

STANDARD NOTES FOR EL PASO COUNTY CONSTRUCTION PLANS

- ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
- CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
 - EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
 - CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
 - COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
 - CDOT M & S STANDARDS
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER THE FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
- CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT (PCD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
- CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
- ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
- CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
- SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
- SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY AND MUTCD CRITERIA. [IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.]
- CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW), INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
- THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE PROPERTY LINE UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

STANDARD NOTES FOR EL PASO COUNTY GRADING AND EROSION CONTROL PLANS

- STORMWATER DISCHARGES FROM CONSTRUCTION SITES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF STATE WATERS. ALL WORK AND EARTH DISTURBANCE SHALL BE DONE IN A MANNER THAT MINIMIZES POLLUTION OF ANY ON-SITE OR OFF-SITE WATERS, INCLUDING WETLANDS.
- NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A 'NOTICE TO PROCEED' HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. A PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, ENGINEER, AND EL PASO COUNTY WILL BE HELD PRIOR TO ANY CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE APPLICANT TO COORDINATE THE MEETING TIME AND PLACE WITH COUNTY STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE ACCELERATED SOIL EROSION AND RESULTING SEDIMENTATION. ALL DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED SO THAT THE EXPOSED AREA OF ANY DISTURBED LAND SHALL BE LIMITED TO THE SHORTEST PRACTICAL PERIOD OF TIME. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON-SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL WASTES FROM THE CONSTRUCTION SITE FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REGULATORY REQUIREMENTS. NO CONSTRUCTION DEBRIS, TREE SLASH, BUILDING MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, OR DISCHARGED AT THE SITE.
- WASTE MATERIALS SHALL NOT BE TEMPORARILY PLACED OR STORED IN THE STREET, ALLEY, OR OTHER PUBLIC WAY, UNLESS IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES AS A RESULT OF SITE DEVELOPMENT.
- THE QUANTITY OF MATERIALS STORED ON THE PROJECT SITE SHALL BE LIMITED, AS MUCH AS PRACTICAL, TO THAT QUANTITY REQUIRED TO PERFORM THE WORK IN AN ORDERLY SEQUENCE. ALL MATERIALS STORED ON-SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER, IN THEIR ORIGINAL CONTAINERS, WITH ORIGINAL MANUFACTURER'S LABELS.
- NO CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS. ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND CUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS SHALL COMPLY WITH THE 'COLORADO WATER QUALITY CONTROL ACT' (TITLE 25, ARTICLE 8, CRS) AND THE 'CLEAN WATER ACT' (33 USC 1344), IN ADDITION TO THE REQUIREMENTS OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.), IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON-SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY (CTL THOMPSON, JANUARY 6, 2022) AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (1) ACRE OR MORE, THE OWNER OR OPERATOR OF CONSTRUCTION ACTIVITY SHALL SUBMIT A PERMIT APPLICATION FOR STORMWATER DISCHARGE TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY DIVISION. THE APPLICATION CONTAINS CERTIFICATION OF COMPLETION OF A STORMWATER 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
 WQCD - PERMITS
 4300 CHERRY CREEK DRIVE SOUTH
 DENVER, CO 80246-1530
 ATTN: PERMITS UNIT

DRAWN BY: TBI JOB DATE: 5/3/2024
 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:\2020\201662.03\CAD\dwgs\C\GENERAL NOTES

BAR IS ONE INCH ON OFFICIAL DRAWINGS.
 0 [] 1"
 IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION



HR GREEN - DENVER
 5613 DTC PARKWAY SUITE 950
 DENVER CO 80111
 PHONE: 720.602.4999
 FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 GENERAL NOTES

SHEET
GN1
02

Design Parameter	Grandview Reserve Design Value	Design Value From MHFD	El Paso County
Roughness values	EPC DCM Table 10-2	Per Table 8-5	EPC DCM Table 10-2
Maximum 5-year velocity, main channel (within bankfull channel width) (ft/s)	5 ft/s	5 ft/s	EPC DCM Table 10-3 and 10-4
Maximum 100-year velocity, main channel (within bankfull channel width) (ft/s)	7 ft/s	7 ft/s	EPC DCM Table 10-3 and 10-4
Froude No., 5-year, main channel (within bankfull channel width)	0.7	0.7	
Froude No., 100-year, main channel (within bankfull channel width)	0.8	0.8	0.9 (From section 10.7)
Maximum shear stress, 100-year, main channel (within bankfull channel width)	1.2 lb/sf	1.2 lb/sf	
Minimum bankfull capacity of bankfull channel (based on future development conditions)	70% of 2 year, 10.5 cfs	70% of 2-year discharge or 10% of 100-yr discharge, whichever is greater	10-yr storm, to be concrete lined or rip rap, ECM 10.5.4
Minimum bankfull channel geometry*		70% of 2-year discharge or 10% of 100-yr discharge, whichever is greater*	
Design Channel Type	C4***		
Entrenchment Ratio	2.7-31.65 (x=5.26)***		
Width to depth ratio	13.5-75.0 (x=29.28)***		
Sinuosity	1.43-2.80 (x=1.92)***		
Slope	0.0001-0.0184 (x=0.0045)***		
D50	12-14mm (~0.5 in)***		
d84	32-48mm (~1.6in)***		
Meander Length**	34-92 (x=56)***		
Belt Width**	18-55 (x=32)***		
Radius of Curvature**	7-28 (x=11)***		
Minimum Floodplain Terrace	6 ft		
Maximum overbank side slope	4(H):1(V)	4(H):1(V)	4(H):1(V) when grassed, 2(H):1(V) when concrete, 2.5(H):1(V) when riprap
Maximum bankfull side slope	2.5(H):1(V)	2.5(H):1(V)	
Minimum bottom width	3.8 ft		At least twice depth, but not less than 8 ft for channels conveying at least 400 cfs
Freeboard	1.5 ft	18 inch min	freeboard in ft = 1.0 + 0.025 (velocity in fps)(depth in ft)0.33, to be 12 inch minimum
Freeboard			
* These values were derived from empirical data and will be used as guidelines for design and will be used in conjunction with hydraulic regime equations as outlined in "Spreadsheet Tools for River Evaluation, Assessment, and Monitoring: The STREAM Diagnostic Modules"			
** These values are derived from "Spreadsheet Tools for River Evaluation, Assessment, and Monitoring: The STREAM Diagnostic Modules"			
*** These values are derived from HR Green Design Calculations			

NOTES:

THE DESIGN'S BANKFULL CROSS SECTION GEOMETRY WAS ESTIMATED ASSUMING 70% OF THE 2-YEAR FLOW (AN OPTION DESCRIBED IN MILE HIGH FLOOD DISTRICT'S DESIGN MANUAL VOLUME 1), LEOPOLD (A VIEW OF THE RIVER, 1994; FLUVIAL PROCESSES ON GEOMORPHOLOGY, 1992) SHOWED A VERY STRONG CORRELATION BETWEEN THE EFFECTIVE DISCHARGE CHANNEL AND FIELD-DETERMINED BANKFULL GEOMETRY WHERE THE OBSERVED EQUILIBRIUM CHANNEL'S SPILL-OVER POINT TO THE FLOODPLAIN. THIS POINT IS MOST OFTEN CORRELATED TO A FLOW RETURN INTERVAL BETWEEN 1.0-2.0 YEARS WITH AN AVERAGE OF 1.5-YEARS (THOUGH EXCEPTIONS DO EXIST). AS WE DO NOT HAVE GAUGE DATA TO PERFORM A FLOW FREQUENCY ANALYSIS FOR THIS PROJECT'S CHANNEL, NOR A SUITABLE REFERENCE REACH TO SERVE AS AN ANALOGUE WITH WHICH TO SCALE USING DIMENSIONLESS RATIOS RELATED TO THE BANKFULL WIDTH, WE HAVE CHOSEN TO USE THE 2-YEAR FREQUENCY RAINFALL TO APPROXIMATE THE HYDROLOGIC CONDITION OF THE WATERSHED THAT WOULD RESULT IN THE 1.5-1.8 YR FLOW INTERVAL (APPROXIMATELY 70% OF THE 2-YR FLOW INTERVAL).

MILE HIGH FLOOD DISTRICT'S (MHFD) DESIGN MANUAL VOLUME 1 ALSO PRESENTS THE OPTION OF USING 10% OF THE 100-YR DISCHARGE TO SIZE THE BANKFULL CHANNEL'S CAPACITY. IN THE CASE OF THIS PROJECT, WE HAVE NOT OPTED FOR THIS ALTERNATIVE. OUR CONCERN IS THAT THE RESULTING CHANNEL CROSS SECTIONAL AREA DERIVED FROM THIS ALTERNATIVE WOULD BE OVERSIZED AND LEAD TO SEDIMENT ACCUMULATION ON THE BED THROUGH TIME (AGGRADATION). AGGRADATION OCCURS WHEN INSUFFICIENT STREAM POWER IS PRESENT TO TRANSPORT SEDIMENT THROUGH THE CHANNEL, WHICH CAN RESULT FROM AN OVERSIZED BANKFULL CHANNEL. IN THESE CASES, MID-CHANNEL BARS CAN FORM WHICH PUSH FLOWS INTO THE BANKS INCREASING THE RISK OF EROSION AND LATERAL MIGRATION OF THE CHANNEL.

EPC DCM = EL PASO COUNTY DRAINAGE CRITERIA MANUAL.

DRAINAGE A NOTES

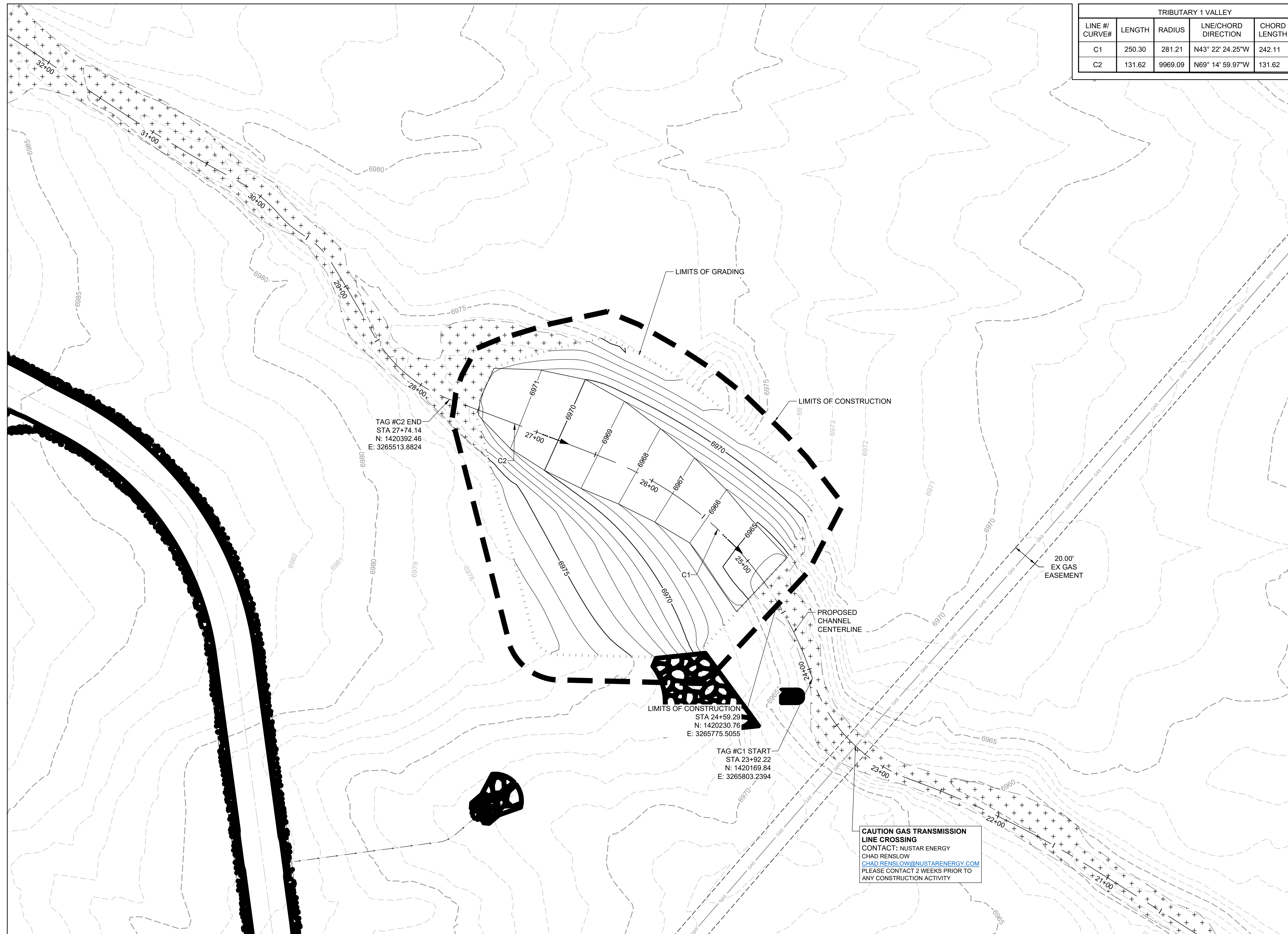
- MIX THE VL RIPRAP WITH NATIVE SOIL (65% ROCK AND 35% SOIL).
- DROP THE VL RIPRAP 6-9 INCHES FURTHER INTO THE GROUND AND TOP LOAD THE SOIL-RIPRAP WITH 6-9 INCHES OF NATIVE SOIL (A SANDY CLAY LOAM).
- APPLY WETLAND SEED MIX AND STRAW MULCH (WEED FREE) AND THEN ENCAPSULATE THE SOIL/SOIL-RIPRAP WITH AN EROSION CONTROL FABRIC (ECF). USE NEDIA KOIRMAT 700 OR SIMILAR.
- WETLAND AND UPLAND SEEDING IN THE LATE FALL JUST BEFORE WINTER. WILLOW PLANTING (ROOTED OR CUTTINGS) IN THE SPRING DEPENDING ON WHEN THE SITE IS READY AND THE PLANTS ARE COLLECTED/ACQUIRED; OTHER TIMES/PROCEDURES REQUIRE ENGINEER APPROVAL. RESTORATION OF THE UTILITY LINE CROSSINGS WITH WETLAND SEED AND WILLOW IS ALSO REQUIRED.

EXISTING FLOWS FOR MAIN STEM (DRAINAGE A)				
STATION	2-YR STORM	5-YR STORM	100-YR STORM	
37+13	23 cfs	67 cfs	413 cfs	
25+92	26.45 cfs	80.03 cfs	479.80 cfs	
15+57	26.45 cfs	80.03 cfs	479.80 cfs	

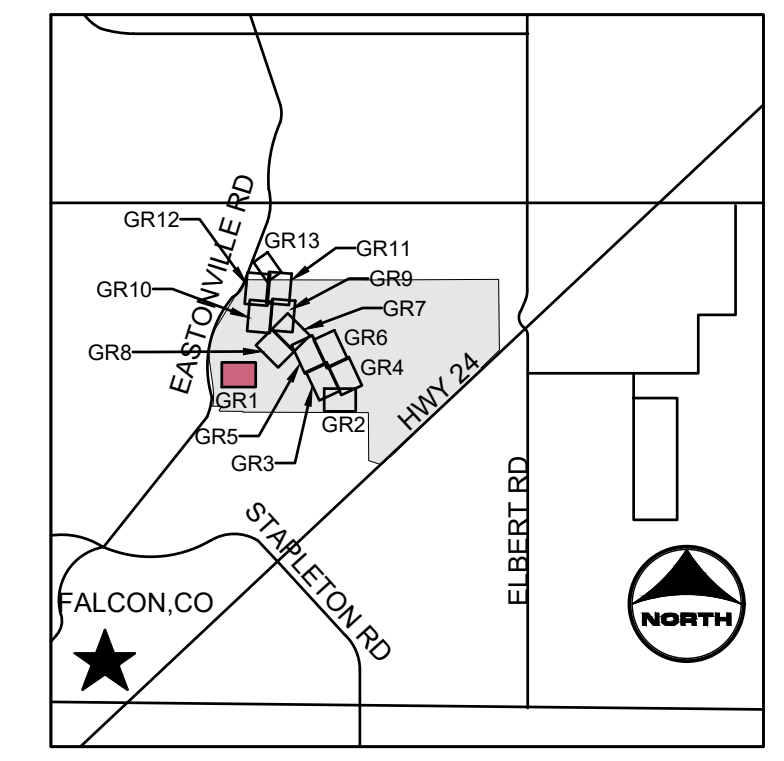
FUTURE FLOWS FOR MAIN STEM (DRAINAGE A)				
STATION	2-YR STORM	5-YR STORM	100-YR STORM	
37+13	23 cfs	67 cfs	413 cfs	
25+92	23 cfs	67 cfs	413 cfs	
15+57	27.75 cfs	67.69 cfs	466.95 cfs	

EXISTING FLOWS FOR MAIN STEM TRIBUTARY (DRAINAGE B)				
STATION	2-YR STORM	5-YR STORM	100-YR STORM	
45+30	19 cfs	59 cfs	280 cfs	
22+59	20.14 cfs	68.95 cfs	390.70 cfs	
6+14	22.14 cfs	85.99 cfs	597.42 cfs	

FUTURE FLOWS FOR MAIN STEM TRIBUTARY (DRAINAGE B)				
STATION	2-YR STORM	5-YR STORM	100-YR STORM	
47+49	19 cfs	59 cfs	280 cfs	
36+50	31.72 cfs	60.52 cfs	395.83 cfs	
5+54	33.53 cfs	63.16 cfs	553.68 cfs	



TRIBUTARY 1 VALLEY				
LINE # / CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C1	250.30	281.21	N43° 22' 24.25"W	242.11
C2	131.62	9969.09	N69° 14' 59.97"W	131.62



- PROJECT LEGEND:**
- PROPERTY LINE
 - - - EXISTING EASEMENT
 - - - GAS
 - - - TELE
 - X - X - X - EXISTING TELEPHONE LINE
 - X - X - X - EXISTING FENCE LINE
 - - - EXISTING SECTION LINE
 - ← - - - EXISTING SWALE
 - O — EXISTING OVERHEAD ELECTRIC
 - O — EXISTING TELEPHONE POLE
 - - -5250 - - - EXISTING MAJOR CONTOUR
 - - - EXISTING MINOR CONTOUR
 - 5250— PROPOSED MAJOR CONTOUR
 - - - PROPOSED MINOR CONTOUR
 - FLOW ARROW
 - LIMITS OF CONSTRUCTION
 - - - LIMITS OF GRADING
 - + + + + + EXISTING WETLANDS - JURISDICTIONAL
 - + + + + + EXISTING WETLANDS - NONJURISDICTIONAL
 - ○ ○ ○ ○ PROPOSED MAINTENANCE TRAIL

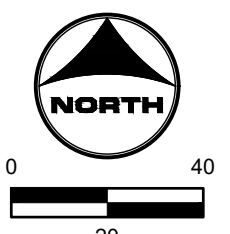
- NOTES:**
- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
 - BENCHMARK:**
 DESIGNATION = F 24, E 24
 PID = JK0240
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
 CONTROL POINT COORDINATE SYSTEM: NAVD88
 NORTHING: 1421049.80
 EASTING: 3273631.55
 ELEVATION: 6866.33

CAUTION GAS TRANSMISSION LINE CROSSING
 CONTACT: NUSTAR ENERGY
 CHAD RENSLAW
CHAD.RENSLOW@NUSTARENERGY.COM
 PLEASE CONTACT 2 WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITY

TAG #C2 END
 STA 27+74.14
 N: 1420392.46
 E: 3265513.8824

LIMITS OF CONSTRUCTION
 STA 24+59.29
 N: 1420230.76
 E: 3265775.5055

TAG #C1 START
 STA 23+92.22
 N: 1420169.84
 E: 3265803.2394



811 UNCC CALL BEFORE YOU DIG
 811 OR 1-800-922-1987
 Utility Notification Center of Colorado

DRAWN BY: ACH JOB DATE: 6/6/2024 BAR IS ONE INCH ON OFFICIAL DRAWINGS. 1" = 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:\2020\201662.03\CAD\DWG\CIGRADING

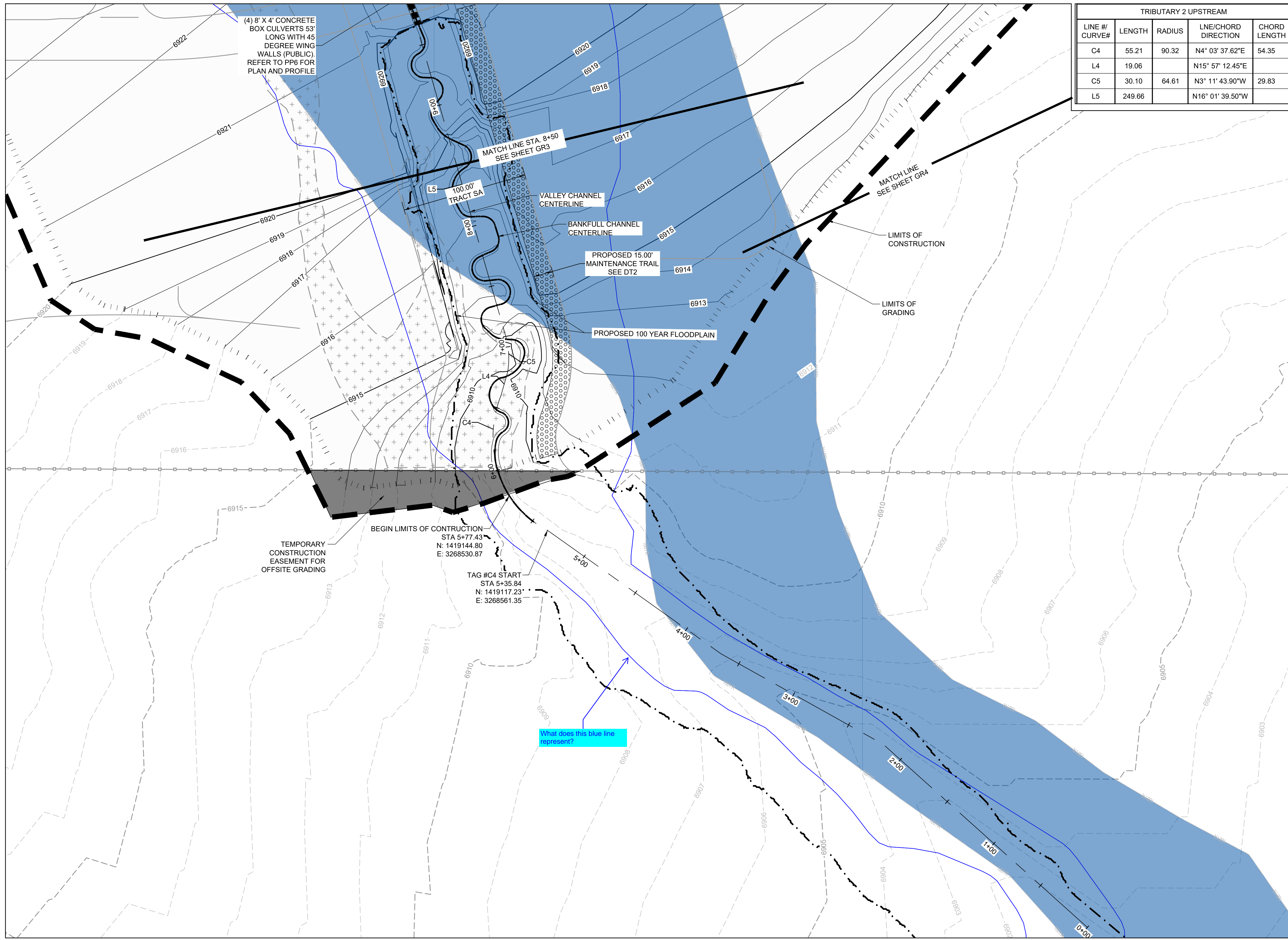
NO.	DATE	BY	REVISION DESCRIPTION

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 DENVER CO 80111
 PHONE: 720.602.4999
 FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

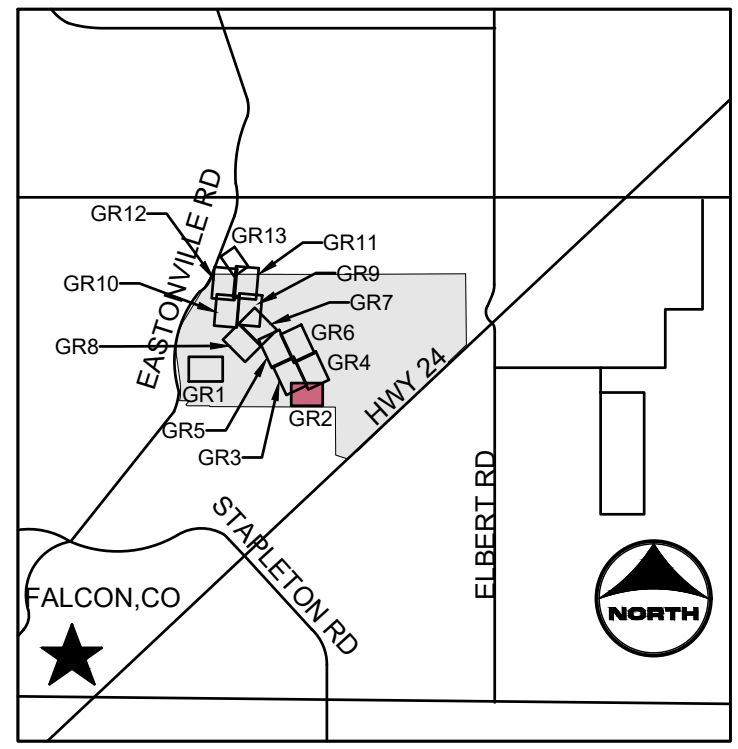
CONSTRUCTION DOCUMENTS
 TRIBUTARY 1 GRADING

SHEET
GR1 05



(4) 8' X 4' CONCRETE BOX CULVERTS 53' LONG WITH 45 DEGREE WING WALLS (PUBLIC). REFER TO PP6 FOR PLAN AND PROFILE

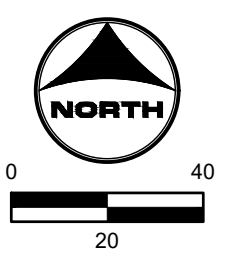
TRIBUTARY 2 UPSTREAM				
LINE # CURVE#	LENGTH	RADIUS	LINE/CHORD DIRECTION	CHORD LENGTH
C4	55.21	90.32	N4° 03' 37.62"E	54.35
L4	19.06		N15° 57' 12.45"E	
C5	30.10	64.61	N3° 11' 43.90"W	29.83
L5	249.66		N16° 01' 39.50"W	



- KEYMAP**
- PROJECT LEGEND:**
- — — — — PROPERTY LINE
 - — — — — EXISTING EASEMENT
 - GAS — — — — — EXISTING GAS LINE
 - TELE — — — — — EXISTING TELEPHONE LINE
 - X - X - X - EXISTING FENCE LINE
 - - - - - EXISTING SECTION LINE
 - - - - - EXISTING SWALE
 - OHE - EXISTING OVERHEAD ELECTRIC
 - — — — — EXISTING TELEPHONE POLE
 - - - - - EXISTING MAJOR CONTOUR
 - - - - - EXISTING MINOR CONTOUR
 - - - - - PROPOSED MAJOR CONTOUR
 - - - - - PROPOSED MINOR CONTOUR
 - — — — — — FLOW ARROW
 - - - - - PROPOSED 100-YR FLOODPLAIN
 - - - - - LIMITS OF CONSTRUCTION
 - - - - - LIMITS OF GRADING
 - EFFECTIVE 100-YR FLOODPLAIN
 - + + + + + EXISTING WETLANDS - JURISDICTIONAL
 - + + + + + EXISTING WETLANDS - NONJURISDICTIONAL
 - ○ ○ ○ ○ PROPOSED MAINTENANCE TRAIL

- NOTES:**
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 - BENCHMARK:**
 DESIGNATION = F 24, E 24
 PID = JK0240
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
 CONTROL POINT COORDINATE SYSTEM:
 NAVD88
 NORTHING: 1421049.80
 EASTING: 3273631.55
 ELEVATION: 6866.33

What does this blue line represent?



