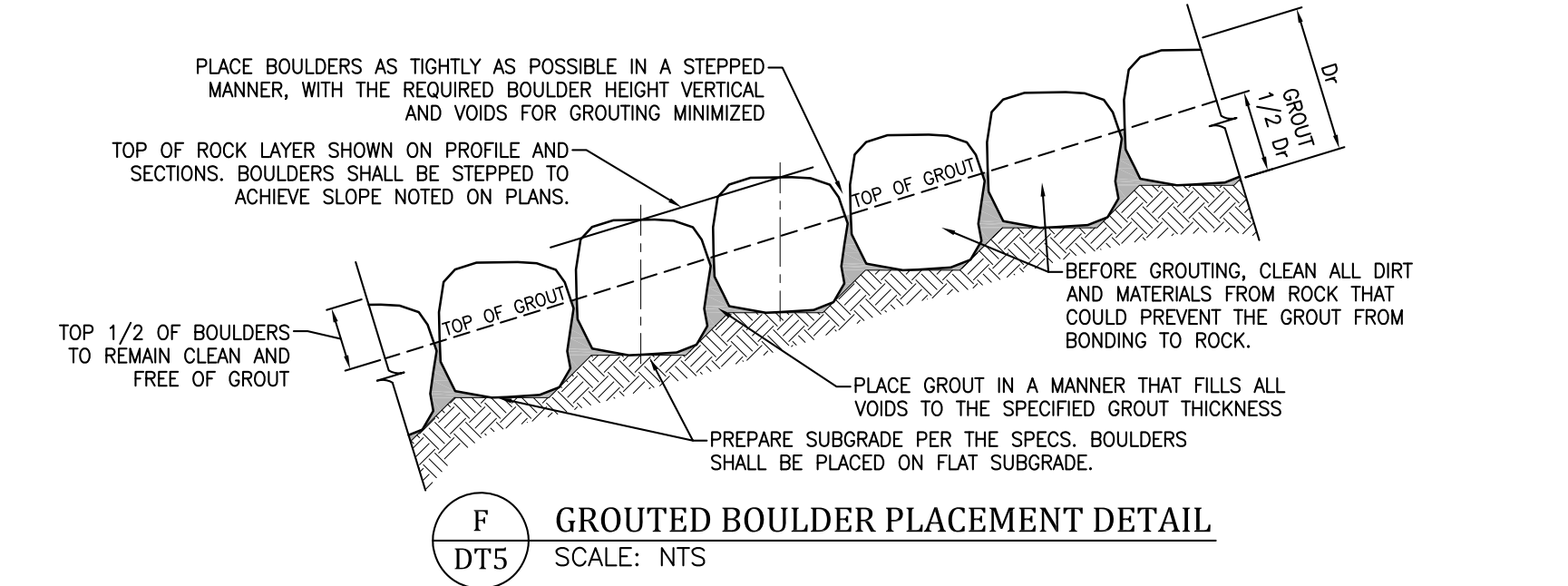
BOULDER CLASSIFICATION	NOMINAL SIZE AND RANGE IN SMALLEST DIMENSION OF INDIVIDUAL ROCK BOULDERS (INCHES)	MAXIMUM RATIO OF LARGEST TO SMALLEST ROCK DIMENSION OF INDIVIDUAL BOULDERS
B24	24 [22-26]	2.00 [44"-52" MAX.]
B30	30 [28-32]	2.00 [56"-64" MAX.]
B36	36 [34-38]	1.75 [60"-67" MAX.]
B42	42 [40-44]	1.65 [66"-73" MAX.]
B48	48 [45-51+]	1.50 [68"-77" MAX.]