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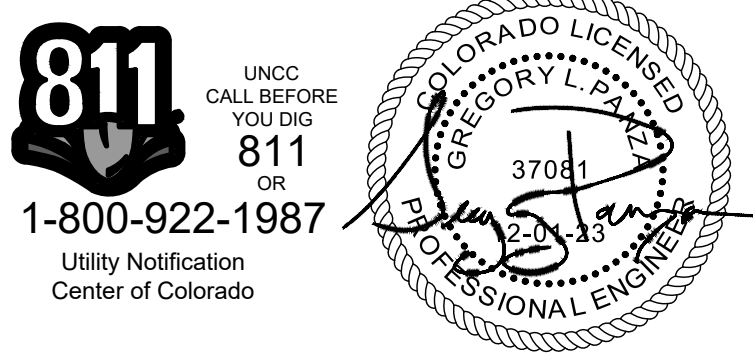
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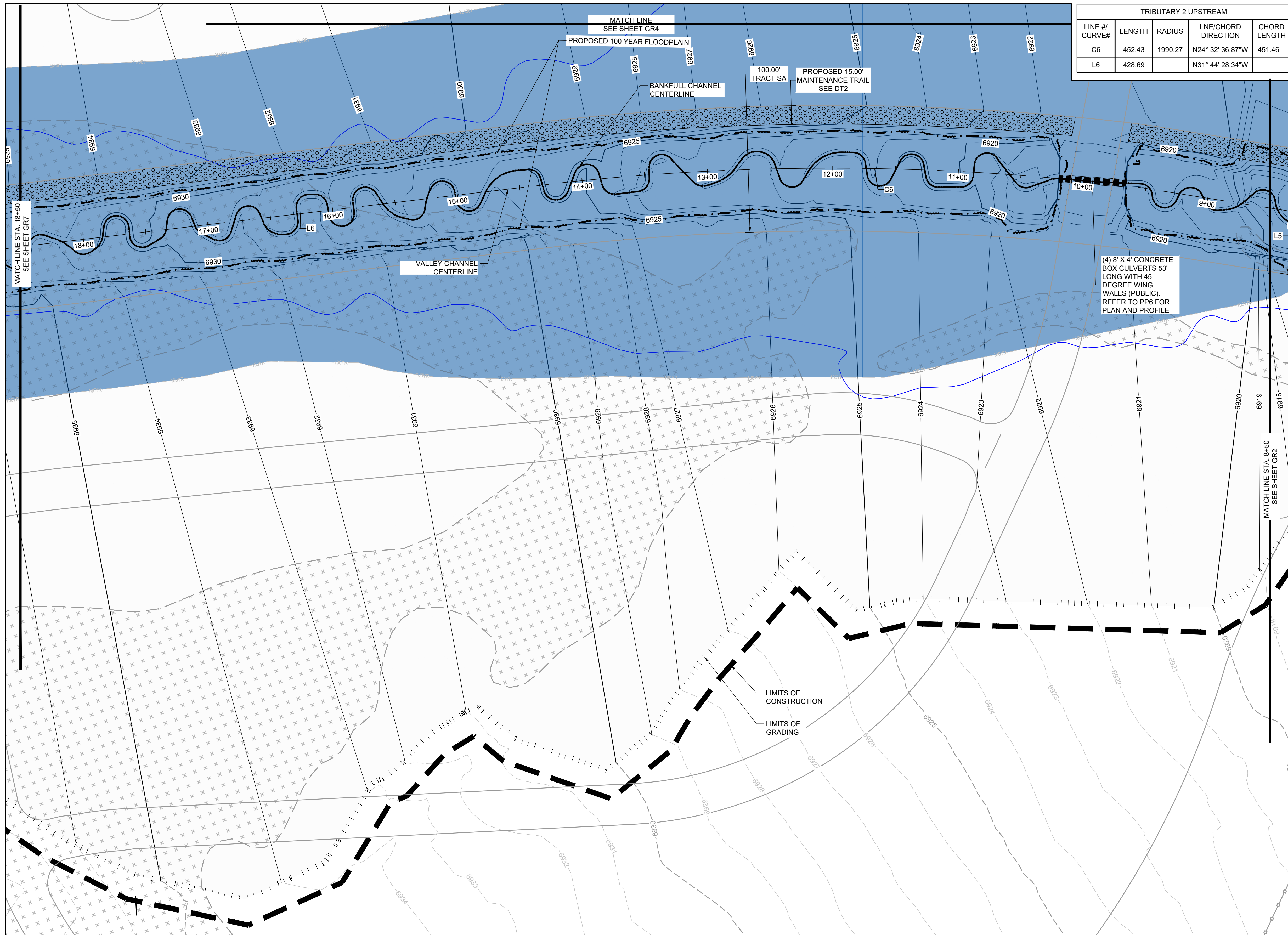
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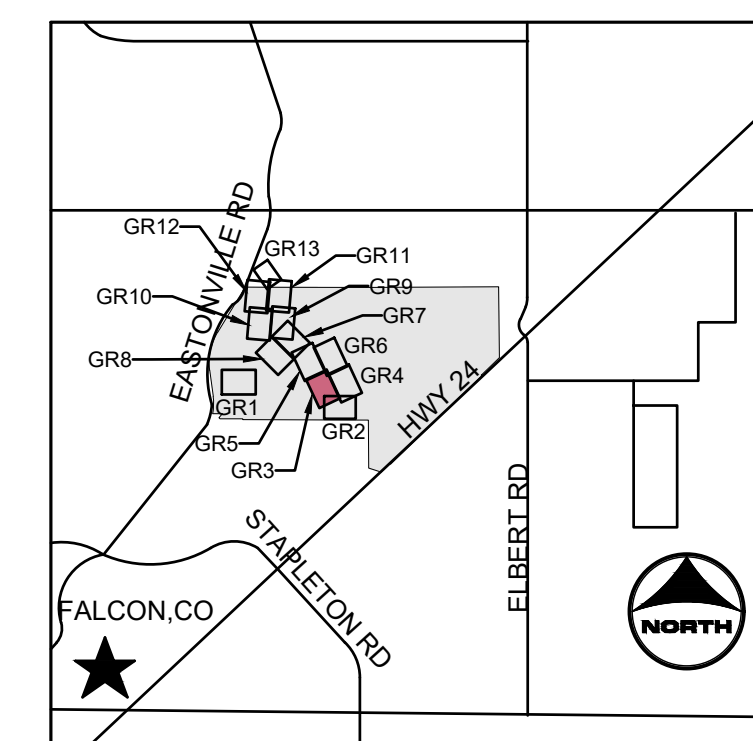
CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR2
 06





TRIBUTARY 2 UPSTREAM				
LINE #	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C6	452.43	1990.27	N24° 32' 36.87"W	451.46
L6	428.69		N31° 44' 28.34"W	



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 - - -5250- - - EXISTING MAJOR CONTOUR
 - - - EXISTING MINOR CONTOUR
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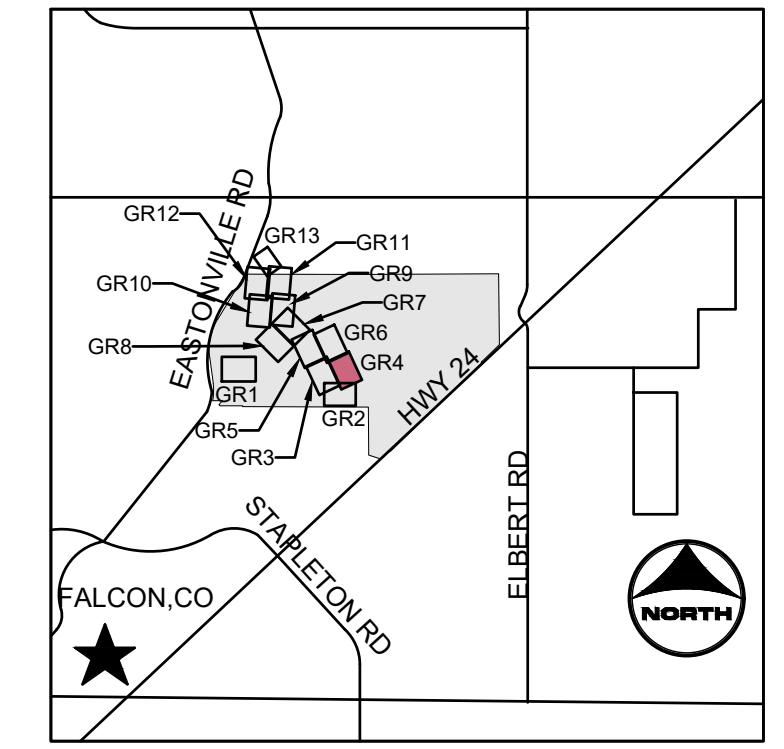
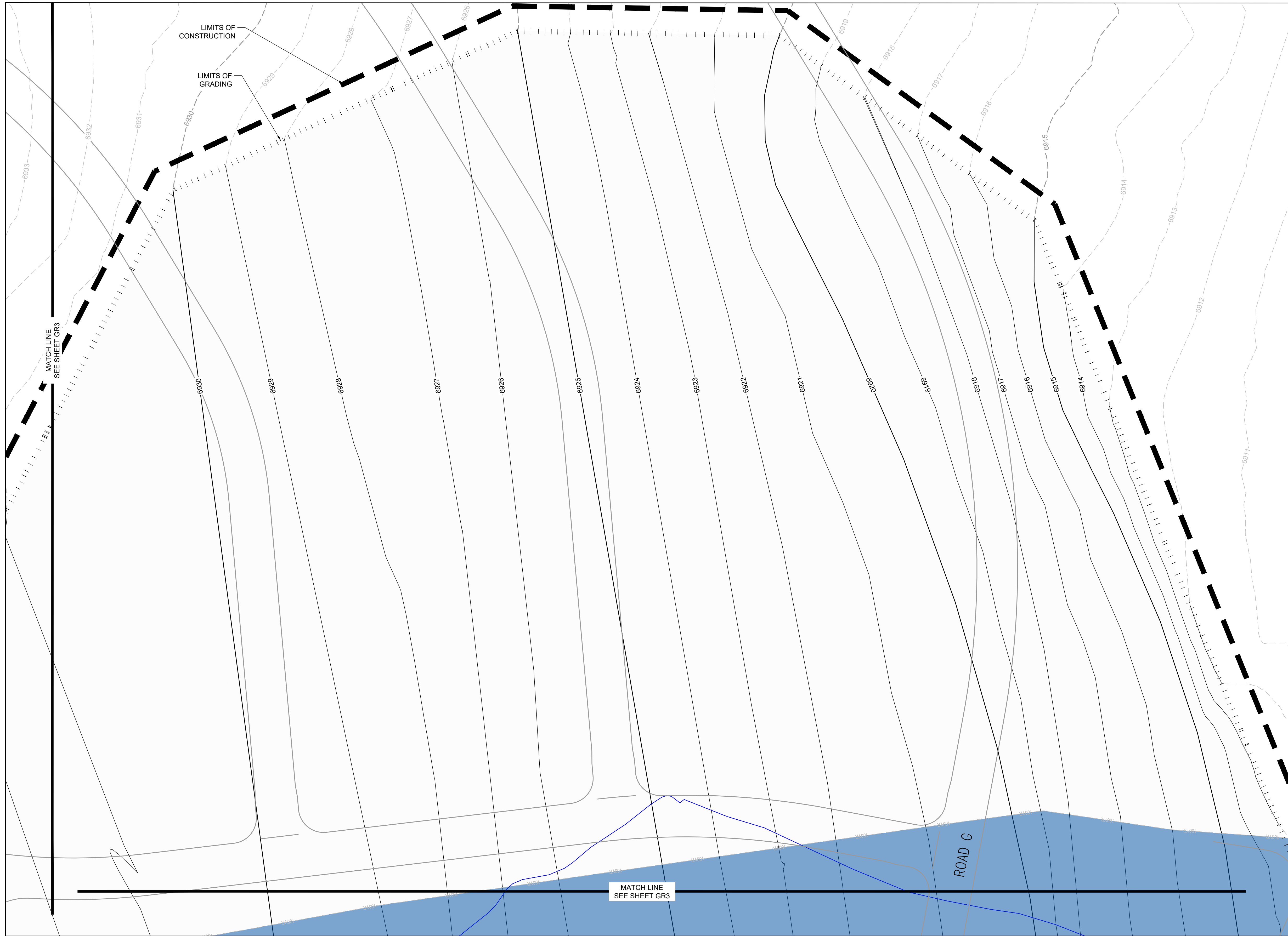
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CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR3
 07



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 - 5250 — — — — — PROPOSED MINOR CONTOUR
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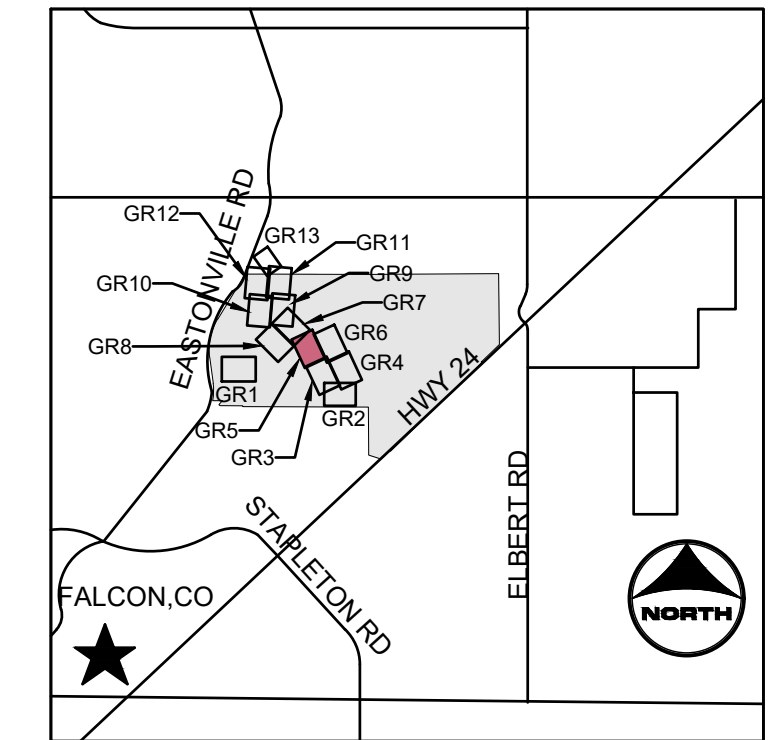
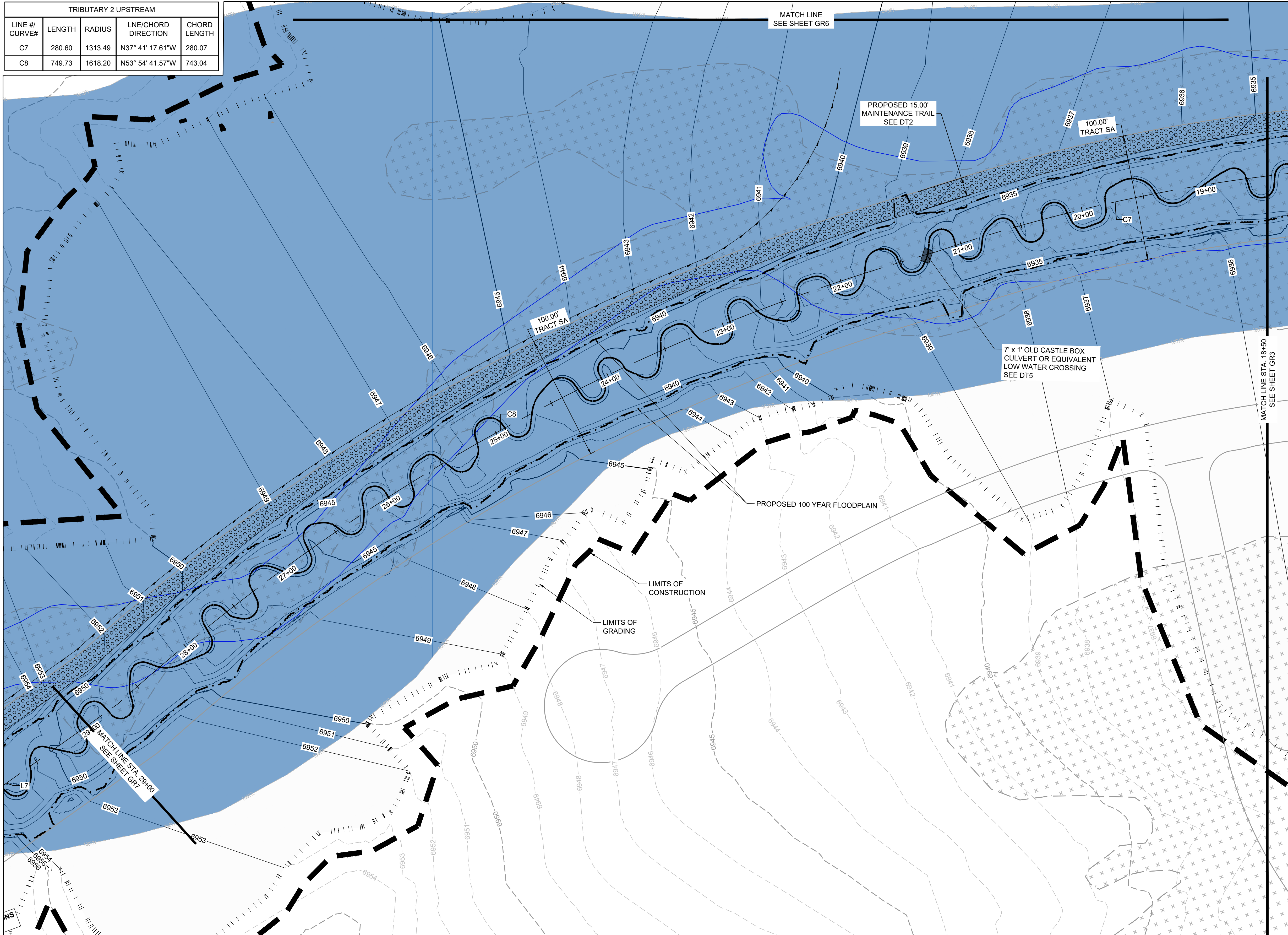
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GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR4
 08

TRIBUTARY 2 UPSTREAM				
LINE # / CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C7	280.60	1313.49	N37° 41' 17.61"W	280.07
C8	749.73	1618.20	N53° 54' 41.57"W	743.04



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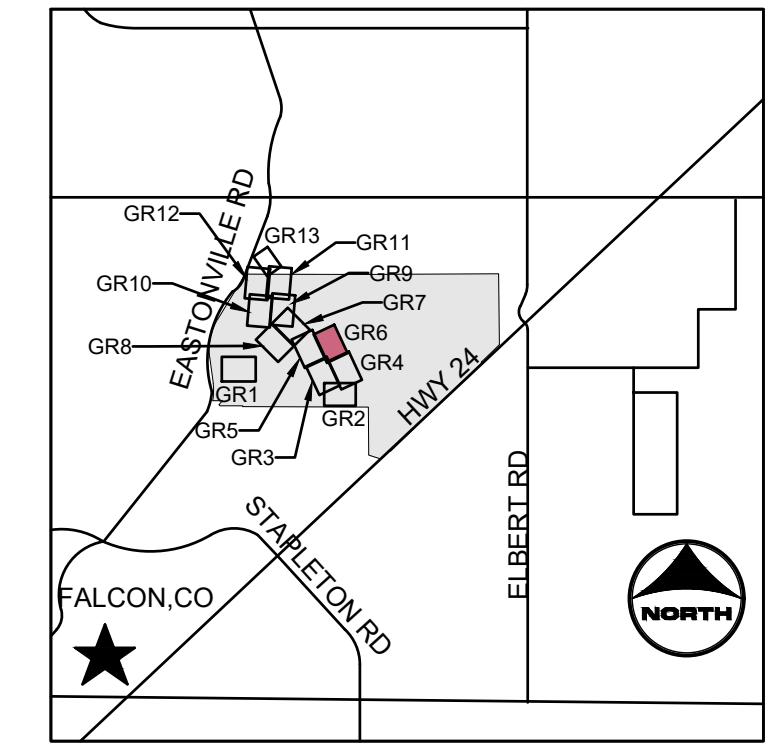
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GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR5
 09

TRIBUTARY 2 UPSTREAM				
LINE # CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C7	280.60	1313.49	N37° 41' 17.61"W	280.07
C8	749.73	1618.20	N53° 54' 41.57"W	743.04



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- - - - - EXISTING MINOR CONTOUR
- — — — — 5250 PROPOSED MAJOR CONTOUR
- - - - - PROPOSED MINOR CONTOUR
- — — — — FLOW ARROW
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PROFESSIONAL ENGINEER
 GREGORY L. PARKS
 37081
 2-01-23

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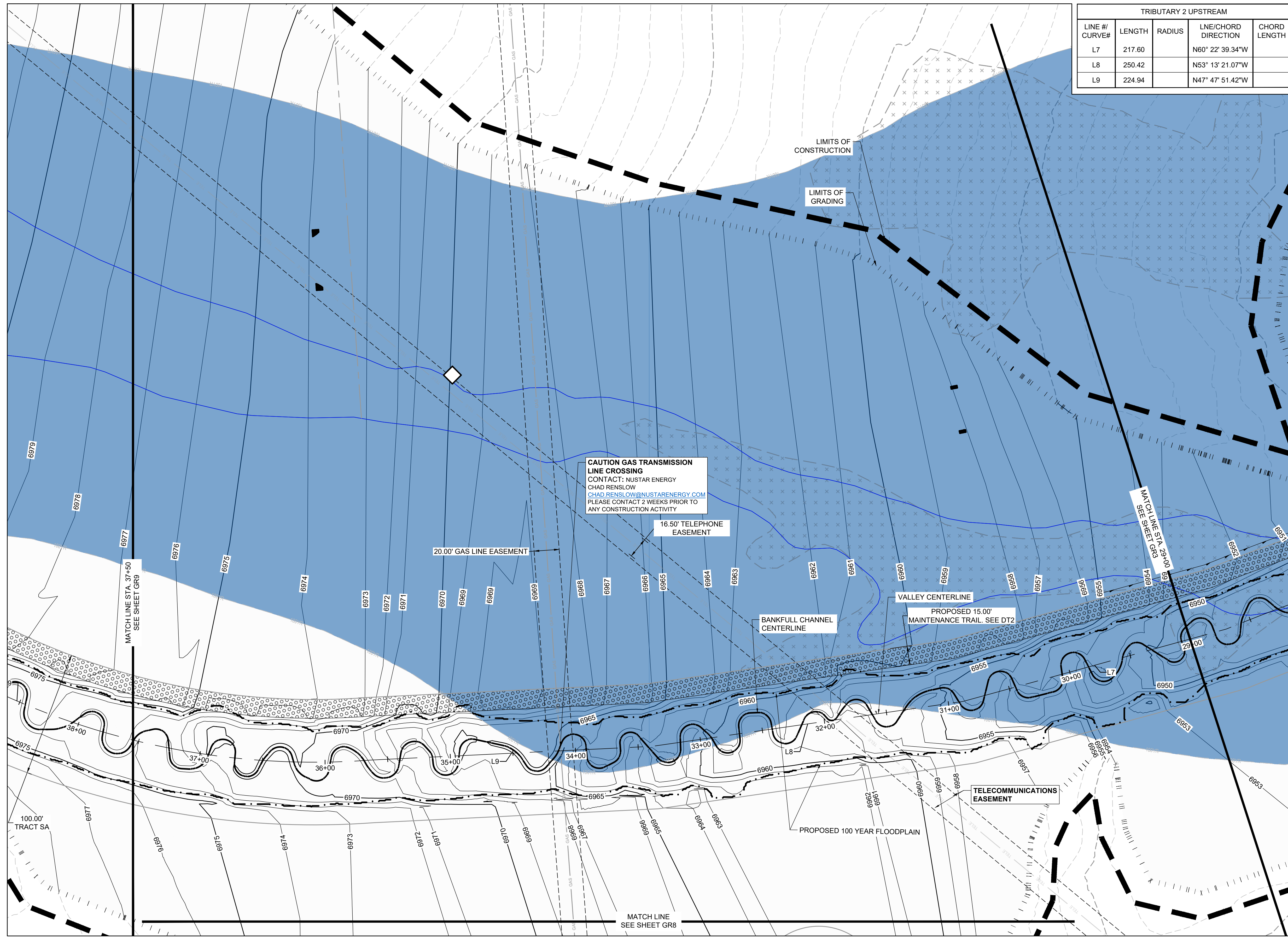
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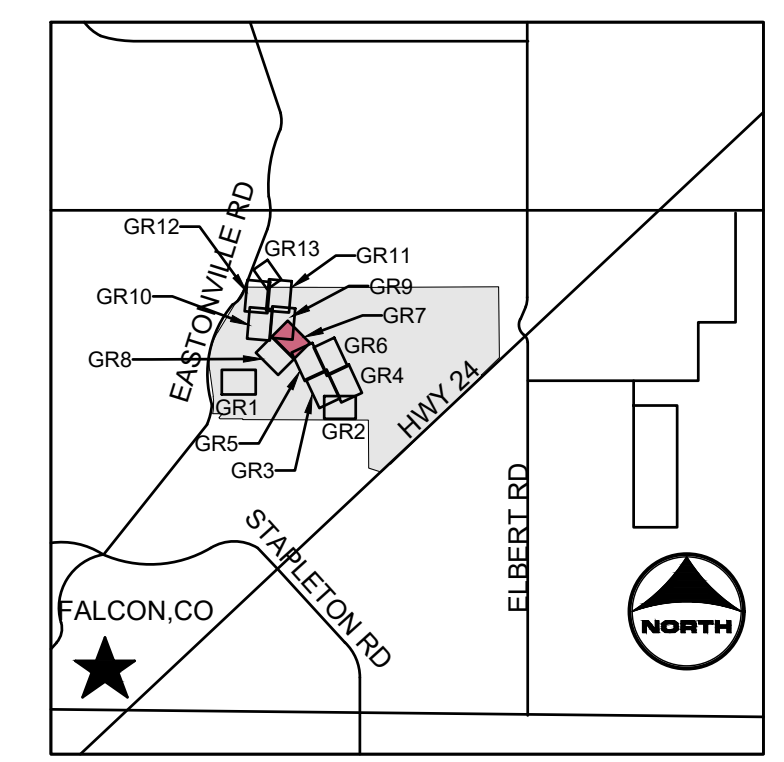
GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR6
 10



TRIBUTARY 2 UPSTREAM				
LINE # / CURVE#	LENGTH	RADIUS	LINE/CHORD DIRECTION	CHORD LENGTH
L7	217.60		N60° 22' 39.34"W	
L8	250.42		N53° 13' 21.07"W	
L9	224.94		N47° 47' 51.42"W	



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 - ○ ○ PROPOSED MAINTENANCE TRAIL

CAUTION GAS TRANSMISSION LINE CROSSING
 CONTACT: NUSTAR ENERGY
 CHAD RENSLow
 CHAD.RENSLOW@NUSTARENERGY.COM
 PLEASE CONTACT 2 WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITY

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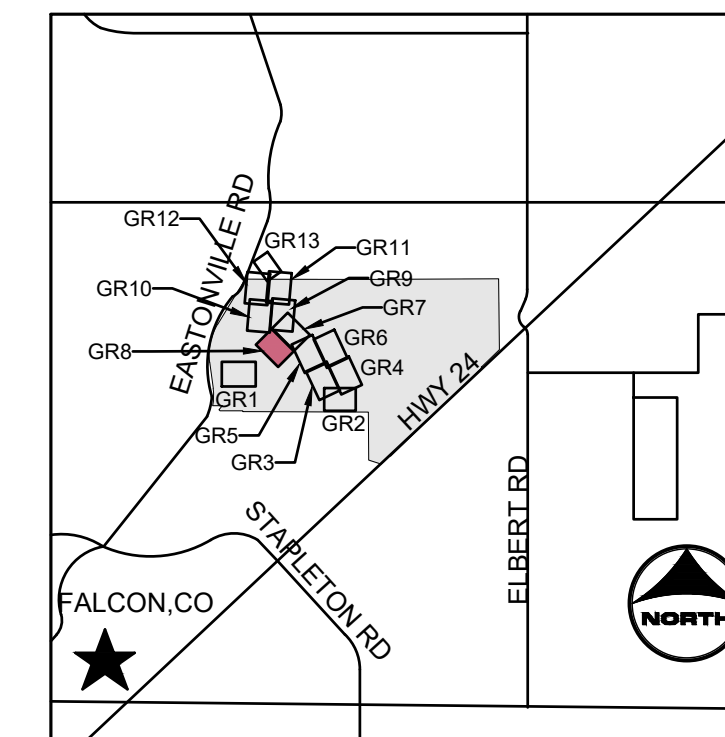
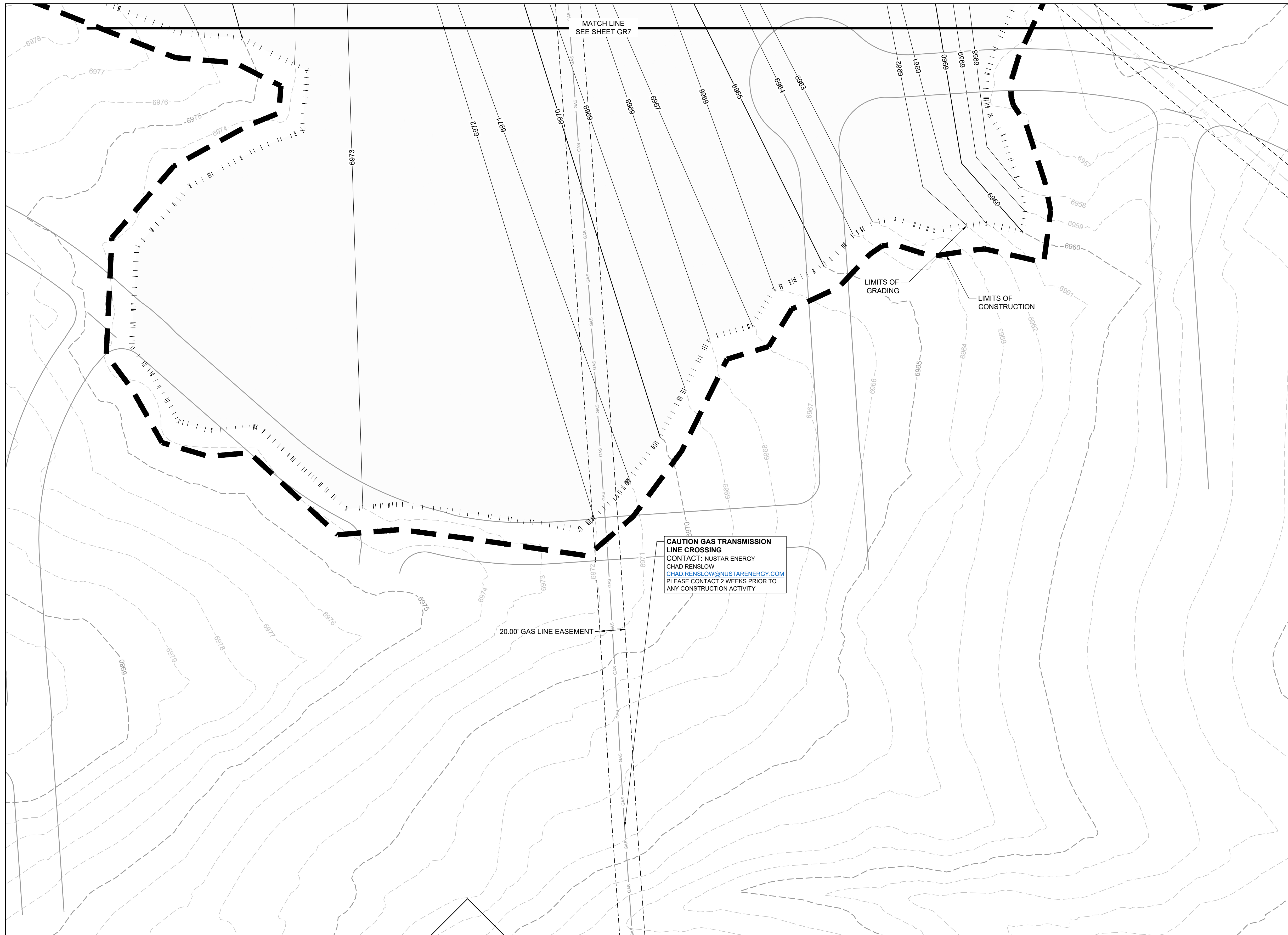
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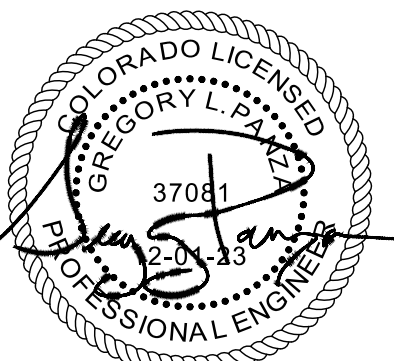
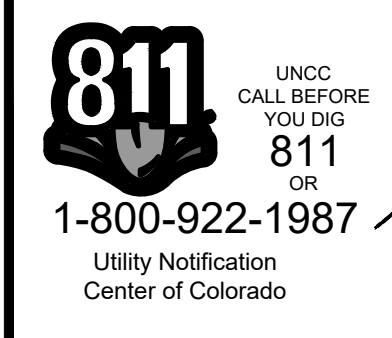
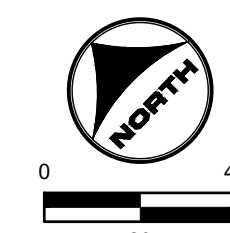
CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR7
 11



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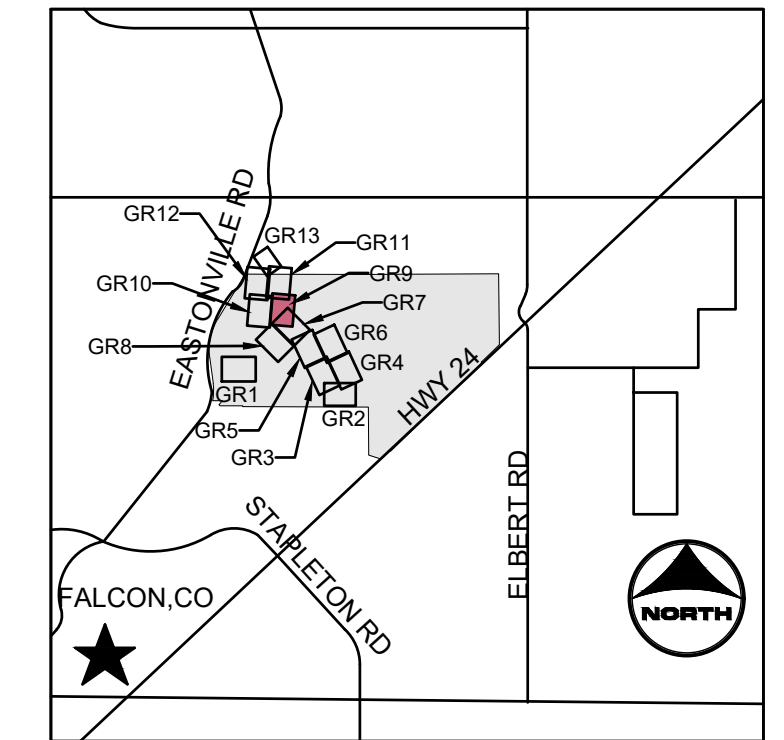
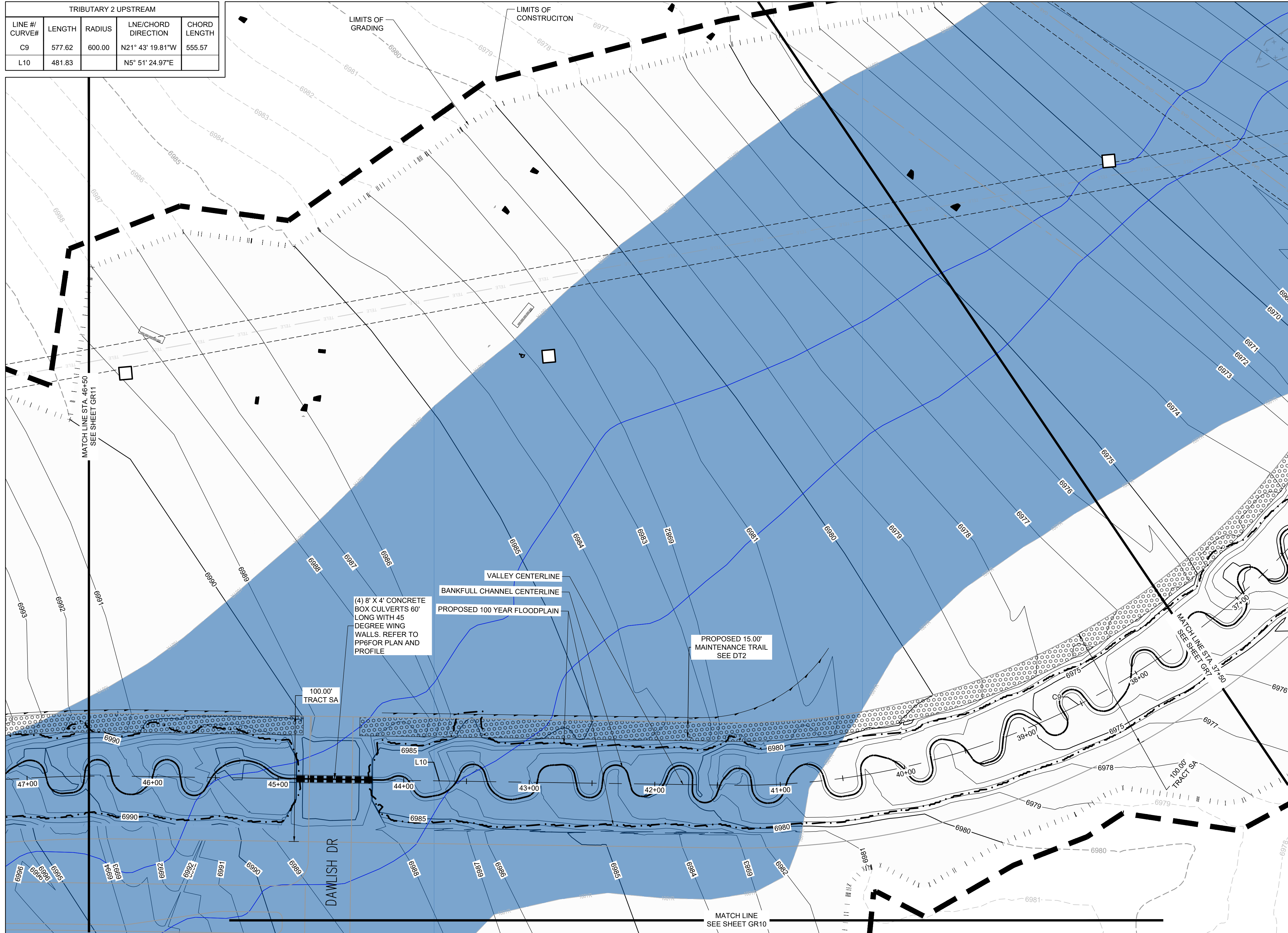
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GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR8
 12

TRIBUTARY 2 UPSTREAM				
LINE # / CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C9	577.62	600.00	N21° 43' 19.81"W	555.57
L10	481.83		N5° 51' 24.97"E	



PROJECT LEGEND:

- — — — — PROPERTY LINE
- — — — — EXISTING EASEMENT
- GAS — — — — — EXISTING GAS LINE
- TELE — — — — — EXISTING TELEPHONE LINE
- X - X - X - EXISTING FENCE LINE
- - - - - EXISTING SECTION LINE
- — — — — EXISTING SWALE
- OHE — — — — — EXISTING OVERHEAD ELECTRIC
- — — — — EXISTING TELEPHONE POLE
- - - - - -5250 - EXISTING MAJOR CONTOUR
- - - - - EXISTING MINOR CONTOUR
- - - - - 5250 - PROPOSED MAJOR CONTOUR
- - - - - PROPOSED MINOR CONTOUR
- — — — — FLOW ARROW
- - - - - PROPOSED 100-YR FLOODPLAIN
- - - - - LIMITS OF CONSTRUCTION
- - - - - LIMITS OF GRADING
- EFFECTIVE 100-YR FLOODPLAIN
- + + + + + EXISTING WETLANDS - JURISDICTIONAL
- + + + + + EXISTING WETLANDS - NONJURISDICTIONAL
- ● ● ● ● PROPOSED MAINTENANCE TRAIL

NOTES:

- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
- BENCHMARK:**
 DESIGNATION = F 24, E 24
 PID = JK0240
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
 CONTROL POINT COORDINATE SYSTEM:
 NAVD88
 NORTHING: 1421049.80
 EASTING: 3273631.55
 ELEVATION: 6866.33

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 811 OR
 1-800-922-1987
 Utility Notification
 Center of Colorado

DRAWN BY: ACH JOB DATE: 6/6/2024
 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:120201201662.03\CAD\dwgs\C\GRADING

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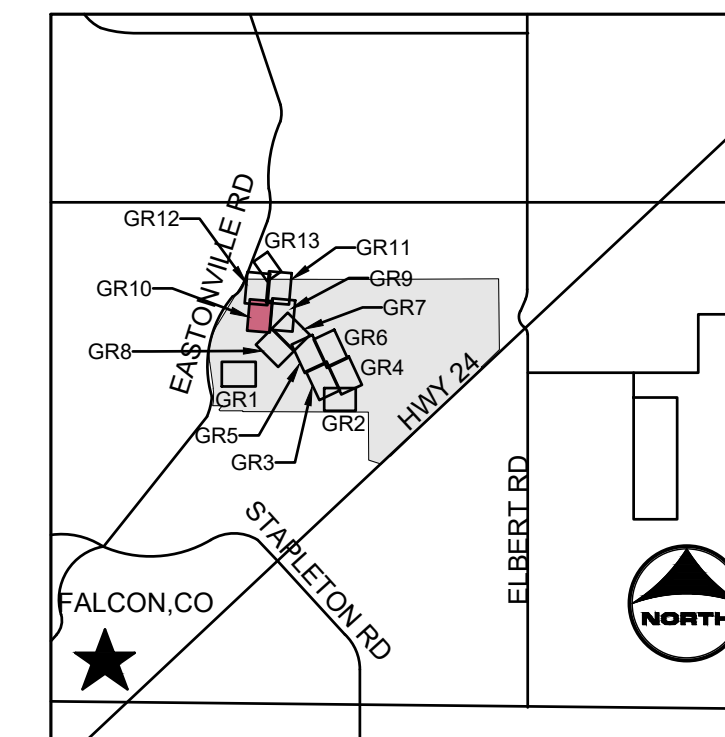
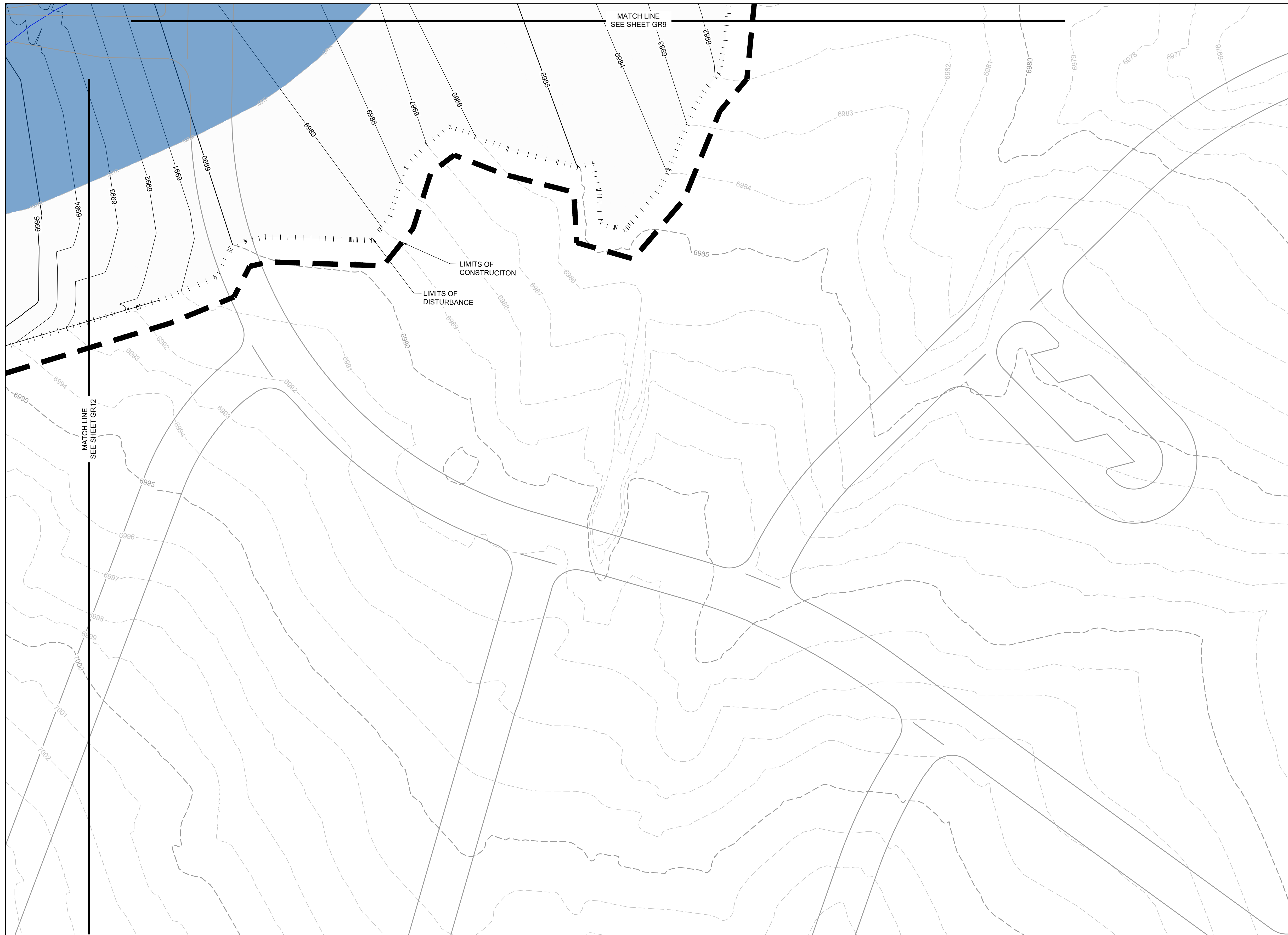
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CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR9
 13



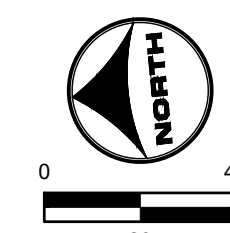
KEYMAP

PROJECT LEGEND:

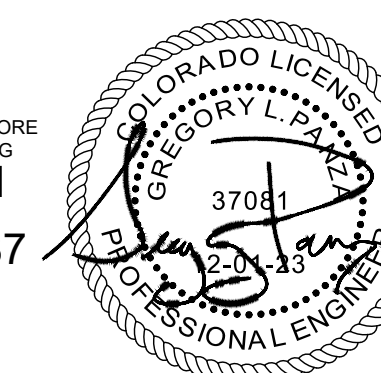
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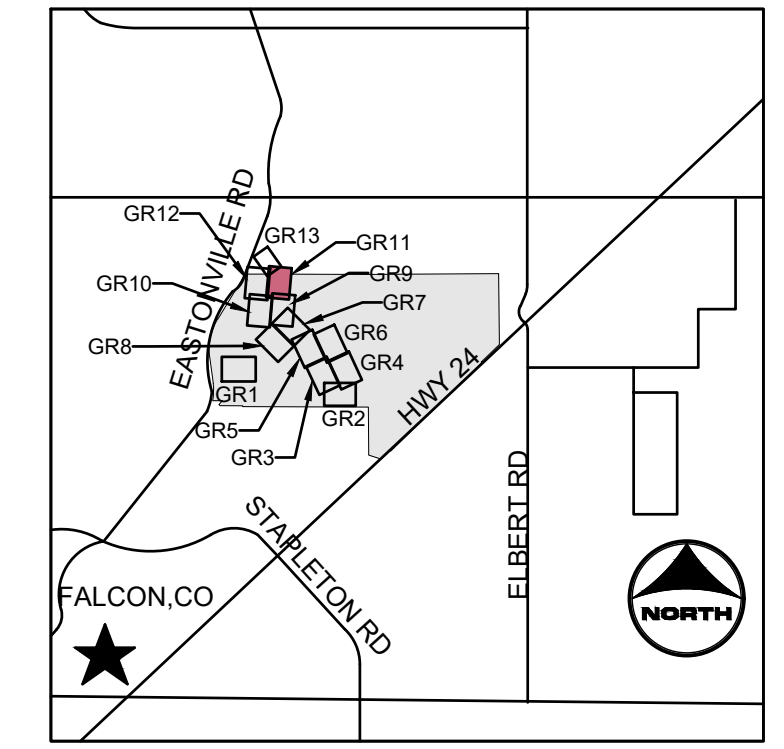
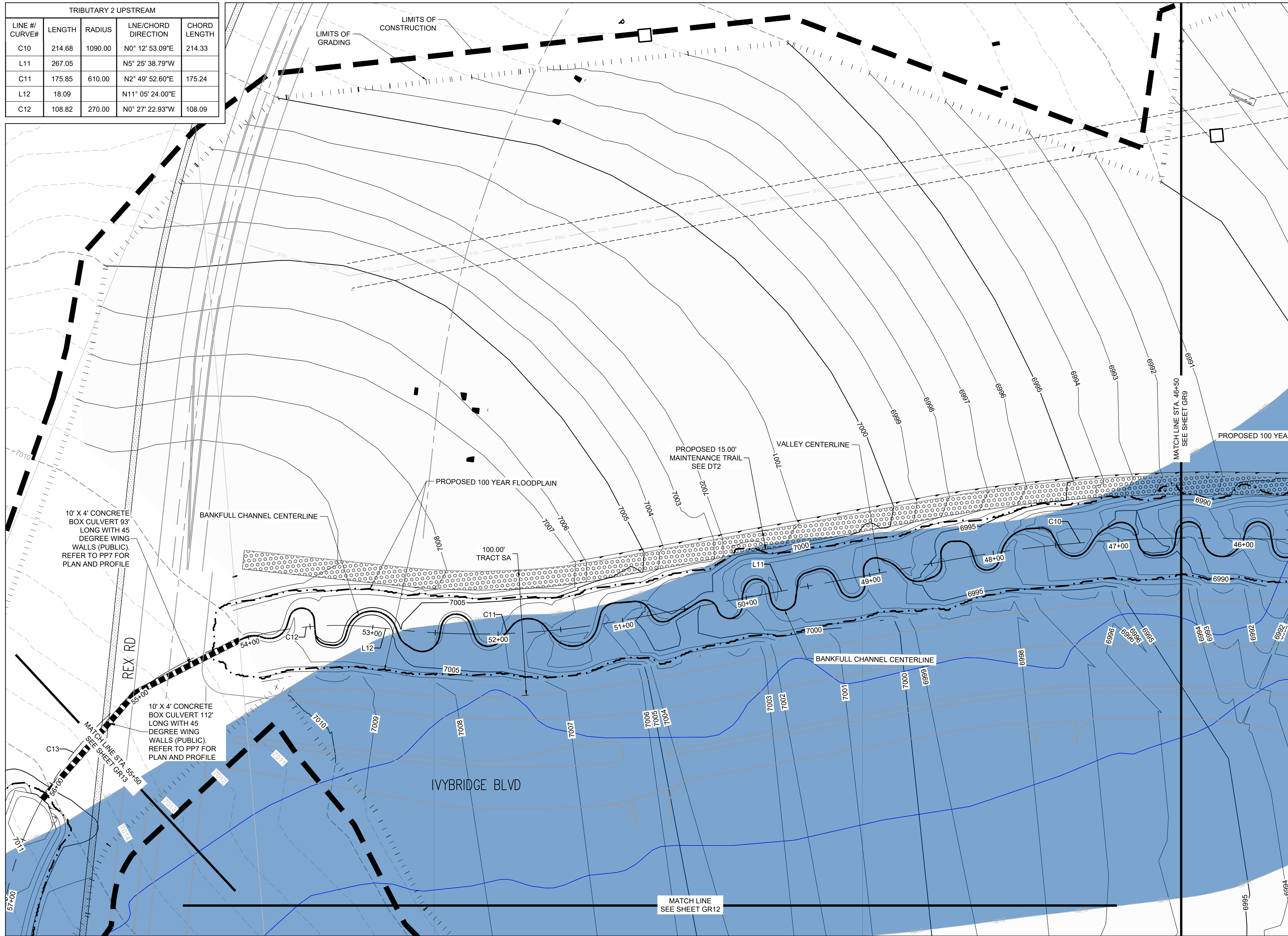
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DR HORTON
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CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR10
 14