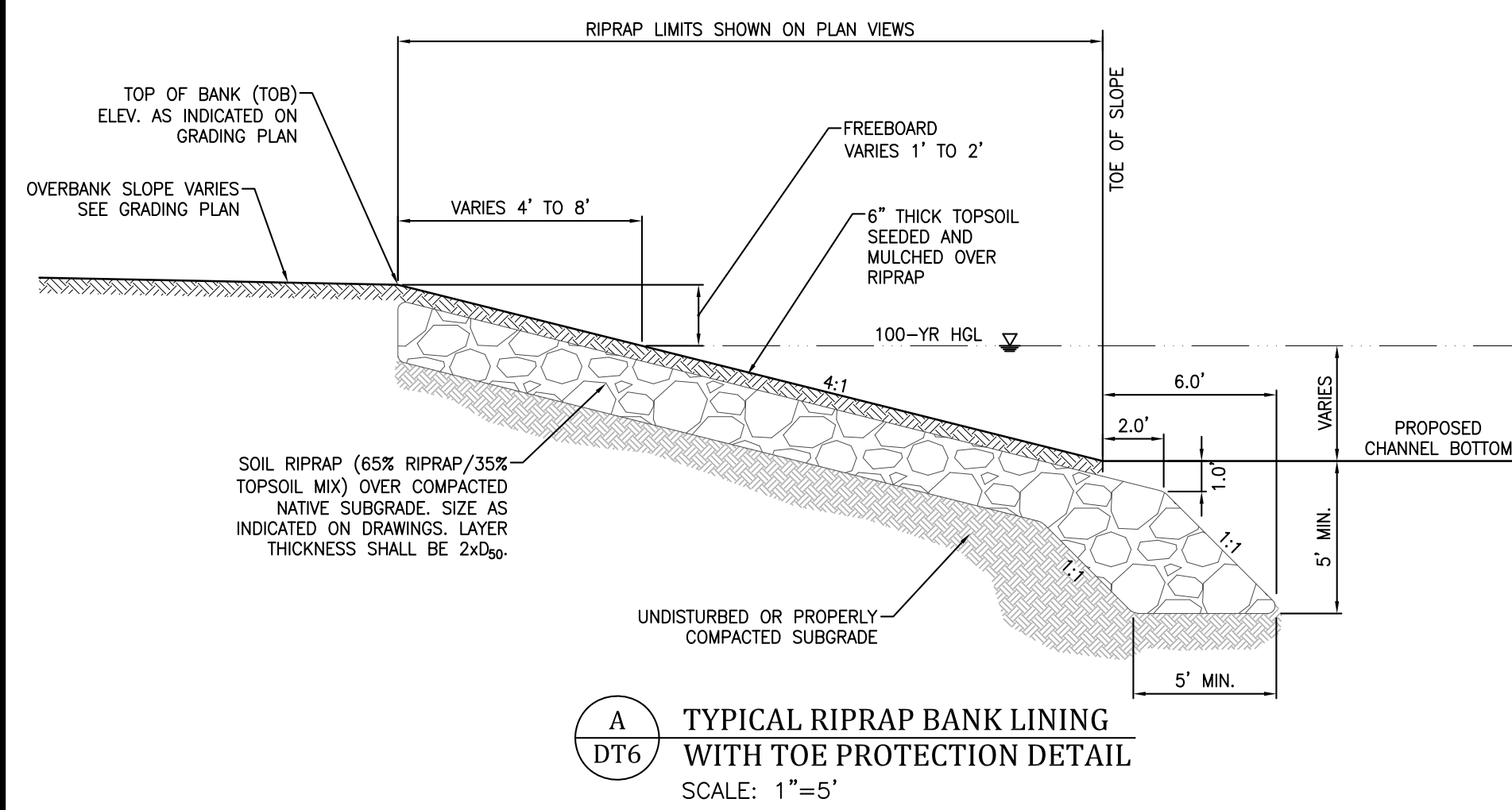
(TABLE MD-B: CLASSIFICATION OF BOULDERS. UDFCD, DRAINAGE CRITERIA MANUAL, VOL. 1)