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C10	214.68	1090.00	N0° 12' 53.09"E	214.33
L11	267.05		N5° 25' 38.79"W	
C11	175.85	610.00	N2° 49' 52.60"E	175.24
L12	18.09		N11° 05' 24.00"E	
C12	108.82	270.00	N0° 27' 22.93"W	108.09



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- 5250 --- PROPOSED MINOR CONTOUR
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- LIMITS OF CONSTRUCTION
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PROFESSIONAL ENGINEER
 GREGORY L. PETERSON
 37081
 2-01-23

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 APPROVED: GLP
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 CAD FILE: J:\2020\201662.03\CAD\DWG\C\GRADING

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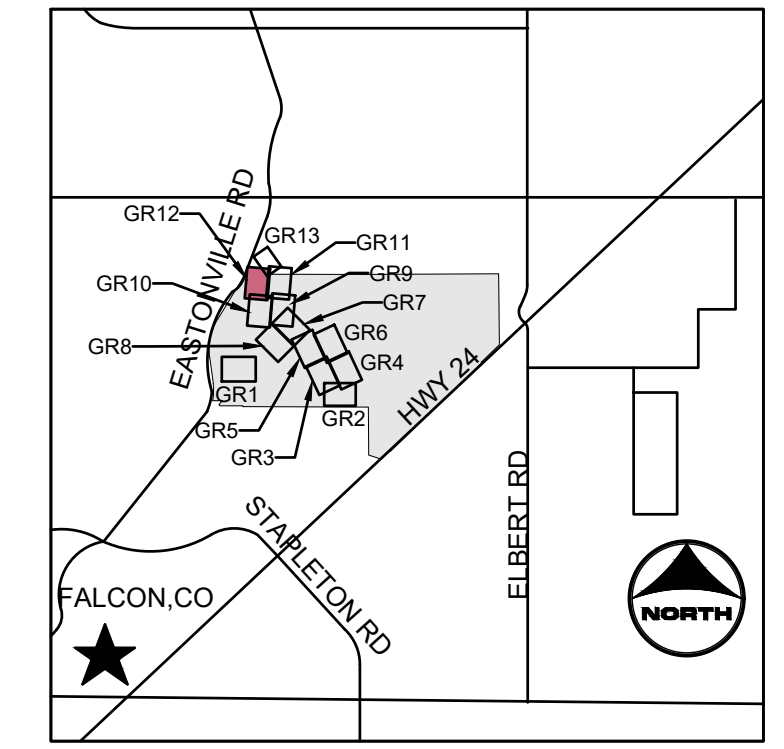
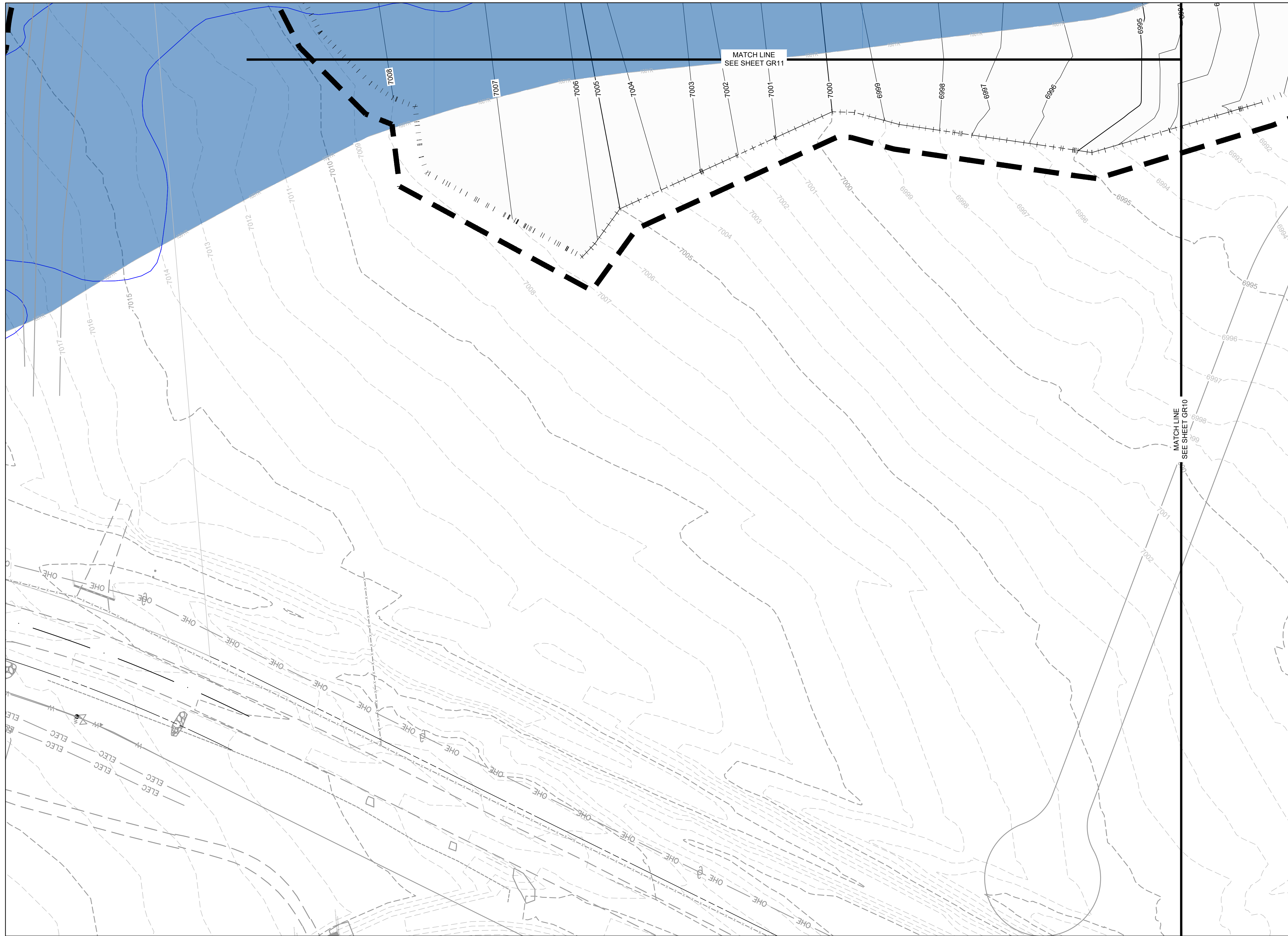
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GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 VALLEY GRADING

SHEET
GR11
 15



KEYMAP

PROJECT LEGEND:

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- - - - - EXISTING GAS LINE
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PROFESSIONAL ENGINEER
 GREGORY L. PARKS
 37081
 2-04-23

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 APPROVED: GLP JOB NUMBER: 201662.03
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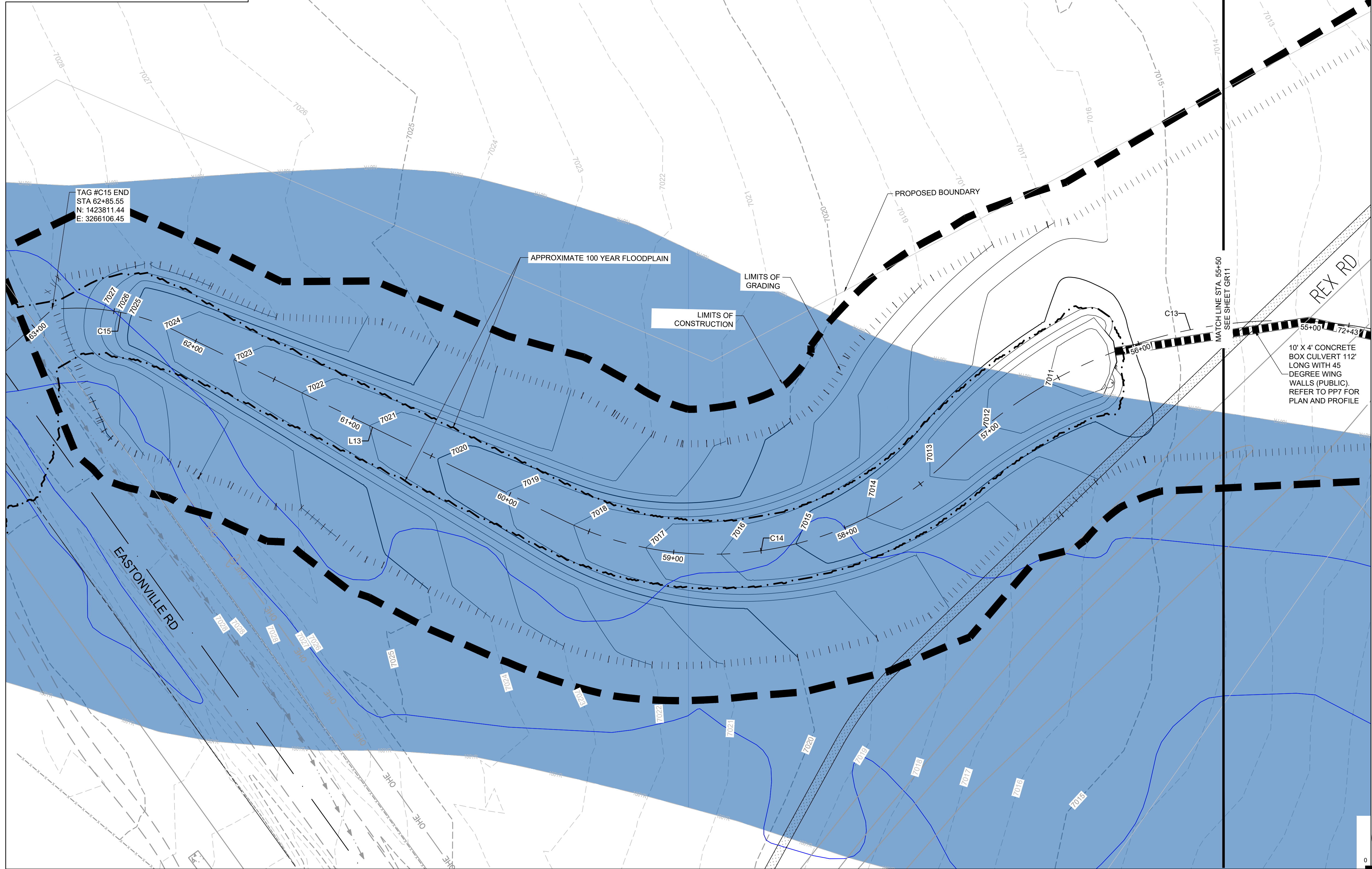
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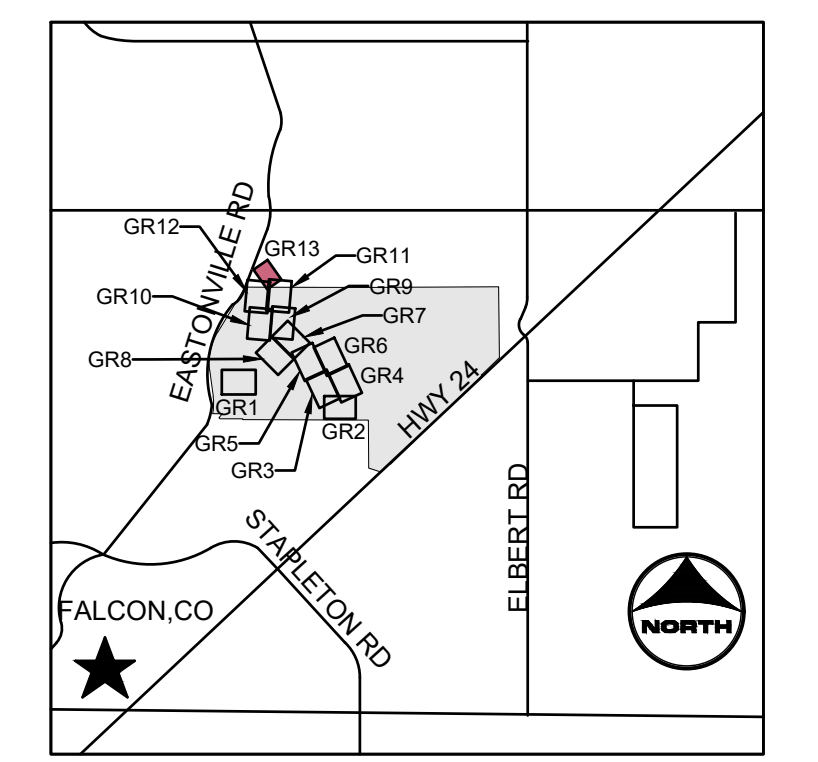
SHEET
GR12
 16

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C13	323.67	270.00	N46° 20' 43.62"W	304.64
C14	237.13	196.60	N43° 13' 44.36"W	223.02
L13	238.25		N8° 58' 38.75"W	
C15	78.95	128.55	N23° 48' 00.33"W	77.72



TAG #C15 END
STA 62+85.55
N: 1423811.44
E: 3266106.45

10' X 4' CONCRETE
BOX CULVERT 112'
LONG WITH 45
DEGREE WING
WALLS (PUBLIC).
REFER TO P97 FOR
PLAN AND PROFILE



KEYMAP

PROJECT LEGEND:

- PROPERTY LINE
- - - EXISTING EASEMENT
- - - EXISTING GAS LINE
- - - EXISTING TELEPHONE LINE
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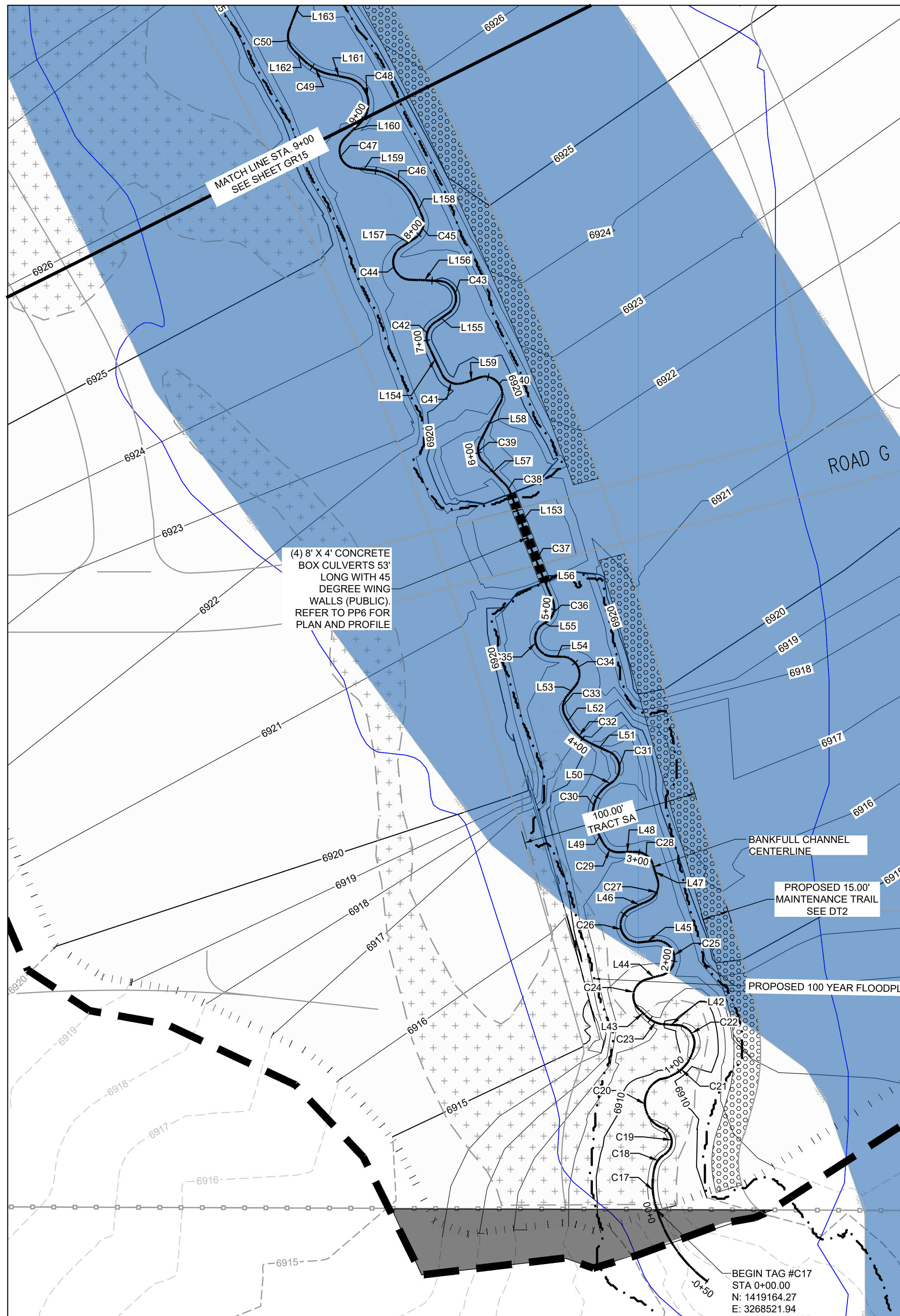
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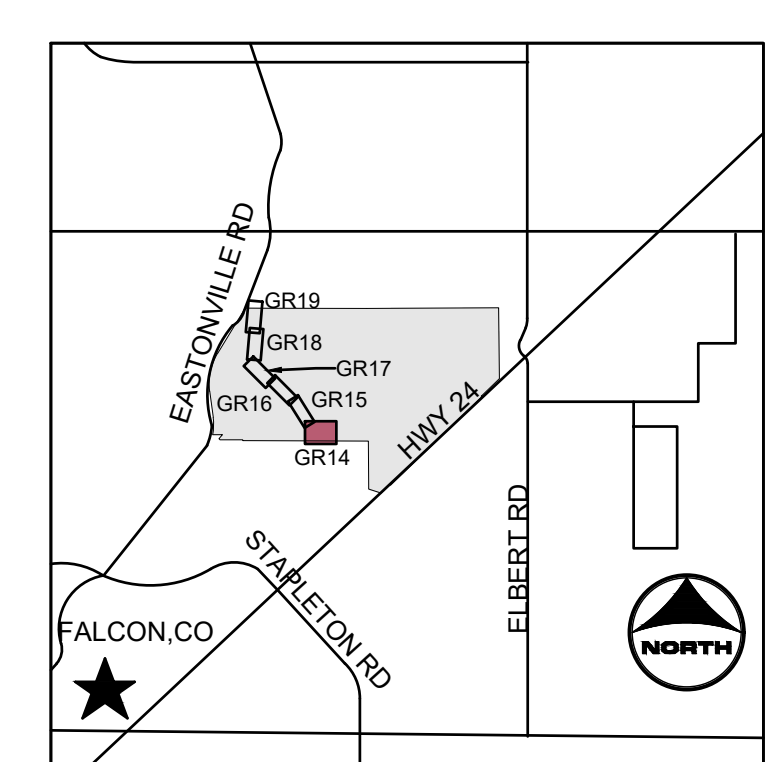
SHEET
GR13
 17



TRIBUTARY 2 UPSTREAM				
LINE # CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C17	23.57	41.88	N4° 01' 38.63"W	23.26
C18	10.83	12.19	N35° 29' 11.94"E	10.47
C19	18.75	8.48	N6° 39' 51.93"W	15.16
C20	34.91	14.90	N2° 05' 18.09"W	27.46
C21	26.77	22.42	N48° 21' 42.40"E	25.21
C22	19.16	10.32	N33° 07' 20.38"W	16.53
L42	7.09		N87° 12' 45.01"W	
C23	11.33	16.00	N66° 56' 06.46"W	11.09
L43	6.19		N46° 39' 27.92"W	
C24	21.24	10.00	N14° 10' 45.83"E	17.46
L44	8.71		N75° 00' 59.59"E	
C25	29.86	10.00	N10° 32' 25.13"W	19.94
L45	8.42		S83° 54' 10.16"W	
C26	28.24	10.00	N15° 11' 40.40"W	19.75
L46	10.54		N65° 42' 26.88"E	
C27	14.48	10.00	N24° 13' 15.71"E	13.25
L47	9.11		N17° 15' 52.57"W	
C28	12.97	10.00	N54° 25' 30.93"W	12.08
L48	9.22		S88° 24' 49.50"W	
C29	11.31	10.00	N59° 11' 40.79"W	10.71
L49	7.94		N26° 48' 09.19"W	
C30	28.58	20.00	N14° 08' 18.80"E	26.21
L50	3.36		N55° 30' 24.81"E	
C31	20.44	10.00	N6° 43' 32.42"W	17.06

TRIBUTARY 2 UPSTREAM				
LINE # CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
L51	11.71		N65° 17' 30.65"W	
C32	15.23	25.00	N47° 50' 29.17"W	14.99
L52	6.03		N30° 23' 28.85"W	
C33	12.18	10.00	N4° 29' 17.20"E	11.44
L53	7.66		N39° 22' 04.79"E	
C34	22.24	10.00	N24° 21' 07.78"W	17.93
L54	5.78		N88° 04' 22.61"W	
C35	26.11	10.00	N13° 16' 10.36"W	19.30
L55	0.40		N61° 32' 01.88"E	
C36	14.77	10.00	N19° 13' 09.98"E	13.46
L56	18.25		N23° 05' 41.91"W	
C37	12.71	127.22	N22° 15' 51.60"W	12.70
L153	33.80		N20° 14' 03.60"W	
C38	6.71	16.01	N32° 13' 50.55"W	6.66
L57	18.86		N44° 13' 37.50"W	
C39	10.73	10.00	N5° 27' 34.38"W	10.22
L58	23.47		N27° 00' 01.64"E	
C40	25.75	10.00	N35° 37' 42.88"W	19.20
L59	9.08		S70° 36' 58.29"W	
C41	14.66	10.00	N67° 23' 27.35"W	13.38
L154	17.98		N25° 23' 53.00"W	
C42	14.06	10.00	N14° 53' 08.47"E	12.93
L155	9.90		N55° 10' 11.87"E	
C43	24.93	10.00	N16° 14' 41.78"W	18.96

TRIBUTARY 2 UPSTREAM				
LINE # CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
L156	16.41		N87° 39' 35.43"W	
C44	25.15	10.00	N15° 36' 39.81"W	19.03
L157	9.84		N56° 26' 15.81"E	
C45	13.48	10.04	N17° 52' 48.61"E	12.49
L158	9.57		N24° 05' 24.39"W	
C46	31.24	30.00	N53° 55' 23.53"W	29.85
L159	9.97		N83° 45' 22.66"W	
C47	22.55	10.00	N19° 10' 07.65"W	18.06
L160	12.49		N45° 25' 07.37"E	



- KEYMAP**
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BAR IS ONE INCH ON OFFICIAL DRAWINGS: 1" = 0'
IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

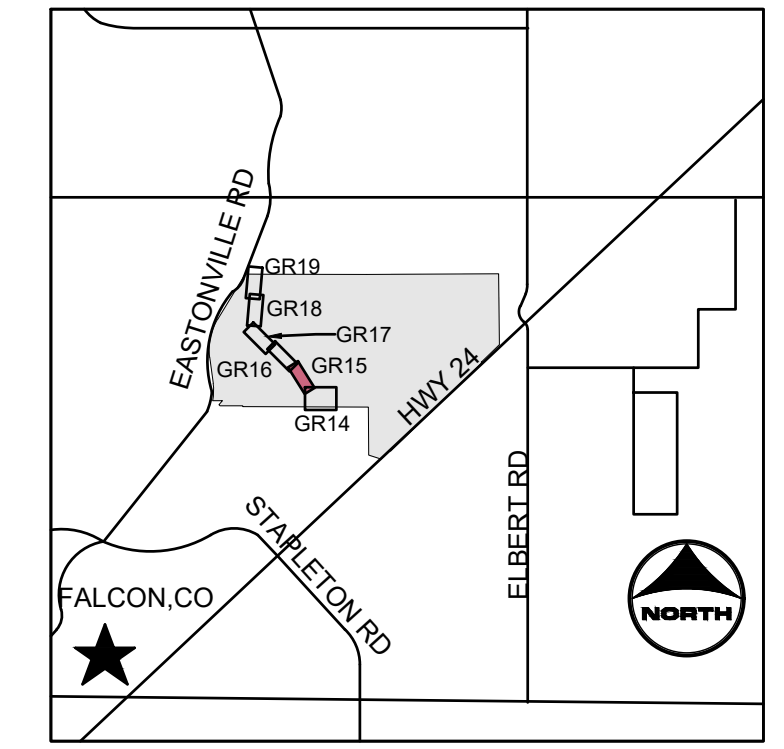
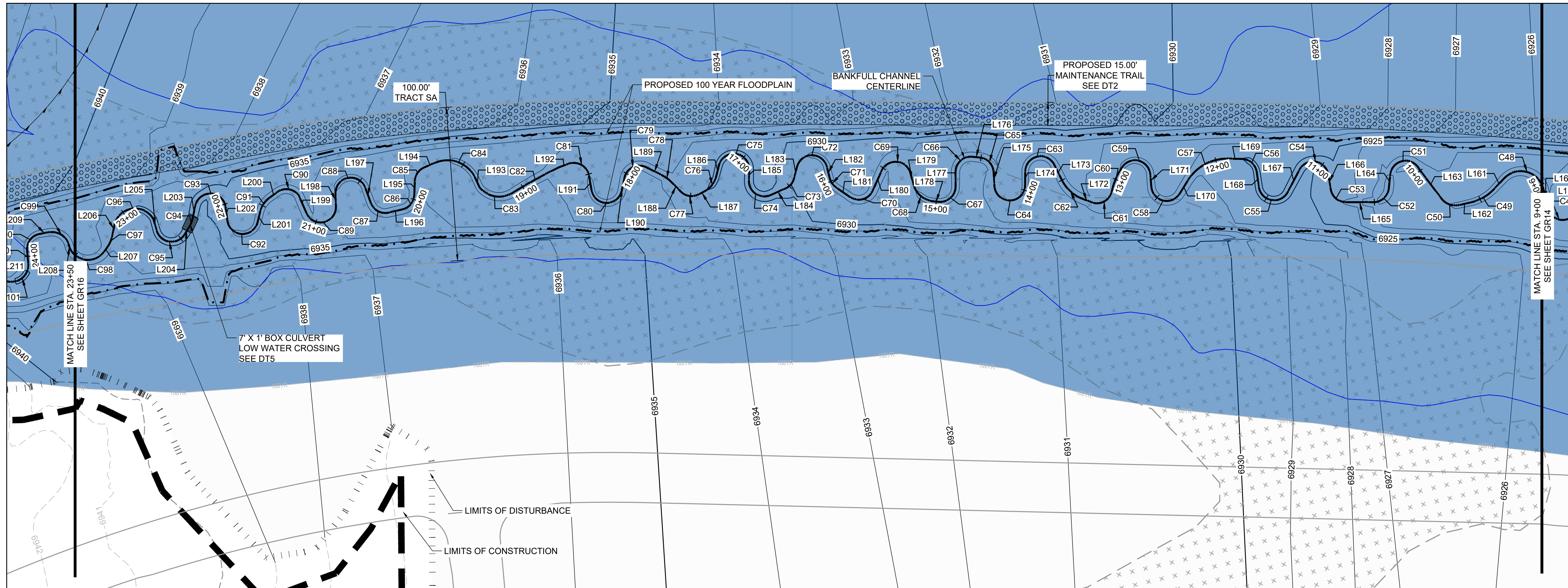
NO.	DATE	BY	REVISION DESCRIPTION

HRGreen
HR GREEN - DENVER
5613 DTC PARKWAY SUITE 950
DENVER CO 80111
PHONE: 720.602.4999
FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
FALCON, COLORADO

CONSTRUCTION DOCUMENTS
TRIBUTARY 2 BANKFULL GRADING

SHEET
GR14
18



- PROJECT LEGEND:**
- PROPERTY LINE
 - - - EXISTING EASEMENT
 - GAS — EXISTING GAS LINE
 - TELE — EXISTING TELEPHONE LINE
 - X - X - X - EXISTING FENCE LINE
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 - - -5250 - - - EXISTING MAJOR CONTOUR
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 - - - PROPOSED 100-YR FLOODPLAIN
 - - - LIMITS OF CONSTRUCTION
 - - - LIMITS OF GRADING
 - EFFECTIVE 100-YR FLOODPLAIN
 - ⊕ EXISTING WETLANDS - JURISDICTIONAL
 - ⊕ EXISTING WETLANDS - NONJURISDICTIONAL
 - ▨ PROPOSED MAINTENANCE TRAIL

- NOTES:**
- BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
 - BENCHMARK:**
 DESIGNATION = F 24, E 24
 PID = JK0240
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
 CONTROL POINT COORDINATE SYSTEM:
 NAVD88
 NORTHING: 1421049.80
 EASTING: 3273631.55
 ELEVATION: 6866.33

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C48	32.47	15.00	N16° 35' 11.15"W	26.49
L161	9.63		N78° 35' 29.66"W	
C49	17.93	30.03	N61° 28' 51.90"W	17.66
L162	7.72		N45° 08' 33.60"W	
C50	12.14	11.45	N12° 23' 23.33"W	11.58
L163	24.26		N20° 44' 23.85"E	
C51	25.94	10.00	N41° 41' 08.35"W	19.26
L164	9.08		S63° 59' 41.07"W	
C52	14.66	10.00	N74° 00' 44.58"W	13.38
L165	17.98		N32° 01' 10.22"W	
C53	14.06	10.00	N8° 15' 52.21"E	12.93
L166	9.90		N48° 32' 54.64"E	
C54	24.93	10.00	N22° 51' 59.01"W	18.96
L167	16.41		S85° 43' 07.34"W	
C55	25.60	10.01	N20° 58' 46.64"W	19.17
L168	9.40		N49° 48' 58.59"E	
C56	14.05	10.00	N9° 33' 07.62"E	12.93
L169	9.00		N30° 42' 41.61"W	
C57	31.24	30.00	N60° 32' 40.75"W	29.85
L170	9.97		S89° 37' 20.11"W	
C58	25.04	10.00	N18° 38' 23.93"W	18.99
L171	8.18		N53° 05' 52.02"E	
C59	23.80	10.00	N15° 05' 43.72"W	18.57
C60	17.26	44.05	S82° 23' 02.94"W	17.15
C61	18.72	9.97	N60° 15' 10.73"W	16.09
L172	5.34		N11° 11' 24.83"W	

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C62	18.75	25.00	N10° 17' 26.40"E	18.31
L173	10.94		N31° 46' 17.62"E	
C63	26.76	10.00	N44° 54' 09.73"W	19.46
L174	8.88		S58° 25' 21.22"W	
C64	30.75	10.00	N33° 28' 35.35"W	19.99
L175	9.16		N54° 37' 28.08"E	
C65	14.05	10.00	N14° 22' 58.06"E	12.92
L176	4.80		N25° 51' 31.97"W	
C66	16.81	10.00	N74° 00' 25.74"W	14.90
L177	9.34		S57° 50' 40.49"W	
C67	16.60	10.00	N74° 36' 36.39"W	14.76
L178	3.40		N27° 03' 52.26"W	
C68	18.39	15.00	N8° 03' 40.93"E	17.26
L179	7.45		N43° 11' 14.13"E	
C69	23.57	10.04	N24° 15' 26.45"W	18.52
L180	14.19		S82° 15' 21.06"W	
C70	18.45	10.00	N50° 24' 21.12"W	15.94
L181	11.04		N2° 27' 10.70"E	
C71	7.18	10.00	N23° 01' 12.87"E	7.03
L182	7.94		N43° 35' 16.53"E	
C72	26.39	10.00	N32° 00' 35.21"W	19.37
L183	7.71		S72° 23' 33.05"W	
C73	9.04	10.00	N81° 42' 25.16"W	8.74
L184	10.63		N55° 48' 23.38"W	
C74	20.13	10.00	N1° 52' 12.20"E	16.90
L185	7.18		N59° 32' 47.79"E	

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C75	29.03	10.00	N23° 37' 09.19"W	19.86
L186	7.51		S71° 48' 37.53"W	
C76	12.50	15.00	N84° 19' 12.15"W	12.14
L187	4.30		N60° 27' 01.83"W	
C77	12.86	10.00	N23° 36' 54.53"W	11.99
L188	9.31		N13° 13' 13.90"E	
C78	6.34	20.00	N4° 08' 23.72"E	6.31
L189	12.01		N4° 56' 26.46"W	
C79	18.36	10.00	N57° 32' 54.89"W	15.89
L190	8.57		S69° 50' 36.68"W	
C80	27.63	10.00	N31° 00' 59.76"W	19.64
L191	9.63		N48° 07' 22.48"E	
C81	17.41	10.00	N1° 44' 26.26"W	15.29
L192	6.55		N51° 36' 15.00"W	
C82	35.39	334.72	N60° 50' 53.22"W	35.38
C83	22.99	16.47	N21° 19' 42.83"W	21.17
L193	6.69		N33° 06' 55.32"E	
C84	30.67	20.00	N10° 49' 14.69"W	27.75
L194	7.94		N54° 45' 24.70"W	
C85	11.31	10.00	N87° 08' 55.36"W	10.71
L195	9.22		S60° 27' 33.99"W	
C86	12.97	10.00	N82° 22' 47.74"W	12.08
L196	9.11		N45° 13' 08.08"W	
C87	14.48	10.00	N3° 43' 57.81"W	13.25
L197	10.54		N37° 45' 11.38"E	
C88	28.24	10.00	N43° 08' 56.99"W	19.75

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
L198	8.42		S55° 56' 54.65"W	
C89	28.61	10.00	N42° 05' 55.64"W	19.80
L199	11.78		N34° 20' 04.33"E	
C90	15.51	10.00	N23° 13' 49.14"W	14.00
L200	6.19		N67° 40' 08.01"W	
C91	11.33	16.00	N87° 56' 47.26"W	11.09
L201	7.09		S71° 46' 34.90"W	
C92	27.69	10.00	N28° 53' 42.24"W	19.65
L202	9.02		N50° 26' 00.63"E	
C93	28.01	10.00	N29° 47' 55.09"W	19.71
L203	8.04		S69° 58' 09.20"W	
C94	6.98	20.00	S79° 57' 45.60"W	6.94
L204	5.17		S89° 57' 22.00"W	
C95	23.02	10.00	N24° 05' 19.37"W	18.26
L205	7.78		N41° 51' 59.26"E	
C96	31.93	13.77	N38° 11' 39.40"W	25.24
L206	7.23		S70° 00' 05.78"W	
C97	9.28	20.00	S80° 05' 30.29"W	9.20
L207	3.27		N86° 36' 32.66"W	
C98	27.37	13.00	N26° 17' 21.36"W	22.59

DRAWN BY: ACH JOB DATE: 6/6/2024
 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:\2020\201662.03\CAD\dwgs\C\IGRADING

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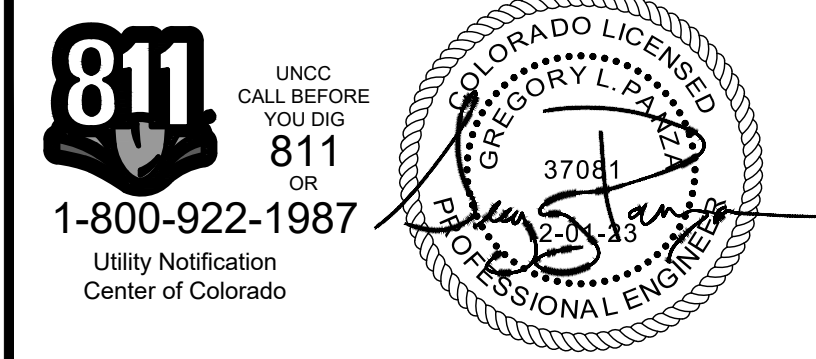
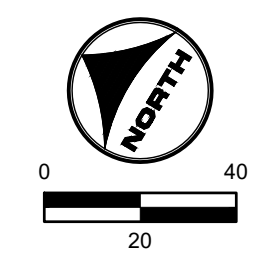
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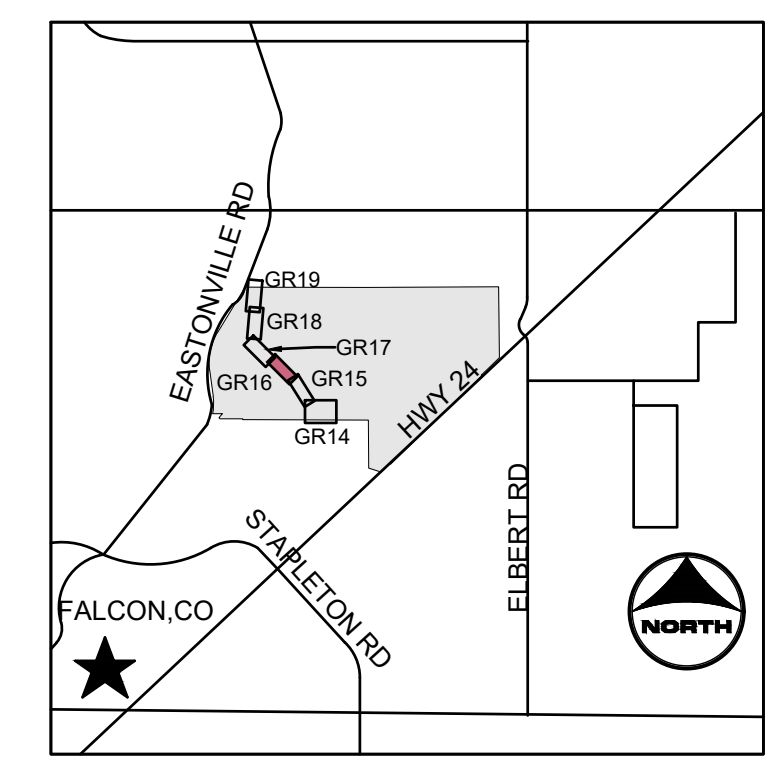
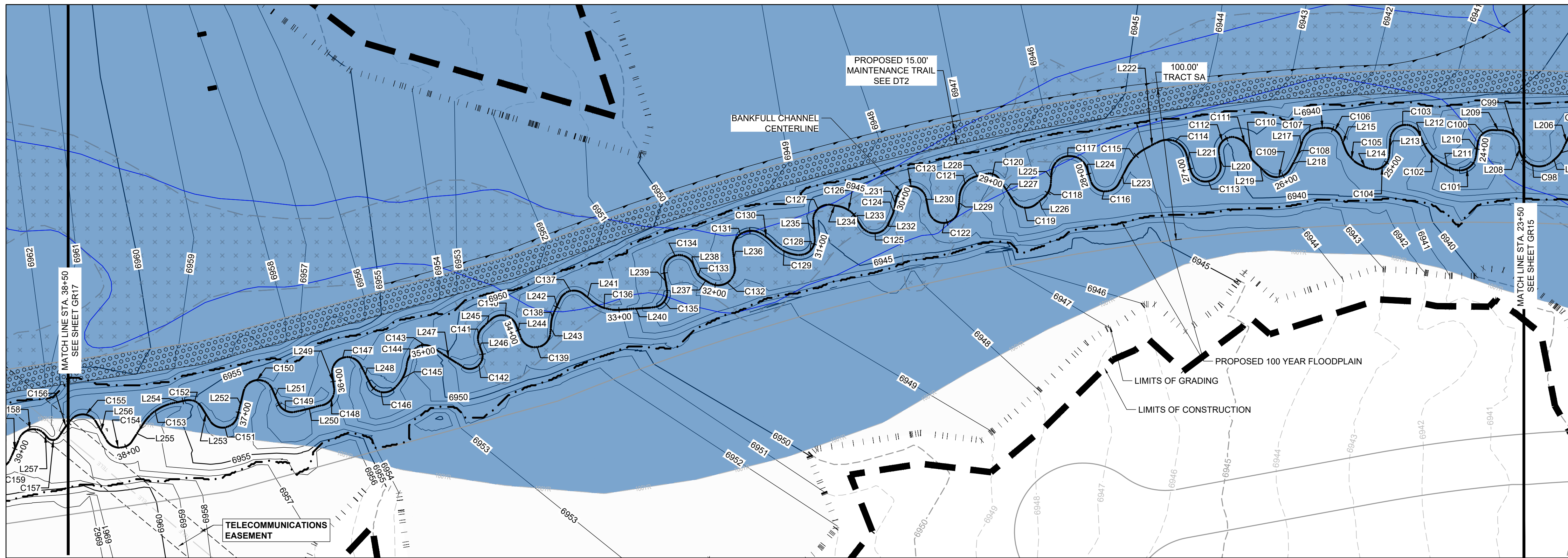
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CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 BANKFULL GRADING

SHEET
GR15
 19



811
 UNCC
 CALL BEFORE YOU DIG
 811
 OR
 1-800-922-1987
 Utility Notification
 Center of Colorado



PROJECT LEGEND:

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LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
L208	1.73		N41° 53' 24.03"E	
C99	17.18	11.42	N1° 13' 02.63"E	15.61
L209	6.08		N41° 50' 45.40"W	
C100	14.93	10.00	N84° 36' 57.43"W	13.58
L210	8.40		S52° 36' 50.54"W	
C101	21.26	11.00	N72° 00' 20.89"W	18.10
L211	6.02		N16° 37' 32.32"W	
C102	19.50	30.00	N1° 59' 34.48"E	19.16
L212	6.39		N20° 36' 40.80"E	
C103	26.57	10.00	N55° 30' 50.85"W	19.42
L213	10.38		S48° 21' 37.51"W	
C104	19.05	10.00	N77° 03' 24.45"W	16.30
L214	4.49		N22° 28' 26.42"W	
C105	16.30	20.00	N0° 52' 04.01"E	15.85
L215	7.35		N24° 12' 34.43"E	
C106	12.68	10.00	N12° 07' 40.58"W	11.85
L216	4.63		N48° 27' 55.60"W	
C107	14.10	12.00	N82° 08' 01.06"W	13.31
L217	7.48		S64° 11' 53.48"W	
C108	5.01	30.06	S68° 58' 34.98"W	5.00
L218	8.03		S73° 31' 44.52"W	
C109	18.41	10.00	N53° 43' 58.80"W	15.92
L219	10.16		N0° 59' 42.13"W	
C110	6.71	8.87	N15° 30' 59.41"E	6.55
C111	15.56	12.49	N1° 33' 53.25"E	14.58
L220	17.28	9.02	S88° 33' 46.47"W	14.76
C112	6.95		S36° 36' 49.17"W	
C113	30.29	10.00	N56° 37' 28.74"W	19.97
L221	10.63		N30° 08' 14.43"E	

LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C114	23.32	13.00	N21° 15' 09.13"W	20.32
L222	8.89		N72° 38' 32.69"W	
C115	18.57	30.00	S89° 37' 21.45"W	18.28
L223	10.97		S71° 53' 15.59"W	
C116	23.85	10.00	N39° 46' 52.01"W	18.59
L224	7.78		N28° 32' 58.51"E	
C117	33.50	12.00	N51° 25' 50.20"W	23.63
L225	6.48		S48° 35' 21.08"W	
C118	11.32	14.00	S71° 45' 22.12"W	11.02
L226	6.19		N85° 04' 36.85"W	
C119	16.12	10.01	N38° 54' 34.31"W	14.43
L227	18.94		N11° 39' 57.18"E	
C120	8.87	7.66	N28° 37' 10.59"W	8.39
L228	5.88		N57° 56' 20.06"W	
C121	19.07	15.00	S85° 38' 25.55"W	17.81
L229	7.91		S49° 13' 09.23"W	
C122	28.76	10.00	N48° 23' 34.94"W	19.82
L230	7.92		N33° 59' 40.88"E	
C123	27.69	10.00	N45° 19' 19.11"W	19.65
L231	6.44		S55° 21' 40.89"W	
C124	5.15	20.00	S62° 44' 22.73"W	5.14
L232	6.17		S70° 07' 03.81"W	
C125	21.42	10.00	N48° 30' 32.07"W	17.56
L233	6.32		N12° 51' 50.87"E	
C126	14.36	17.00	N11° 20' 32.97"W	13.94
L234	4.96		N35° 32' 56.81"W	
C127	18.28	10.00	N87° 55' 40.41"W	15.84
L235	11.09		S39° 41' 37.22"W	
C128	18.49	10.13	N87° 52' 25.26"W	16.03

LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C129	17.56	25.25	N18° 38' 53.36"W	17.21
C130	12.52	34.40	N9° 02' 14.74"W	12.45
C131	24.08	11.98	N80° 39' 48.26"W	20.23
L236	10.86		S38° 07' 07.02"W	
C132	24.70	11.00	N77° 33' 02.36"W	19.83
L237	5.56		N13° 13' 11.74"W	
C133	6.28	10.00	N4° 46' 29.57"E	6.18
L238	4.58		N22° 46' 10.88"E	
C134	29.21	10.00	N60° 55' 11.65"W	19.88
L239	11.08		S35° 23' 25.82"W	
C135	16.69	10.00	S83° 12' 10.72"W	14.82
L240	22.46		N48° 59' 05.72"W	
C136	19.46	25.00	N26° 41' 15.43"W	18.97
L241	6.51		N4° 23' 25.15"W	
C137	18.49	10.00	N57° 22' 01.09"W	15.97
L242	9.62		S69° 39' 22.97"W	
C138	6.95	20.00	S59° 42' 29.37"W	6.91
L243	6.80		S49° 45' 35.79"W	
C139	26.96	10.00	N52° 59' 53.73"W	19.51
L244	8.77		N24° 14' 35.42"E	
C140	19.62	10.00	N31° 58' 39.54"W	16.62
L245	7.77		N88° 11' 54.49"W	
C141	11.68	10.00	S58° 20' 24.97"W	11.03
L246	4.56		S24° 52' 44.43"W	
C142	20.88	8.44	S89° 22' 23.65"W	15.95
L247	24.22		N12° 38' 45.62"W	
C143	11.75	8.95	N44° 25' 39.16"W	10.92
L248	14.21	17.19	S72° 27' 21.39"W	13.81
C145	17.07	24.50	S74° 40' 14.78"W	16.72

LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C146	18.13	10.00	N34° 01' 03.83"W	15.75
L248	13.71		N17° 55' 53.54"E	
C147	28.09	10.00	N62° 32' 31.87"W	19.72
L249	9.08		S36° 59' 02.72"W	
C148	14.66	10.00	S78° 58' 38.11"W	13.38
L250	17.98		N59° 01' 48.57"W	
C149	14.28	10.00	N18° 08' 03.26"W	13.10
L251	9.68		N21° 32' 16.30"E	
C150	24.93	10.00	N49° 52' 37.35"W	18.96
L252	16.41		S58° 42' 29.00"W	
C151	23.51	10.00	N53° 56' 30.21"W	18.46
L253	10.05		N13° 24' 30.57"E	
C152	12.41	10.00	N22° 09' 24.69"W	11.63
L254	9.00		N57° 43' 19.96"W	
C153	24.24	30.00	N80° 52' 06.53"W	23.58
L255	13.93		S77° 44' 49.86"W	
C154	19.03	10.00	N39° 33' 47.95"W	16.29
L256	13.71		N14° 57' 35.33"E	
C155	16.88	10.00	N33° 23' 36.03"W	14.95

NOTES:

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811 UNCC CALL BEFORE YOU DIG
 1-800-922-1987
 Utility Notification Center of Colorado