CLASSIFICATION AND GRADATION OF RIPRAP

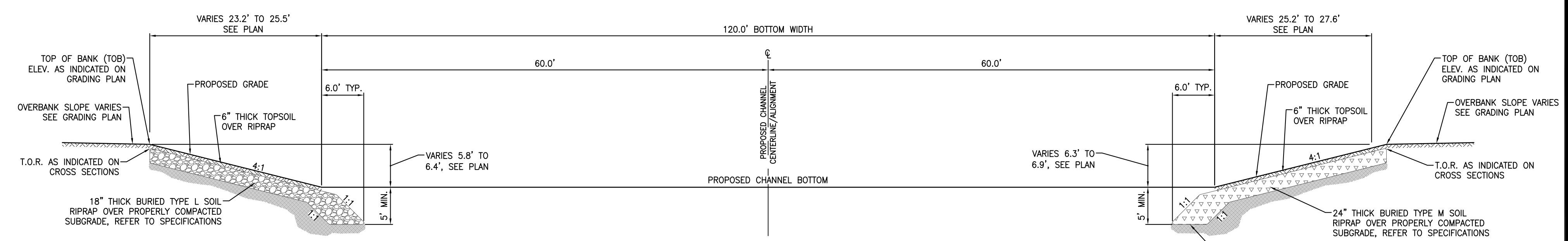
RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	d50* (INCHES)
TYPE VL	70-100	12	
	50-70	9	6**
	2-10	2	
TYPE L	70-100	15	
	50-70	12	9**
	2-10	3	
TYPE M	70-100	21	
	50-70	18	12**
	2-10	4	
TYPE H	100	21	
	50-70	24	18
	2-10	6	
TYPE VH	100	42	
	50-70	33	24
	2-10	9	

* d50=MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT.
** MIX VL, L AND M RIPRAP WITH 35% TOPSOIL (BY VOLUME) AND BURY WITH 4-6 INCHES OF TOPSOIL. ALL VIBRATION COMPACTED & REVEGETATE. (TABLE MD-7: CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP. UDFCD, DRAINAGE CRITERIA MANUAL, VOL. 1)





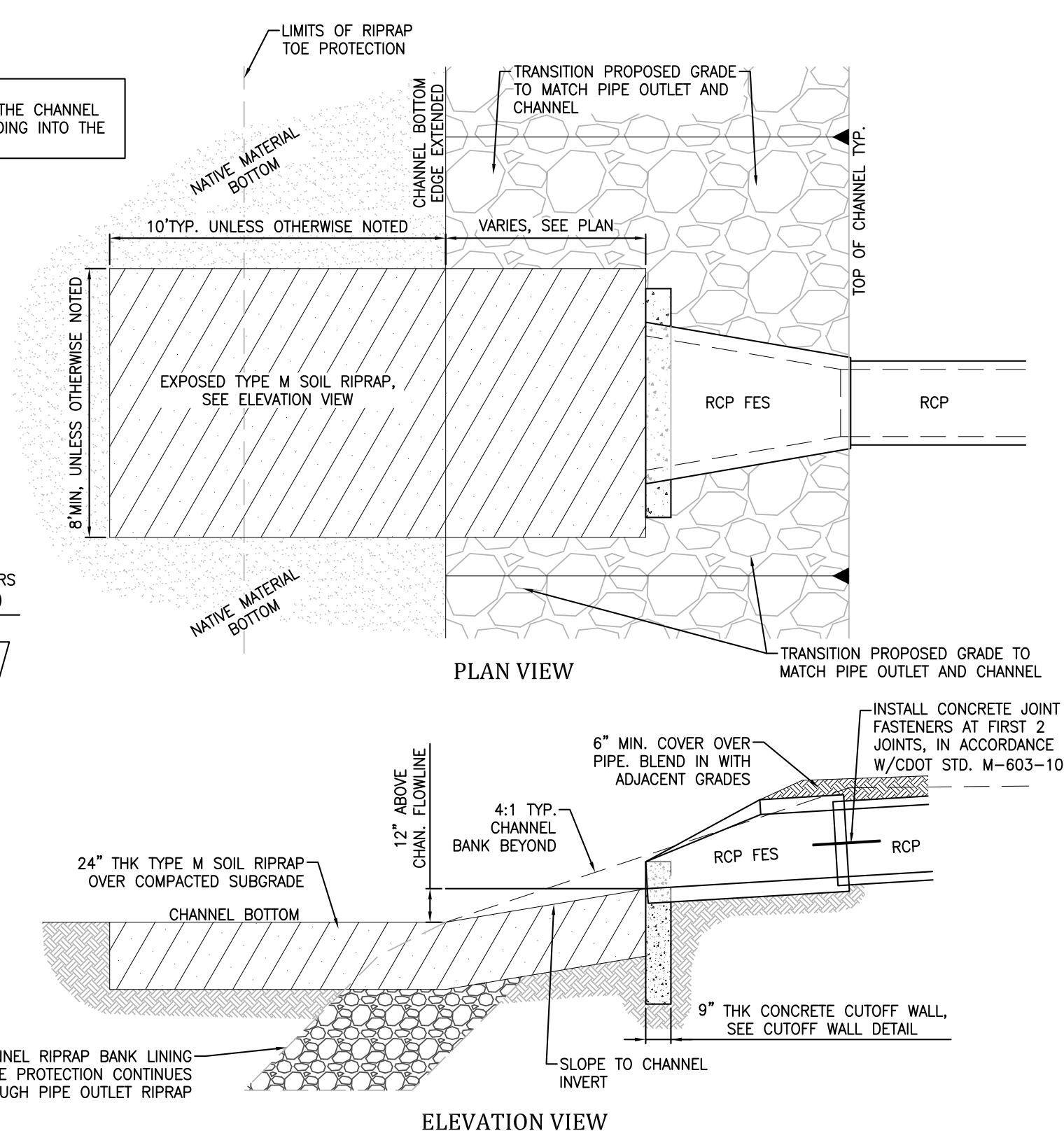
A TYPICAL RIPRAP BANK LINING WITH TOE PROTECTION DETAIL
DT6
SCALE: 1"=5'