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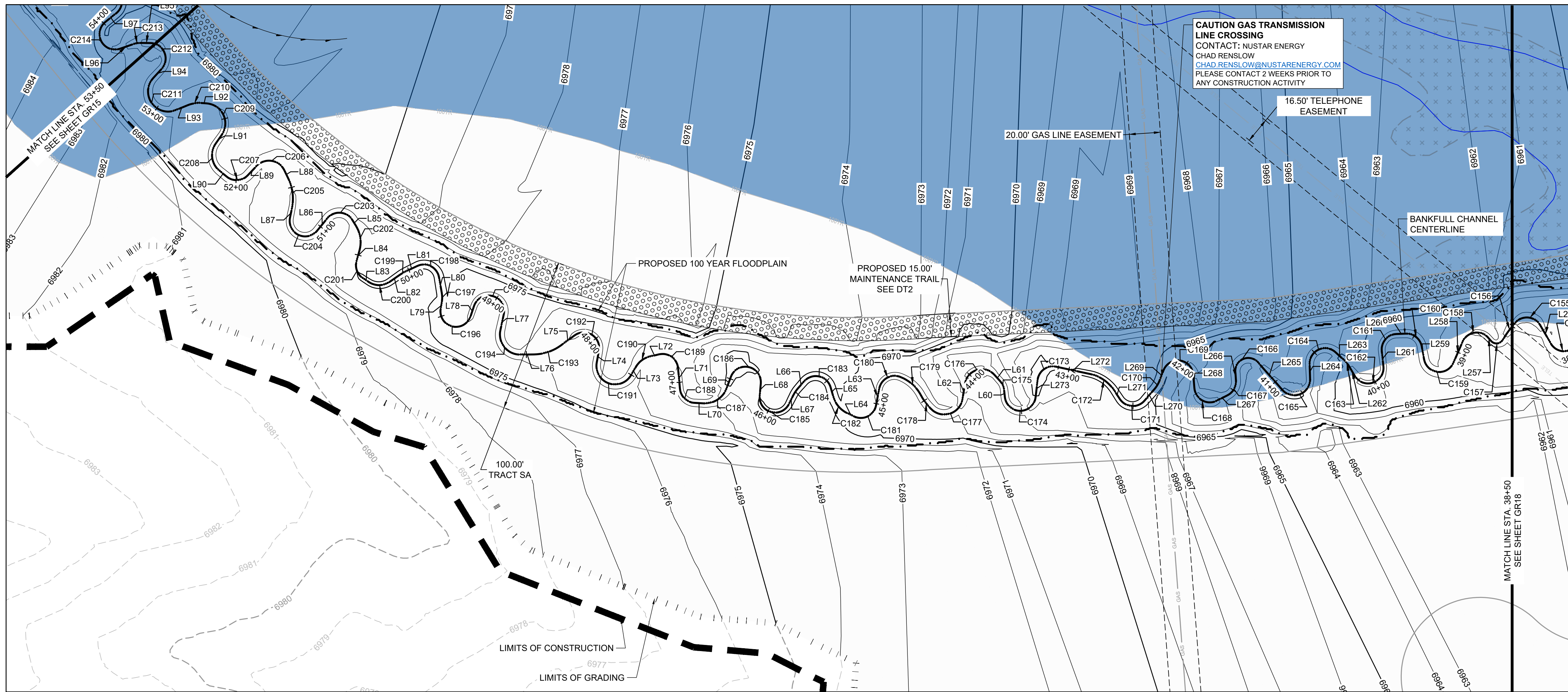
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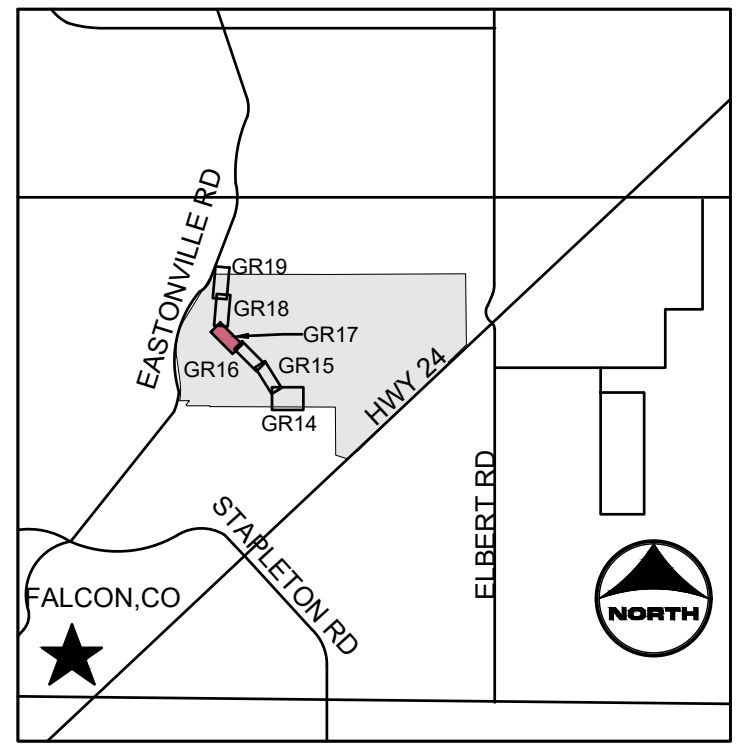
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DR HORTON
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CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 BANKFULL GRADING

SHEET
GR16
 20



CAUTION GAS TRANSMISSION LINE CROSSING
 CONTACT: NUSTAR ENERGY
 CHAD RENSLAW
 CHAD.RENSLOW@NUSTARENERGY.COM
 PLEASE CONTACT 2 WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITY



- KEYMAP**
- PROJECT LEGEND:**
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 - PROPOSED MAINTENANCE TRAIL

TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C156	15.76	60.71	S82° 15' 15.94"W	15.72	L267	7.77		N72° 04' 21.48"W		C180	18.49	10.13	N71° 44' 52.25"W	16.03	C191	33.50	12.00	N24° 33' 51.04"W	23.63	C202	16.30	20.00	N36° 52' 50.66"E	15.85
C157	9.19	4.73	N48° 26' 22.95"W	7.81	L268	19.62	10.00	N15° 51' 06.52"W	16.62	L63	11.09		S55° 49' 10.23"W		L74	7.78		N55° 24' 57.68"E		L85	4.49		N13° 32' 20.24"E	
L257	3.58		N3° 04' 06.31"E		C168	8.77		N40° 22' 08.43"E		C181	18.28	10.00	N71° 48' 07.40"W	15.84	C192	23.85	10.00	N12° 54' 52.85"W	18.59	C203	19.05	10.00	N41° 02' 37.80"W	16.30
C158	19.37	10.00	N58° 30' 53.78"W	16.48	C169	26.96	10.00	N36° 52' 20.72"W	19.51	L64	4.96		N19° 25' 23.80"W		L75	10.97		N81° 14' 45.25"W		L86	10.38		S84° 22' 24.17"W	
L258	14.86		S68° 36' 16.40"W		L269	6.80		S65° 53' 08.80"W		C182	14.36	17.00	N4° 47' 00.04"E	13.94	C193	18.57	30.00	N63° 30' 39.38"W	18.28	C204	26.57	10.00	N19° 30' 04.19"W	19.42
C159	24.92	10.00	N36° 46' 43.51"W	18.95	C170	6.95	20.00	S75° 50' 02.38"W	6.91	L65	6.32		N28° 59' 23.88"E		L76	8.89		N45° 46' 33.52"W		L87	6.39		N56° 37' 27.46"E	
L259	8.54		N34° 36' 24.38"E		L270	9.62		S85° 46' 55.98"W		C183	21.42	10.00	N32° 22' 59.06"W	17.56	C194	23.32	13.00	N5° 36' 50.04"E	20.32	C205	19.50	30.00	N38° 00' 21.14"E	19.16
C160	14.25	10.00	N6° 12' 38.24"W	13.07	C171	18.49	10.00	N41° 14' 28.08"W	15.97	L66	6.17		S86° 14' 36.82"W		L77	10.63		N57° 00' 13.60"E		L88	6.02		N19° 23' 14.34"E	
L260	6.03		N47° 01' 39.20"W		L271	6.51		N11° 44' 07.86"E		C184	5.15	20.00	S78° 51' 55.74"W	5.14	C195	30.29	10.00	N29° 45' 29.57"W	19.97	C206	21.26	11.00	N35° 59' 34.23"W	18.10
C161	16.43	10.00	S85° 53' 35.89"W	14.65	C172	19.46	25.00	N10° 33' 42.42"W	18.97	L67	6.44		S71° 29' 13.91"W		L78	6.95		S63° 28' 48.34"W		L89	8.40		S88° 37' 37.20"W	
L261	9.89		S38° 48' 50.97"W		L272	22.46		N32° 51' 32.70"W		C185	27.69	10.00	N29° 11' 46.10"W	19.65	C196	29.92	10.00	N30° 47' 54.08"W	19.94	C207	14.93	10.00	N48° 36' 10.78"W	13.58
C162	27.21	10.00	N63° 13' 46.48"W	19.56	C173	16.69	10.00	N80° 40' 16.27"W	14.82	L68	7.92		N50° 07' 13.89"E		L79	4.15		N54° 55' 22.26"E		L90	6.08		N5° 49' 58.75"W	
L262	6.59		N14° 43' 35.02"E		L273	11.08		S51° 30' 58.83"W		C186	28.76	10.00	N32° 16' 01.93"W	19.82	C197	6.25	18.00	N44° 58' 12.97"E	6.22	C208	19.45	13.00	N37° 02' 16.06"E	17.69
C163	6.02	20.00	N6° 06' 03.29"E	6.00	C174	29.21	10.00	N44° 47' 38.64"W	19.88	L69	7.91		S65° 20' 42.25"W		L80	10.16		N35° 01' 04.53"E		L91	6.84		N79° 54' 30.86"E	
L263	7.20		N2° 31' 29.50"W		L60	4.58		N38° 53' 43.89"E		C187	19.07	15.00	N78° 14' 01.44"W	17.81	C198	18.41	10.00	N17° 43' 12.15"W	15.92	C209	27.37	13.00	N19° 35' 19.50"E	22.59
C164	23.46	10.00	N69° 43' 47.95"W	18.44	C175	6.28	10.00	N20° 54' 02.58"E	6.18	L70	5.88		N41° 48' 47.05"W		L81	8.03		N70° 27' 28.82"W		L92	3.27		N40° 43' 51.79"W	
L264	9.75		S43° 03' 53.60"W		L61	5.56		N2° 54' 21.27"E		C188	14.23	10.00	N1° 03' 38.55"W	13.06	C199	5.01	30.06	N75° 00' 38.36"W	5.00	C210	9.28	20.00	N54° 01' 48.85"W	9.20
C165	25.51	10.26	N64° 27' 12.24"W	19.43	C176	24.70	11.00	N61° 25' 29.35"W	19.83	L71	13.81		N39° 41' 29.96"E		L82	7.48		N79° 47' 19.86"W		L93	8.27		N67° 19' 45.91"W	
L265	24.22		N3° 28' 47.39"E		L62	10.86		S54° 14' 40.03"W		C189	16.83	10.01	N10° 00' 57.74"W	14.91	C200	14.10	12.00	N46° 07' 14.40"W	13.31	C211	35.19	13.00	N10° 12' 28.14"E	25.39
C166	20.88	8.44	N74° 30' 03.34"W	15.95	C177	24.08	11.98	N64° 32' 15.25"W	20.23	L72	6.19		N58° 12' 37.69"W		L83	4.63		N12° 27' 08.94"W		L94	7.78		N87° 44' 40.12"E	
L266	4.56		S41° 00' 17.45"W		C178	12.52	34.40	N7° 05' 18.27"E	12.45	C190	11.32	14.00	N81° 22' 38.72"W	11.02	C201	12.68	10.00	N23° 53' 06.07"E	11.85	C212	23.02	10.00	N21° 47' 21.49"E	18.26
C167	11.68	10.00	S74° 27' 57.98"W	11.03	C179	17.56	25.25	N2° 31' 20.35"W	17.21	L73	6.48		S75° 27' 20.25"W		L84	7.35		N60° 13' 21.09"E						

NOTES:

- BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
- BENCHMARK: DESIGNATION = F 24, E 24
 PID = JK0240
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
 CONTROL POINT COORDINATE SYSTEM:
 NAVD88
 NORTHING: 1421049.80
 EASTING: 3273631.55
 ELEVATION: 6866.33

811 UNCC CALL BEFORE YOU DIG
 1-800-922-1987
 Utility Notification Center of Colorado

PROFESSIONAL ENGINEER
 37081
 2-01-23

DRAWN BY: ACH JOB DATE: 6/6/2024
 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:\2020\201662.03\CAD\dwg\CIGRADING

BAR IS ONE INCH ON OFFICIAL DRAWINGS.
 IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

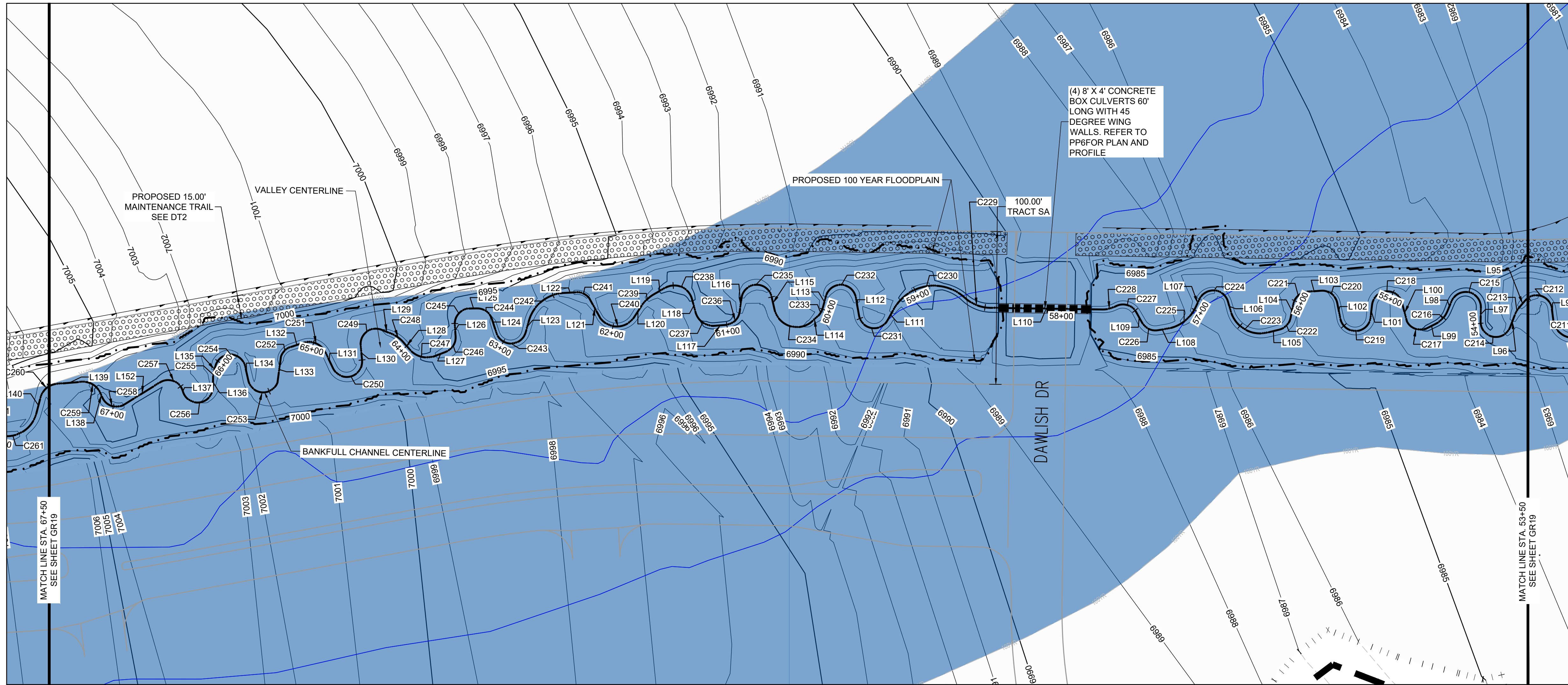
NO.	DATE	BY	REVISION DESCRIPTION

HRGreen HR GREEN - DENVER
 5613 DTC PARKWAY SUITE 950
 DENVER CO 80111
 PHONE: 720.602.4999
 FAX: 713.965.0044

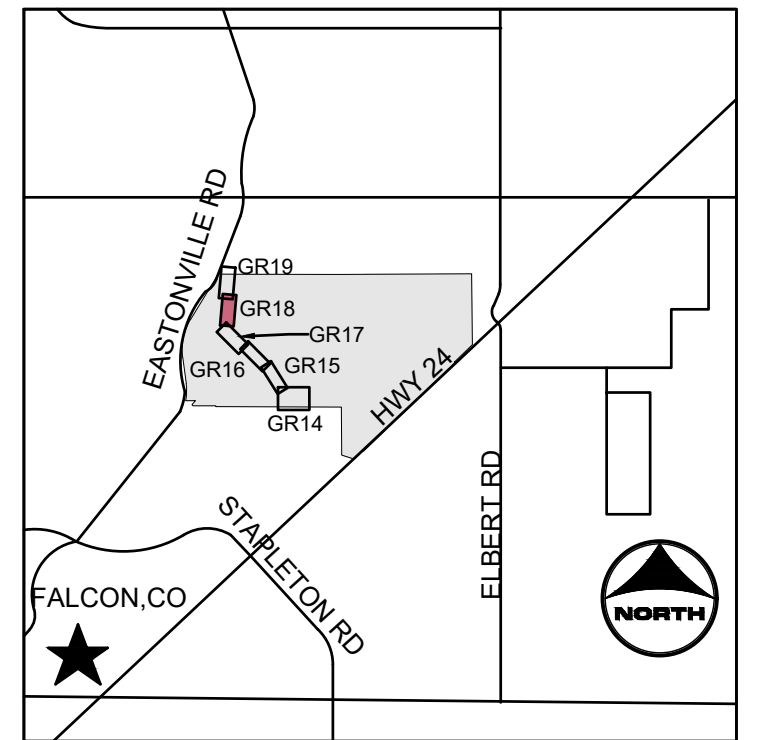
GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 BANKFULL GRADING

SHEET
GR17
 21



(4) 8' X 4' CONCRETE BOX CULVERTS 60' LONG WITH 45 DEGREE WING WALLS. REFER TO PP6 FOR PLAN AND PROFILE



PROJECT LEGEND:

- PROPERTY LINE
- EXISTING EASEMENT
- EXISTING GAS LINE
- EXISTING TELEPHONE LINE
- EXISTING FENCE LINE
- EXISTING SECTION LINE
- EXISTING SWALE
- OHE
- EXISTING OVERHEAD ELECTRIC
- EXISTING TELEPHONE POLE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- FLOW ARROW
- PROPOSED 100-YR FLOODPLAIN
- LIMITS OF CONSTRUCTION
- LIMITS OF GRADING
- EFFECTIVE 100-YR FLOODPLAIN
- EXISTING WETLANDS - JURISDICTIONAL
- EXISTING WETLANDS - NONJURISDICTIONAL
- PROPOSED MAINTENANCE TRAIL

TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM					TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH	LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
L95	5.17		N44° 09' 57.14"W		L106	6.69		N78° 59' 36.19"E		L116	8.98		N77° 32' 29.10"W		L127	7.41		N16° 10' 58.09"W		L152	27.44		N26° 46' 26.58"W	
C213	6.98	20.00	N54° 09' 33.54"W	6.94	C224	24.18	10.00	N9° 42' 54.27"E	18.71	C236	13.59	10.00	N38° 36' 17.81"W	12.57	C247	18.38	15.00	N18° 55' 33.27"E	17.25	C258	16.95	10.00	N21° 46' 36.50"E	14.99
L96	8.04		N64° 09' 09.93"W		L107	5.63		N59° 33' 47.65"W		L117	7.25		N0° 19' 53.48"E		L128	6.36		N54° 02' 04.63"E		L138	3.84		N70° 19' 39.57"E	
C214	28.01	10.00	N16° 04' 45.78"E	19.71	C225	24.74	25.02	N32° 09' 09.97"W	23.74	C237	16.68	12.00	N40° 09' 12.75"E	15.37	C248	9.39	20.00	N40° 35' 03.09"E	9.30	C259	14.65	12.00	N35° 21' 09.72"E	13.76
L97	9.02		S83° 41' 18.51"E		L108	6.03		N3° 48' 42.59"W		L118	8.96		N79° 58' 33.23"E		L129	7.15		N27° 08' 01.54"E		L139	16.46		N0° 22' 41.14"E	
C215	27.69	10.00	N16° 58' 58.63"E	19.65	C226	12.18	10.00	N31° 04' 04.22"E	11.44	C238	21.88	12.00	N27° 44' 22.92"E	18.97	C249	20.51	10.00	N31° 37' 14.85"W	17.10					
L98	7.09		N62° 20' 44.23"W		L109	7.66		N65° 56' 51.04"E		L119	8.16		N24° 29' 46.28"W		L130	9.76		S89° 37' 28.76"W						
C216	11.33	16.00	N42° 04' 06.40"W	11.09	C227	15.54	10.00	N21° 25' 50.86"E	14.02	C239	11.91	25.00	N38° 08' 52.11"W	11.80	C250	27.90	10.00	N10° 27' 09.67"W	19.69					
L99	6.19		N21° 47' 27.14"W		C228	9.09	18.00	N8° 36' 52.18"W	9.00	L120	7.82		N51° 47' 57.21"W		L131	11.50		N69° 28' 12.96"E						
C217	15.51	10.00	N22° 38' 51.73"E	14.00	L110	73.49		N5° 51' 24.97"E		C240	26.65	13.48	N1° 49' 28.09"E	22.51	C251	17.33	12.00	N28° 06' 25.18"E	15.86					
L100	11.78		N80° 12' 45.19"E		C229	18.19	25.00	N26° 42' 11.88"E	17.79	L121	15.08		N66° 02' 17.32"E		L132	8.67		N13° 15' 22.59"W						
C218	28.61	10.00	N3° 46' 45.22"E	19.80	C230	54.03	30.00	N4° 02' 38.02"W	47.02	C241	9.50	10.00	N29° 12' 46.81"E	9.14	C252	9.13	10.00	N39° 24' 31.73"W	8.82					
L101	8.42		N78° 10' 24.49"W		L111	8.57		N55° 38' 14.84"W		L122	8.34		N2° 00' 28.98"E		L133	17.18		N77° 27' 43.71"W						
C219	28.24	10.00	N2° 43' 43.88"E	19.75	C231	24.53	10.00	N14° 38' 23.93"E	18.83	C242	31.18	25.00	N33° 43' 31.88"W	29.20	C253	25.62	10.00	N9° 01' 06.61"E	19.17					
L102	10.54		N83° 37' 52.24"E		L112	12.12		N84° 55' 01.43"E		L123	7.80		N69° 27' 32.74"W		L134	9.39		N82° 24' 48.02"E						
C220	14.48	10.00	N42° 08' 43.05"E	13.25	C232	26.99	10.00	N7° 35' 33.85"E	19.51	C243	25.58	10.00	N3° 49' 59.88"E	19.16	C254	26.62	10.00	N6° 09' 26.70"E	19.43					
L103	9.11		N0° 39' 32.79"E		L113	8.04		N69° 43' 52.36"W		L124	9.62		N77° 07' 32.51"E		L135	4.72		N70° 05' 54.62"W						
C221	12.97	10.00	N36° 30' 06.87"W	12.08	C233	6.99	12.00	N53° 02' 49.83"W	6.89	C244	12.73	10.00	N40° 39' 52.64"E	11.89	C255	2.40	10.00	N76° 59' 14.73"W	2.40					
L104	9.22		N73° 39' 45.15"W		L114	4.55		N36° 21' 48.50"W		L125	4.77		N4° 12' 10.94"E		L136	7.28		N83° 52' 34.84"W						
C222	11.31	10.00	N41° 16' 14.49"W	10.71	C234	31.01	15.00	N22° 51' 23.94"E	25.77	C245	16.25	10.00	N42° 20' 24.85"W	14.52	C256	28.51	10.00	N2° 12' 50.31"W	19.79					
L105	7.94		N8° 52' 43.84"W		L115	8.57		N82° 04' 36.38"E		L126	7.68		N88° 53' 00.63"W		L137	0.10		N79° 26' 54.22"E						
C223	30.67	20.00	N35° 03' 26.18"E	27.75	C235	27.86	10.00	N2° 16' 03.64"E	19.68	C246	12.69	10.00	N52° 31' 59.36"W	11.85	C257	18.54	10.00	N26° 20' 13.82"E	16.00					

NOTES:

- BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
- BENCHMARK: DESIGNATION = F 24, E 24
PID = JK0240
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
CONTROL POINT COORDINATE SYSTEM: NAVD88
NORTHING: 1421049.80
EASTING: 3273631.55
ELEVATION: 6866.33

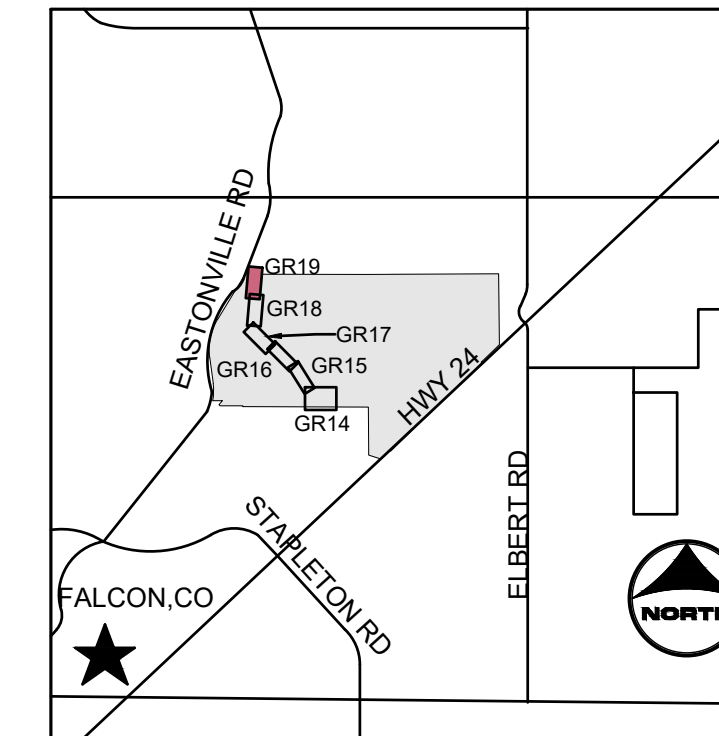
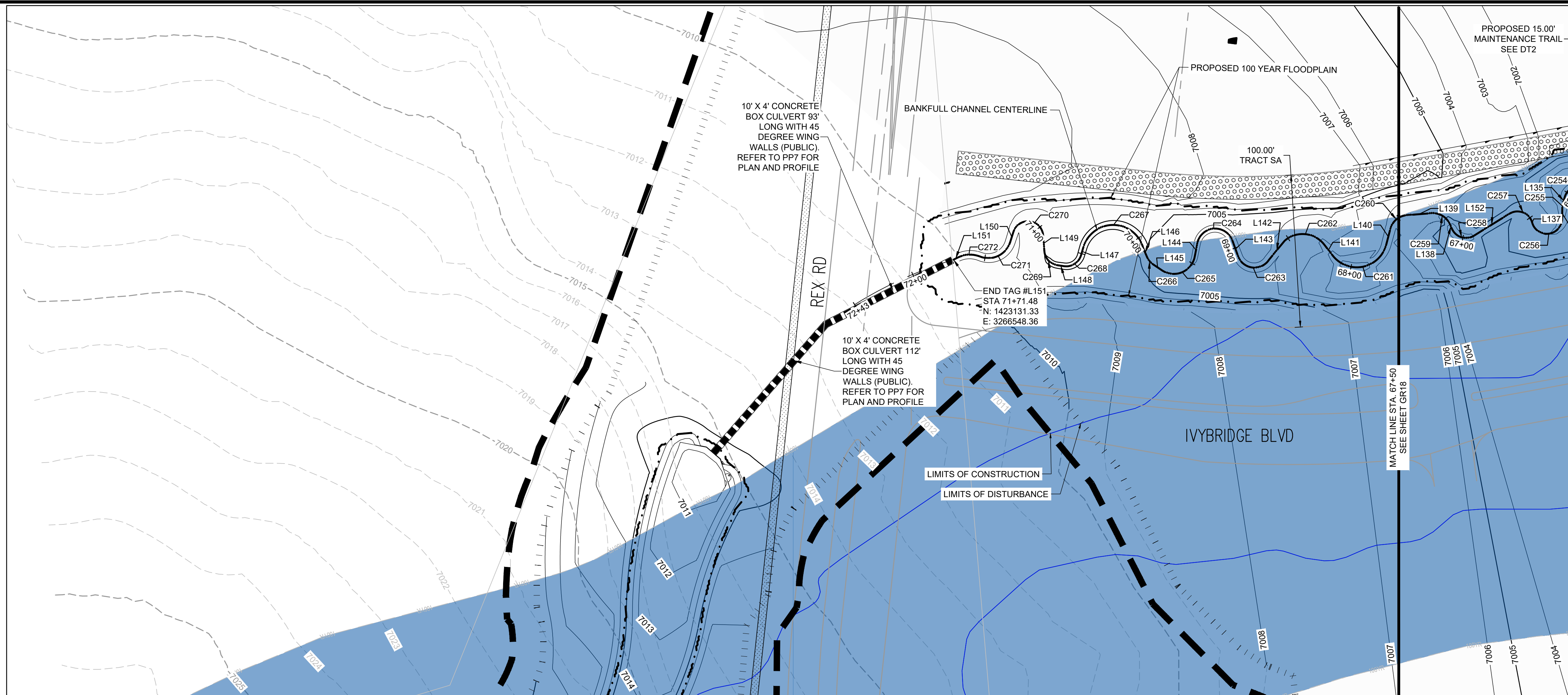
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 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:\2020\201662.03\CAD\DWG\C\IGRADING

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen
 HR GREEN - DENVER
 5613 DTC PARKWAY SUITE 950
 DENVER CO 80111
 PHONE: 720.602.4999
 FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 BANKFULL GRADING
 SHEET GR18 22



KEYMAP

PROJECT LEGEND:

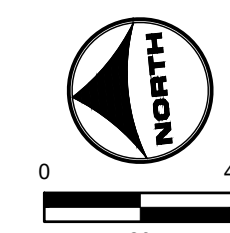
- PROPERTY LINE
- - - EXISTING EASEMENT
- GAS — EXISTING GAS LINE
- TELE — EXISTING TELEPHONE LINE
- X - X - X - EXISTING FENCE LINE
- - - EXISTING SECTION LINE
- SWALE — EXISTING SWALE
- OHE — EXISTING OVERHEAD ELECTRIC
- TELE POLE — EXISTING TELEPHONE POLE
- - -5250 - - - EXISTING MAJOR CONTOUR
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- - - PROPOSED 100-YR FLOODPLAIN
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- + + + EXISTING WETLANDS - JURISDICTIONAL
- + + + EXISTING WETLANDS - NONJURISDICTIONAL
- ○ ○ PROPOSED MAINTENANCE TRAIL

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
C260	14.80	12.00	N34° 56' 39.85"W	13.88
L140	10.77		N70° 15' 59.85"W	
C261	44.55	20.00	N6° 27' 33.85"W	35.89
L141	8.98		N57° 20' 52.15"E	
C262	29.24	18.00	N10° 48' 15.97"E	26.13
L142	16.23		N45° 31' 56.12"W	
C263	24.34	11.44	N9° 01' 06.38"E	20.00
L143	11.94		N74° 50' 42.15"E	
C264	31.22	12.00	N0° 18' 44.36"E	23.13
L144	8.82		N74° 13' 13.43"W	
C265	27.28	14.00	N18° 24' 07.71"W	23.16
L145	7.63		N38° 57' 54.40"E	
C266	5.69	10.00	N55° 15' 07.16"E	5.61
L146	6.73		N71° 32' 18.85"E	
C267	53.21	20.40	N5° 38' 58.70"E	39.35
L147	5.41		N68° 39' 59.99"W	
C268	14.28	10.00	N27° 44' 59.82"W	13.10
L148	4.50		N13° 10' 00.36"E	
C269	13.50	10.00	N51° 50' 51.43"E	12.50
L149	10.57		S89° 28' 17.51"E	
C270	27.53	10.00	N11° 39' 24.20"E	19.62

TRIBUTARY 2 UPSTREAM				
LINE #/ CURVE#	LENGTH	RADIUS	LNE/CHORD DIRECTION	CHORD LENGTH
L150	7.19		N67° 12' 54.10"W	
C271	24.50	15.00	N20° 25' 45.98"W	21.86
C272	14.98	18.00	N2° 31' 05.79"E	14.55
L151	3.20		N21° 19' 11.62"W	

NOTES:

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811 OR
1-800-922-1987
Utility Notification
Center of Colorado

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OFFICIAL DRAWINGS.
0" = 1"
IF NOT ONE INCH,
ADJUST SCALE ACCORDINGLY.

NO.	DATE	BY	REVISION DESCRIPTION



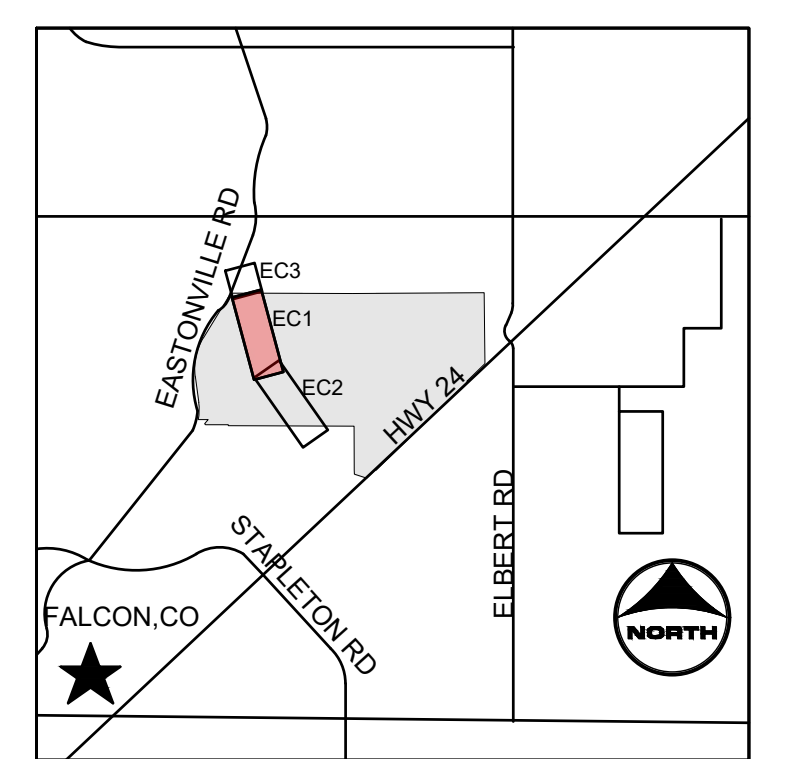
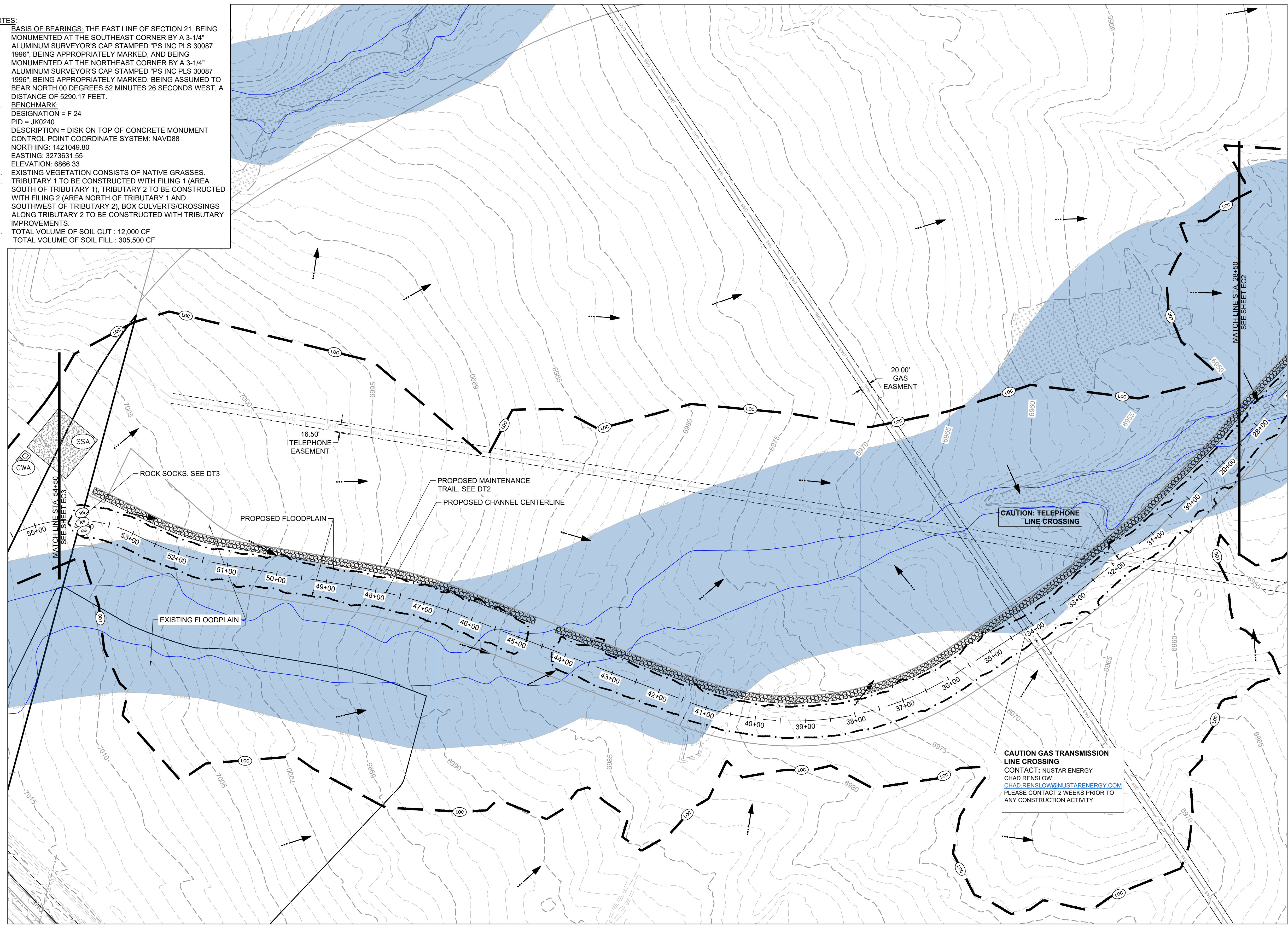
HR GREEN - DENVER
5613 DTC PARKWAY SUITE 950
DENVER CO 80111
PHONE: 720.602.4999
FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
FALCON, COLORADO

CONSTRUCTION DOCUMENTS
TRIBUTARY 2 BANKFULL GRADING

SHEET
GR19 23

- NOTES:**
1. BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
 2. BENCHMARK:
DESIGNATION = F 24
PID = JK0240
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
CONTROL POINT COORDINATE SYSTEM: NAVD88
NORTHING: 1421049.80
EASTING: 3273631.55
ELEVATION: 6866.33
 3. EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.
 4. TRIBUTARY 1 TO BE CONSTRUCTED WITH FILING 1 (AREA SOUTH OF TRIBUTARY 1), TRIBUTARY 2 TO BE CONSTRUCTED WITH FILING 2 (AREA NORTH OF TRIBUTARY 1 AND SOUTHWEST OF TRIBUTARY 2), BOX CULVERTS/CROSSINGS ALONG TRIBUTARY 2 TO BE CONSTRUCTED WITH TRIBUTARY IMPROVEMENTS.
 5. TOTAL VOLUME OF SOIL CUT : 12,000 CF
TOTAL VOLUME OF SOIL FILL : 305,500 CF



- PROJECT LEGEND:**
- PROPERTY LINE
 - EXISTING EASEMENT
 - GAS EXISTING GAS LINE
 - FREE EXISTING TELEPHONE LINE
 - X-X-X- EXISTING FENCE LINE
 - EXISTING SECTION LINE
 - EXISTING SWALE
 - OHE EXISTING OVERHEAD ELECTRIC
 - EXISTING TELEPHONE POLE
 - 5250- EXISTING MAJOR CONTOUR
 - 5250- EXISTING MINOR CONTOUR
 - 5250- PROPOSED MAJOR CONTOUR
 - 5250- PROPOSED MINOR CONTOUR
 - FLOW ARROW
 - PROPOSED 100-YR FLOODPLAIN
 - EXISTING 100-YR FLOODPLAIN
 - EXISTING WETLANDS - JURISDICTIONAL
 - EXISTING WETLANDS - NONJURISDICTIONAL
 - PROPOSED MAINTENANCE TRAIL

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
 - SF SILT FENCE
 - VTC VEHICLE TRACKING CONTROL
 - SSA STABILIZED STAGING AREA
 - LOC LIMITS OF CONSTRUCTION /DISTURBANCE
 - CD CHECK DAM
 - RS ROCK SOCK

CAUTION GAS TRANSMISSION LINE CROSSING
CONTACT: NUSTAR ENERGY
CHAD RENSLAW
CHAD.RENSLOW@NUSTARENERGY.COM
PLEASE CONTACT 2 WEEKS PRIOR TO ANY CONSTRUCTION ACTIVITY

811 UNCC CALL BEFORE YOU DIG
811 OR 1-800-922-1987
Utility Notification Center of Colorado

PROFESSIONAL ENGINEER
GREGORY L. PACE
37081

DRAWN BY: ACH JOB DATE: 5/20/2024 BAR IS ONE INCH ON OFFICIAL DRAWINGS.
APPROVED: GLP JOB NUMBER: 201662.03
CAD DATE: 7/11/2024 IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
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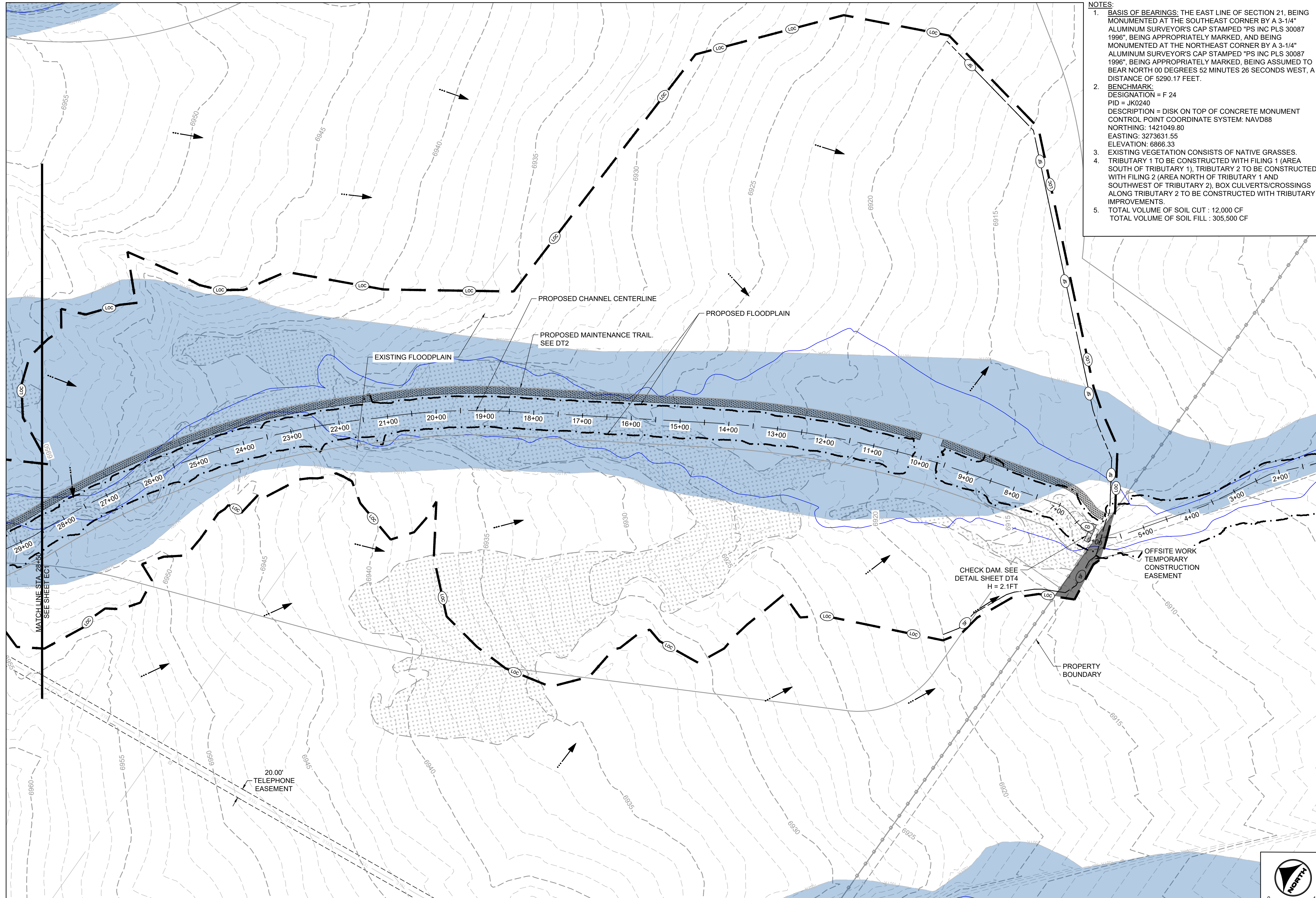
NO.	DATE	BY	REVISION DESCRIPTION

HRGreen
HR GREEN - DENVER
5613 DTC PARKWAY SUITE 950
DENVER CO 80111
PHONE: 720.602.4999
FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
FALCON, COLORADO

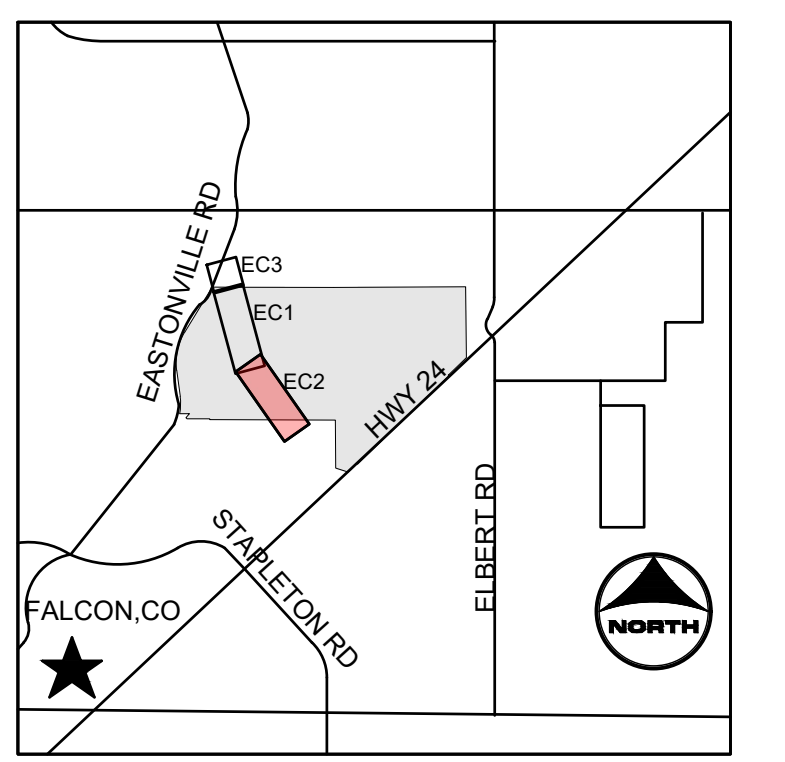
CONSTRUCTION DOCUMENTS
INITIAL EROSION CONTROL

SHEET
EC1
24



NOTES:

- BASIS OF BEARINGS:** THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
- BENCHMARK:**
DESIGNATION = F 24
PID = JK0240
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
CONTROL POINT COORDINATE SYSTEM: NAVD88
NORTHING: 1421049.80
EASTING: 3273631.55
ELEVATION: 6866.33
- EXISTING VEGETATION CONSISTS OF NATIVE GRASSES.
- TRIBUTARY 1 TO BE CONSTRUCTED WITH FILING 1 (AREA SOUTH OF TRIBUTARY 1), TRIBUTARY 2 TO BE CONSTRUCTED WITH FILING 2 (AREA NORTH OF TRIBUTARY 1 AND SOUTHWEST OF TRIBUTARY 2), BOX CULVERTS/CROSSINGS ALONG TRIBUTARY 2 TO BE CONSTRUCTED WITH TRIBUTARY IMPROVEMENTS.
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TOTAL VOLUME OF SOIL FILL : 305,500 CF



- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
 - - - EXISTING EASEMENT
 - GAS — EXISTING GAS LINE
 - TELE — EXISTING TELEPHONE LINE
 - X - X - X - EXISTING FENCE LINE
 - - - EXISTING SECTION LINE
 - SWALE — EXISTING SWALE
 - OHE — EXISTING OVERHEAD ELECTRIC
 - TELE POLE — EXISTING TELEPHONE POLE
 - 5250 — EXISTING MAJOR CONTOUR
 - 5250 — EXISTING MINOR CONTOUR
 - 5250 — PROPOSED MAJOR CONTOUR
 - 5250 — PROPOSED MINOR CONTOUR
 - FLOW ARROW — FLOW ARROW
 - - - PROPOSED 100-YR FLOODPLAIN
 - EXISTING 100-YR FLOODPLAIN
 - EXISTING WETLANDS - JURISDICTIONAL
 - EXISTING WETLANDS - NONJURISDICTIONAL
 - PROPOSED MAINTENANCE TRAIL

- BMP LEGEND:**
- CWA CONCRETE WASHOUT AREA
 - SF SILT FENCE
 - VTC VEHICLE TRACKING CONTROL
 - SSA STABILIZED STAGING AREA
 - LOC LIMITS OF CONSTRUCTION /DISTURBANCE
 - CD CHECK DAM
 - RS ROCK SOCK

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811 OR 1-800-922-1987
Utility Notification Center of Colorado

PROFESSIONAL ENGINEER
GREGORY L. PARKS
37081
7-25-22

HR GREEN Xref: xg: c-dh01; INITIAL EROSION CONTROL KEY; 01-XC-PR_100YR_PP_DELIMITATION; xc-channel; xv-digri; b62; xv-ufil; b62; xv-row; b62; initial erosion NOTES

DRAWN BY: ACH	JOB DATE: 5/20/2024	BAR IS ONE INCH ON OFFICIAL DRAWINGS:
APPROVED: GLP	JOB NUMBER: 201662.03	0" = 1"
CAD DATE: 7/11/2024		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD FILE: J:\2020\201662.03\CAD\DWG\IC\INITIAL EROSION CONTROL		

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen
HR GREEN - DENVER
5613 DTC PARKWAY SUITE 950
DENVER CO 80111
PHONE: 720.602.4999
FAX: 713.965.0044

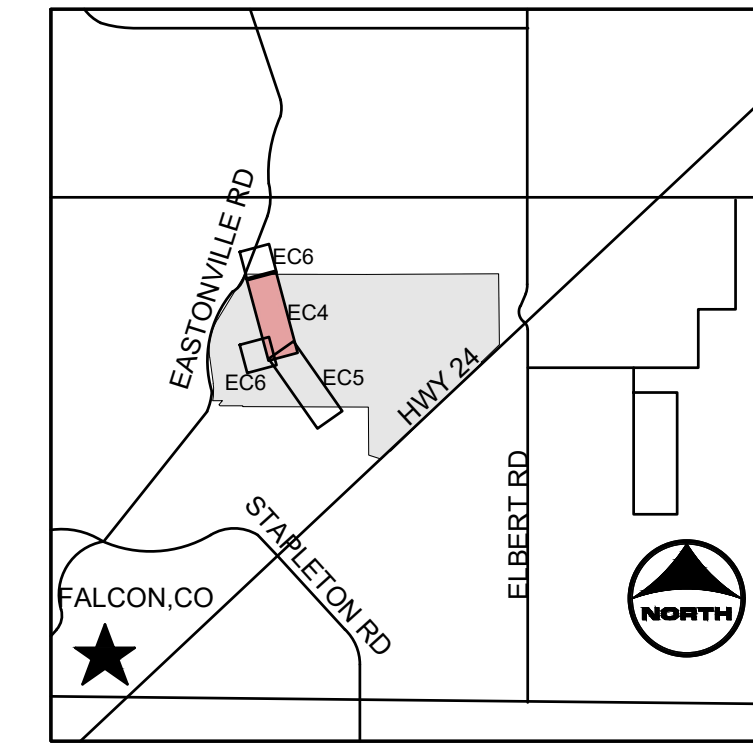
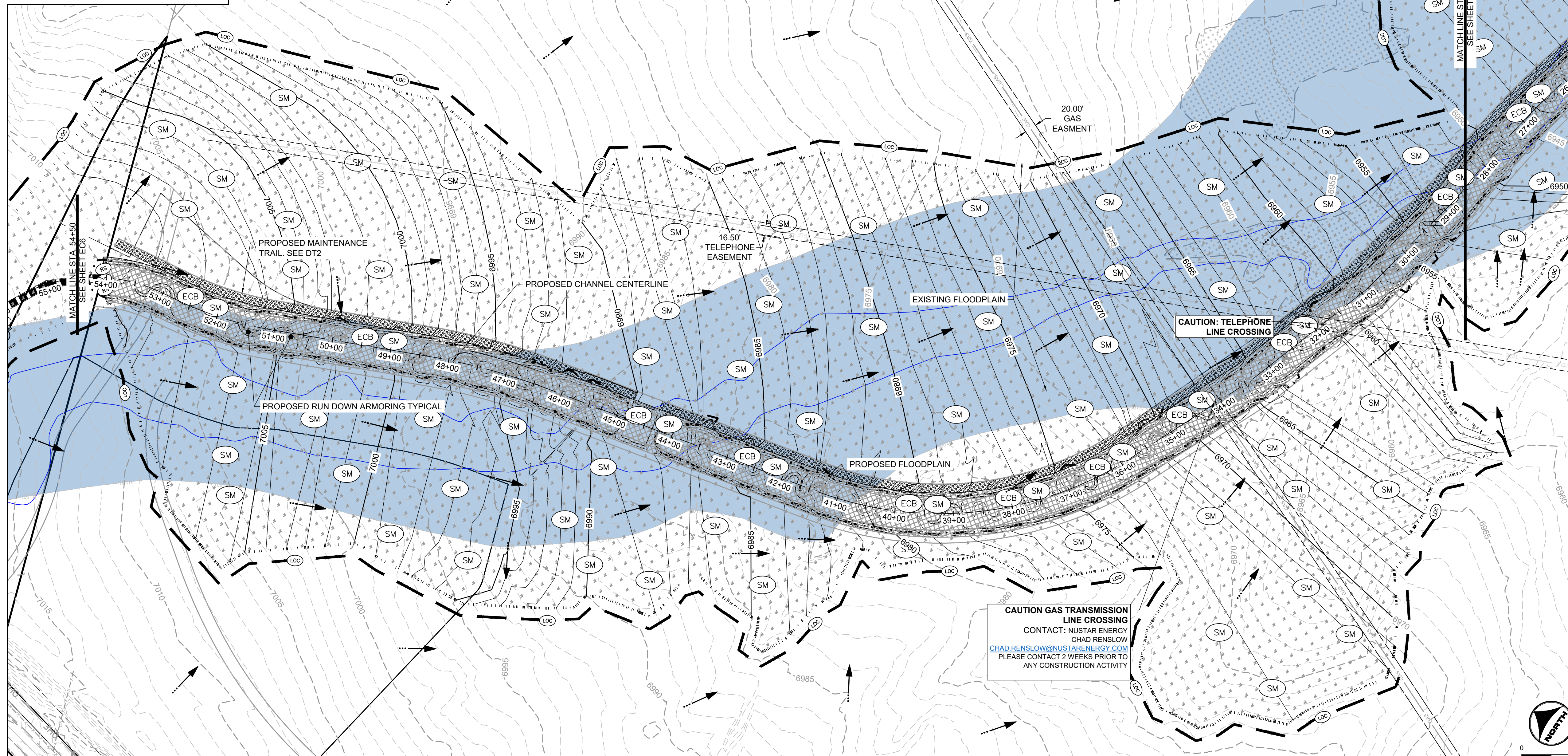
GRANDVIEW RESERVE
DR HORTON
FALCON, COLORADO