B TYPICAL CHANNEL SECTION - LOOKING UPSTREAM
DT6
STATION 14+55 TO STATION 19+10
SCALE: 1"=10'

- SOIL RIPRAP**
1. THE SOIL MATERIAL SHALL BE NATIVE OR TOPSOIL AND MIXED WITH SIXTY FIVE PERCENT (65%) RIPRAP AND THIRTY FIVE PERCENT (35%) SOIL BY VOLUME. SOIL RIPRAP SHALL CONSIST OF A UNIFORM MIXTURE OF SOIL AND RIPRAP WITHOUT VOIDS.
 2. THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN FORTY PERCENT (40%) AFTER FIVE HUNDRED (500) REVOLUTIONS WHEN TESTED IN ACCORDANCE WITH AASHTO 196.
 3. THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN PERCENT (10%) AFTER FIVE (5) CYCLES WHEN TESTED IN ACCORDANCE WITH AASHTO T104 FOR LEDGE ROCK USING SODIUM SULFATE.
 4. THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN PERCENT (10%) AFTER TWELVE (12) CYCLES OF FREEZING AND THAWING WHEN TESTED IN ACCORDANCE WITH AASHTO T103 FOR LEDGE ROCK, PROCEDURE A. ROCK SHALL BE FREE FROM CALCITE INTRUSIONS.
 5. RUBBLE FOR USE AS SOIL/RIPRAP SHALL BE GRADED TO MEET THE EQUIVALENT ROCK RIPRAP GRADATION. RUBBLE PROPOSED FOR USE IN PLACE OF ROCK RIPRAP SHALL BE STOCKPILED FOR OBSERVATION BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF THE WORK. ROUNDED RIPRAP (RIVER ROCK) IS NOT ACCEPTABLE, UNLESS SPECIFICALLY DESIGNATED ON THE DRAWINGS.
 6. GRADATION: EACH LOAD OF RIPRAP SHALL BE REASONABLY WELL GRADED FROM THE SMALLEST TO THE LARGEST SIZE SPECIFIED.
 7. STONES SMALLER THAN THE TWO TO TEN PERCENT (2%-10%) SIZE WILL NOT BE PERMITTED IN AN AMOUNT EXCEEDING TEN PERCENT (10%) BY WEIGHT OF EACH LOAD.
 8. CONTROL OF GRADATION SHALL BE BY VISUAL INSPECTION, HOWEVER IN THE EVENT THE ENGINEER DETERMINES THE RIPRAP TO BE UNACCEPTABLE, THE ENGINEER SHALL PICK TWO (2) RANDOM TRUCKLOADS TO BE DUMPED AND CHECKED FOR GRADATION. MECHANICAL EQUIPMENT AND LABOR NEEDED TO ASSIST IN CHECKING GRADATION SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

NOTE:
1. PIPE OUTLET TO BE RECESSED INTO THE CHANNEL BANK TO MINIMIZE THE PIPE PROTRUDING INTO THE TYPICAL CHANNEL SECTION.



C FES PIPE OUTLET w/CONCRETE CUTOFF WALL AND JOINT RESTRAINTS
DT6
SCALE: NTS

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