CONSTRUCTION DOCUMENTS
INITIAL EROSION CONTROL

SHEET
EC2
25

NOTES:

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2. BENCHMARK:
 DESIGNATION = F 24, E 24
 PID = JK0240
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
 CONTROL POINT COORDINATE SYSTEM:
 NAVD88
 NORTING: 1421049.80
 EASTING: 3273631.55
 ELEVATION: 6866.33
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- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
 - - - EXISTING EASEMENT
 - EXISTING GAS LINE
 - EXISTING TELEPHONE LINE
 - X - X - X - EXISTING FENCE LINE
 - - - EXISTING SECTION LINE
 - EXISTING SWALE
 - OHE EXISTING OVERHEAD ELECTRIC
 - EXISTING TELEPHONE POLE
 - - -5250 EXISTING MAJOR CONTOUR
 - - -5250 EXISTING MINOR CONTOUR
 - - -5250 PROPOSED MAJOR CONTOUR
 - - -5250 PROPOSED MINOR CONTOUR
 - FLOW ARROW
 - - - PROPOSED 100-YR FLOODPLAIN
 - EXISTING 100-YR FLOODPLAIN
 - EXISTING WETLANDS - JURISDICTIONAL
 - EXISTING WETLANDS - NONJURISDICTIONAL
 - PROPOSED MAINTENANCE TRAIL

- BMP LEGEND:**
- LOC LIMITS OF CONSTRUCTION
 - SM SEEDING AND MULCHING
 - ECB EROSION CONTROL MATERIAL (BLANKET OR FABRIC)
 - ECF EROSION CONTROL MATERIAL (BLANKET OR FABRIC)
 - RS ROCK SOCK

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 811 OR 1-800-922-1987
 Utility Notification Center of Colorado

PROFESSIONAL ENGINEER
 GREGORY L. PARKS
 37081
 17-26-22

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 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:\2020\201662.03\CAD\dwgs\C\FINAL EROSION CONTROL

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NO.	DATE	BY	REVISION DESCRIPTION

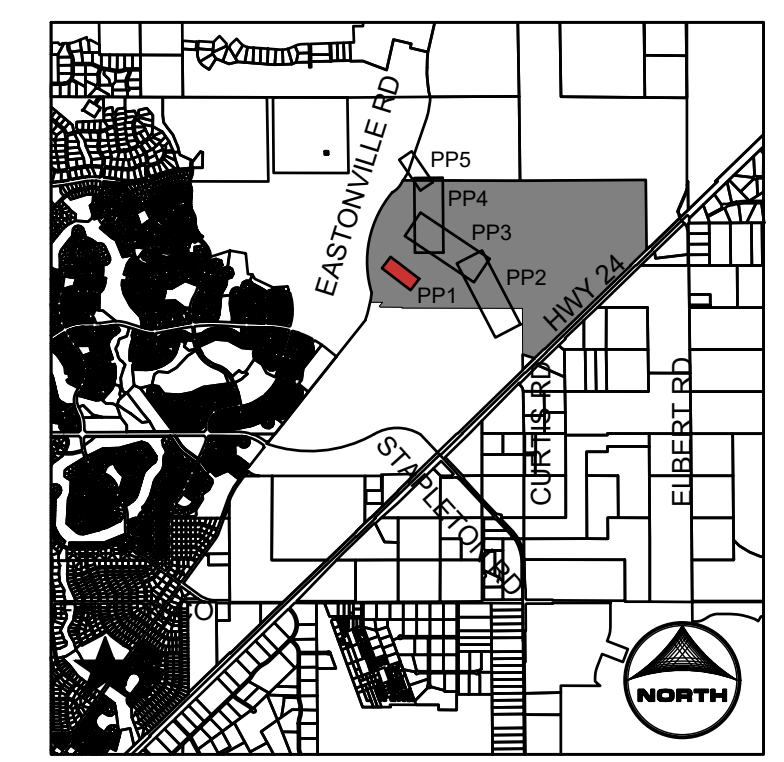
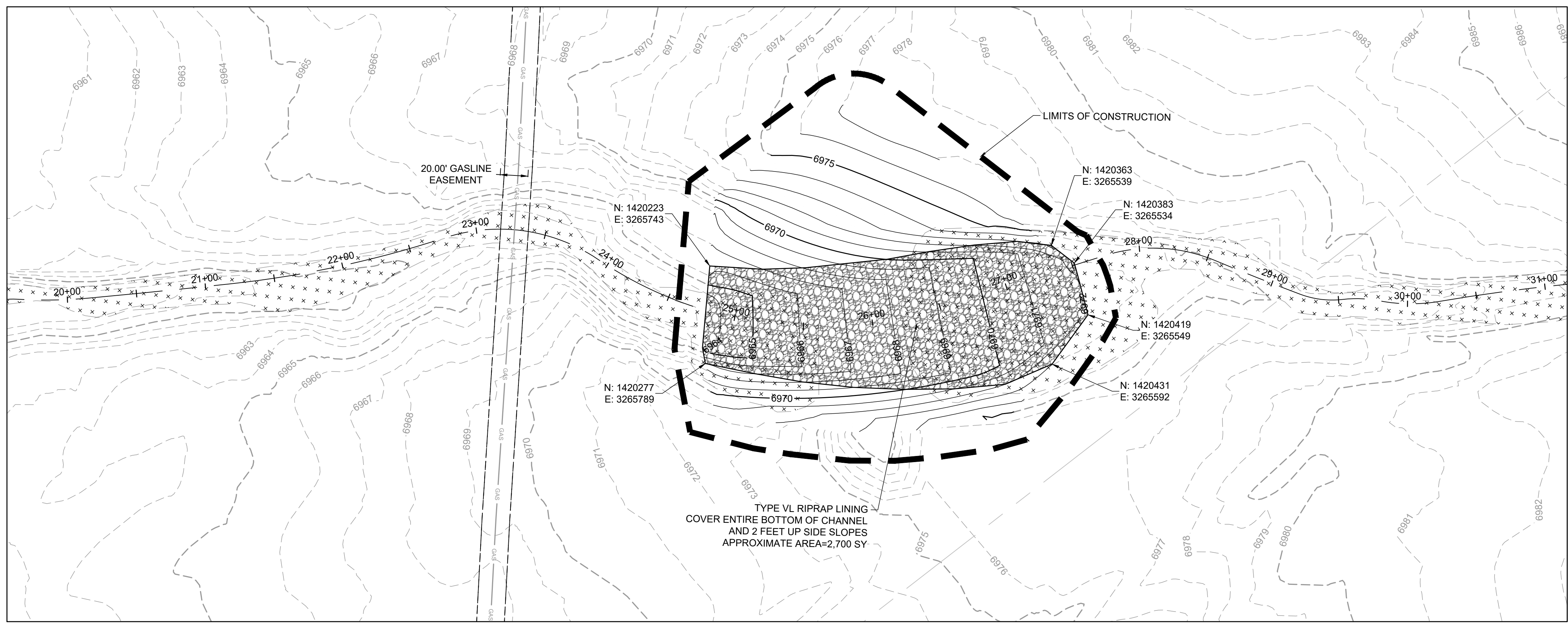
HRGreen
 HR GREEN - DENVER
 5613 DTC PARKWAY SUITE 950
 DENVER CO 80111
 PHONE: 720.602.4999
 FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
 FALCON, COLORADO

CONSTRUCTION DOCUMENTS
 FINAL EROSION CONTROL

SHEET
EC4
 27

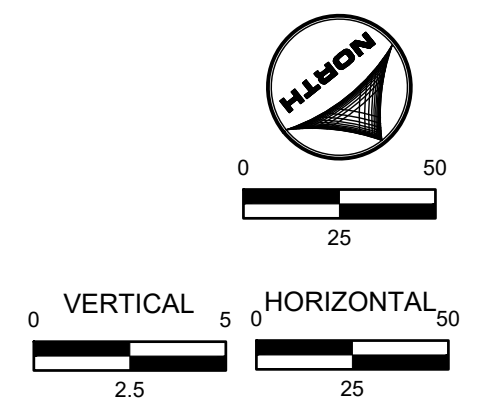
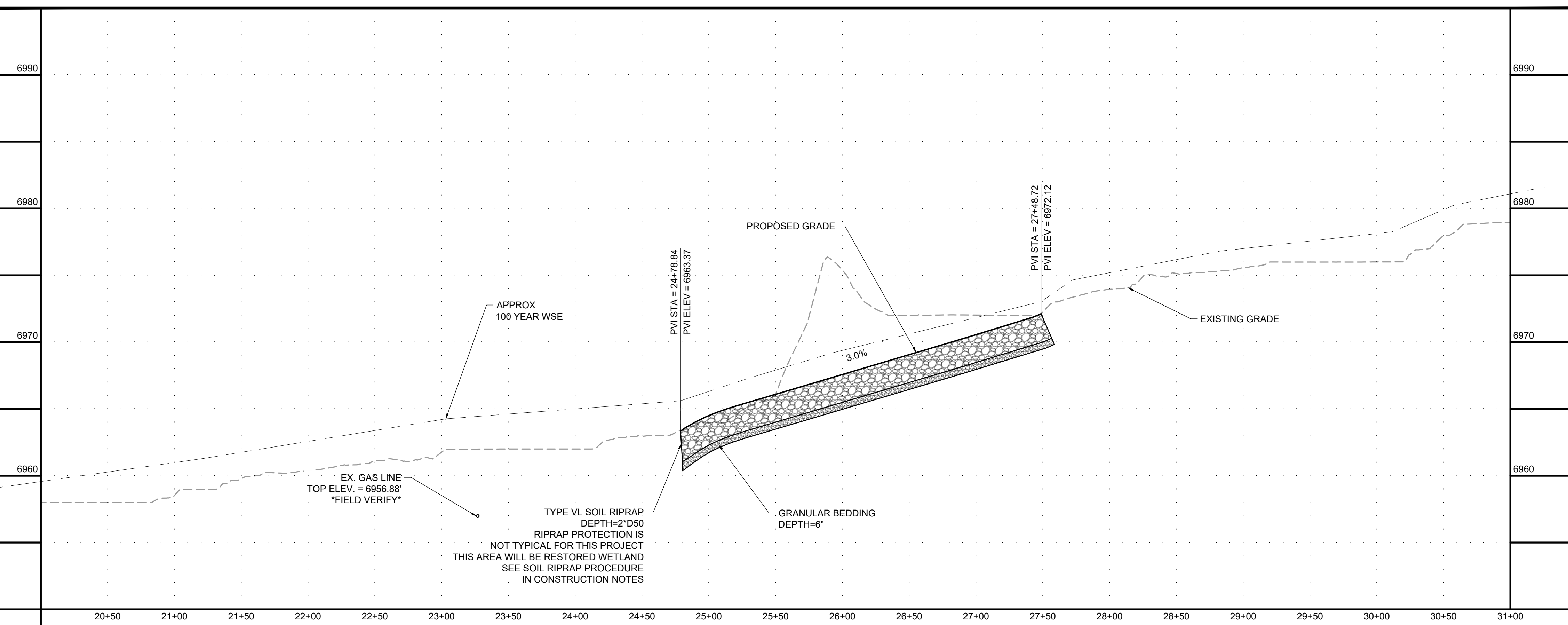
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PROJECT LEGEND:

---	PROPERTY LINE
---	EXISTING EASEMENT
---	EXISTING GAS LINE
---	EXISTING TELEPHONE LINE
-X-X-X-	EXISTING FENCE LINE
---	EXISTING SECTION LINE
---	EXISTING SWALE
---	EXISTING OVERHEAD ELECTRIC
---	EXISTING TELEPHONE POLE
---	EXISTING MAJOR CONTOUR
---	EXISTING MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	FLOW ARROW
---	LIMITS OF CONSTRUCTION
---	PROPOSED 100-YR FLOODPLAIN
+	EXISTING WETLANDS - JURISDICTIONAL
+	EXISTING WETLANDS - NONJURISDICTIONAL
o	PROPOSED MAINTENANCE TRAIL

- NOTES:**
- BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
 - BENCHMARK: DESIGNATION = F 24, E 24
PID = JK0240
DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
CONTROL POINT COORDINATE SYSTEM: NAVD88
NORTHING: 1421049.80
EASTING: 3273631.55
ELEVATION: 6866.33
 - ALIGNMENT NOT FOR USE IN CONSTRUCTION. REFER TO NORTHINGS AND EASTINGS
 - PLAN SET APPROVAL APPLIES TO THE LIMITS OF CONSTRUCTION. PLEASE SEE GRANDVIEW FILING NUMBER 1 PLAN SET FOR GRADING OUTSIDE OF THE CHANNEL LIMITS OF CONSTRUCTION.
 - TRIBUTARY 1 TO BE CONSTRUCTED WITH FILING 1 (AREA SOUTH OF TRIBUTARY 1). TRIBUTARY 2 TO BE CONSTRUCTED WITH FILING 2 (AREA NORTH OF TRIBUTARY 1 AND SOUTHWEST OF TRIBUTARY 2). BOX CULVERTS/CROSSINGS ALONG TRIBUTARY 2 TO BE CONSTRUCTED WITH TRIBUTARY IMPROVEMENTS.



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811 OR 1-800-922-1987
Utility Notification Center of Colorado

PROFESSIONAL ENGINEER
GREGORY L. PARKER
37081
7-25-12

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APPROVED: GLP	JOB NUMBER: 201662.03	IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD DATE: 7/10/2024		
CAD FILE: J:\2020\201662.03\CAD\Drawings\CIPLAN AND PROFILE		

NO.	DATE	BY	REVISION DESCRIPTION

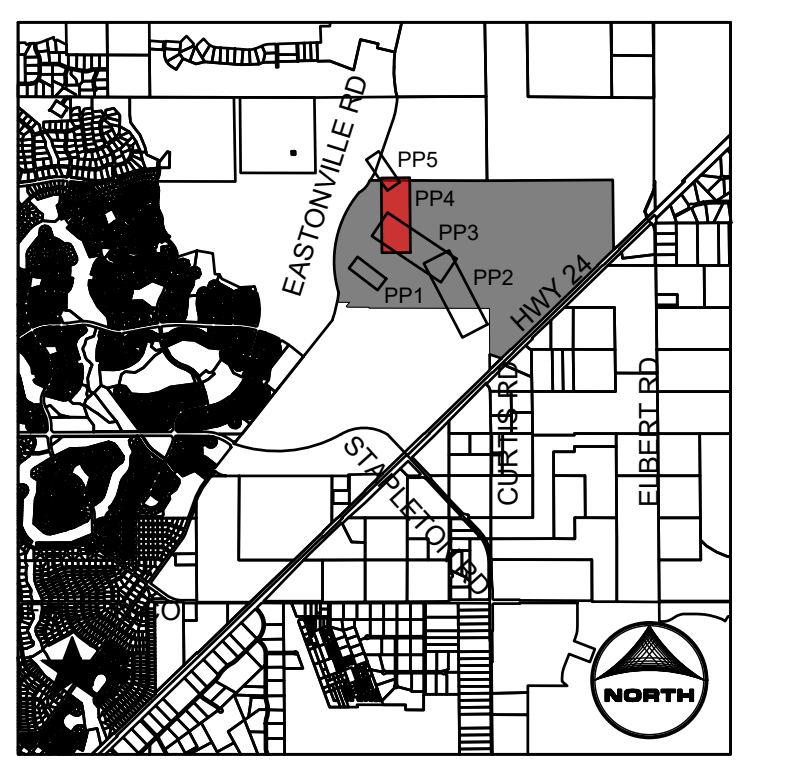
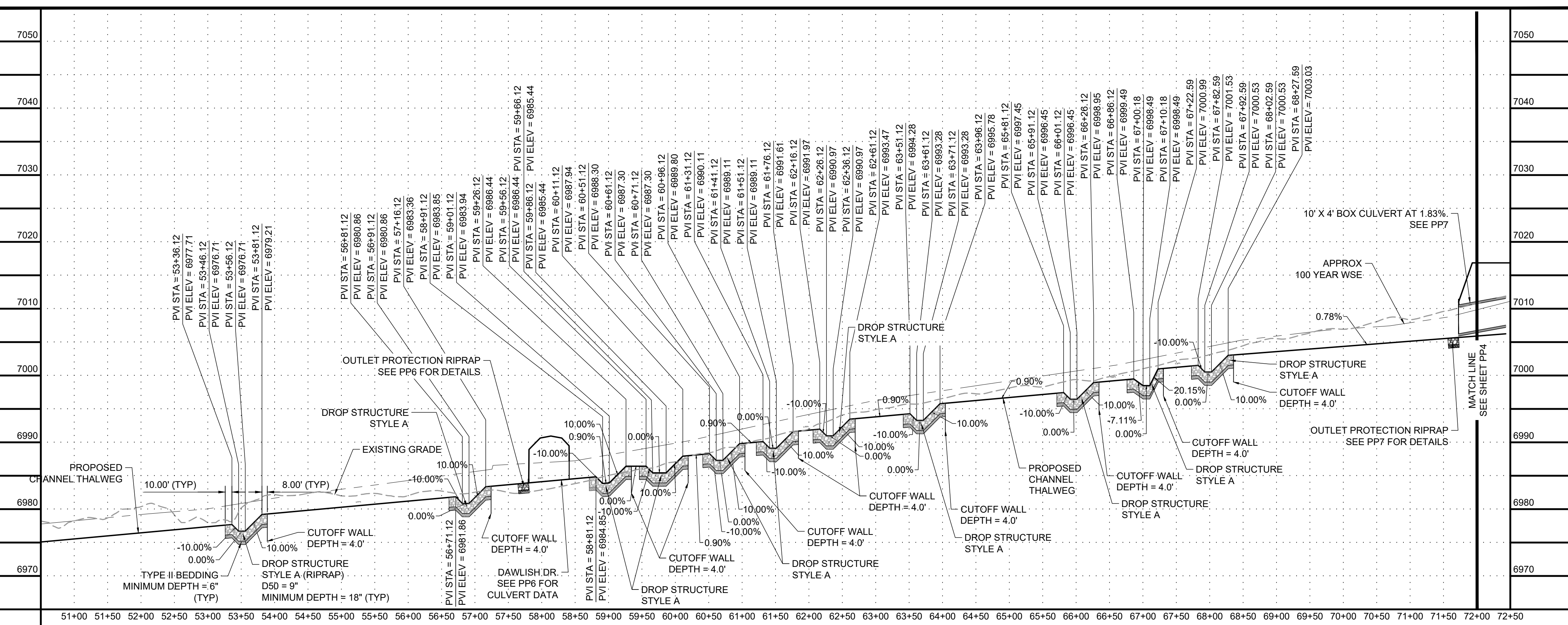
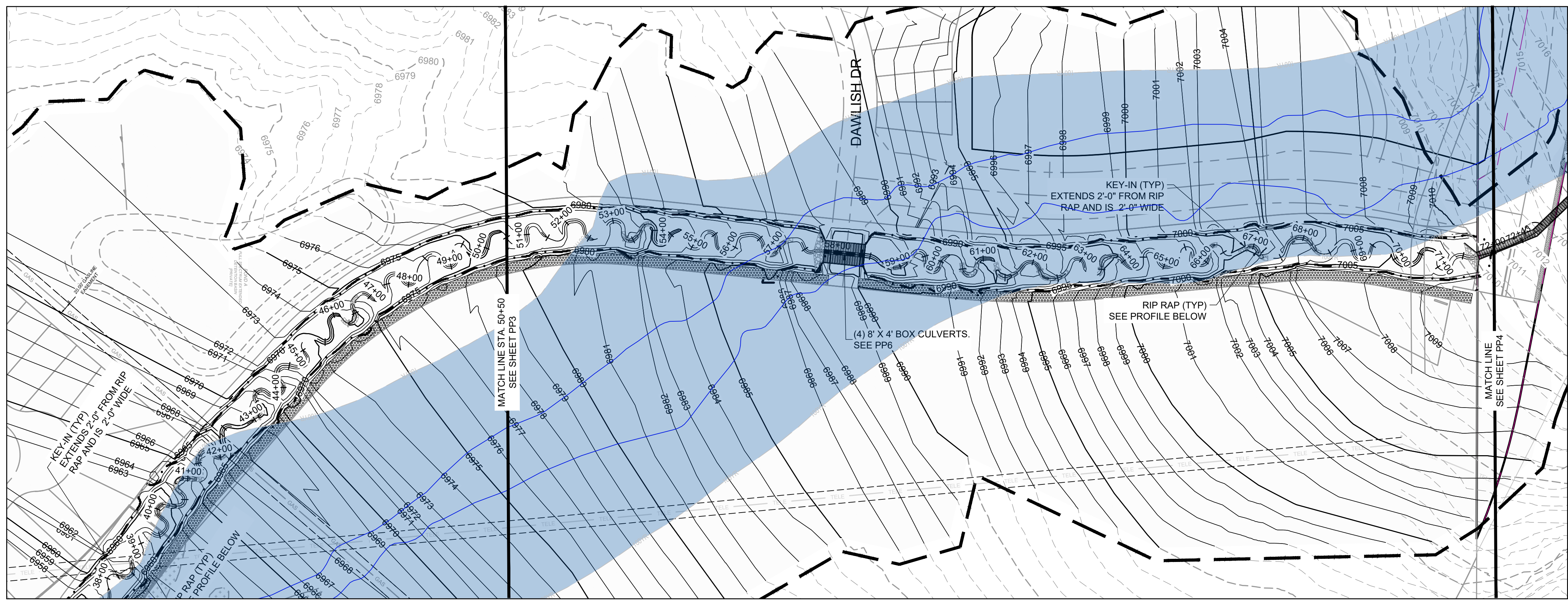
HRGreen
HR GREEN - DENVER
5613 DTC PARKWAY SUITE 950
DENVER CO 80111
PHONE: 720.602.4999
FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
FALCON, COLORADO

CONSTRUCTION DOCUMENTS
DRAINAGE TRIBUTARY 1 PLAN AND PROFILE

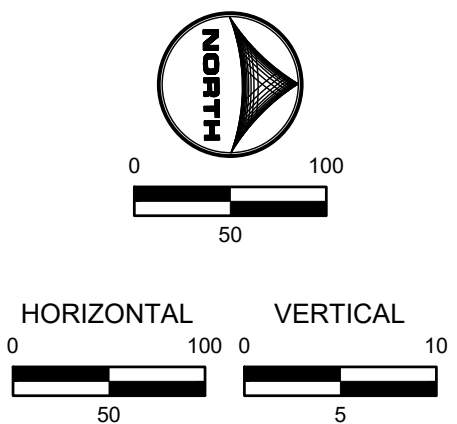
SHEET
PP1
30

HR GREEN - DENVER 5613 DTC PARKWAY SUITE 950 DENVER CO 80111 PHONE: 720.602.4999 FAX: 713.965.0044



- PROJECT LEGEND:**
- PROPERTY LINE
 - EXISTING EASEMENT
 - EXISTING GAS LINE
 - EXISTING TELEPHONE LINE
 - X-X-X- EXISTING FENCE LINE
 - EXISTING SECTION LINE
 - EXISTING SWALE
 - OHE EXISTING OVERHEAD ELECTRIC
 - EXISTING TELEPHONE POLE
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - PROPOSED MAJOR CONTOUR
 - PROPOSED MINOR CONTOUR
 - FLOW ARROW
 - LIMITS OF CONSTRUCTION
 - PROPOSED 100-YR FLOODPLAIN
 - JURISDICTIONAL
 - EXISTING WETLANDS - JURISDICTIONAL
 - EXISTING WETLANDS - NONJURISDICTIONAL
 - PROPOSED MAINTENANCE TRAIL
 - EFFECTIVE 100-YR FLOODPLAIN

- NOTES:**
1. BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 52 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
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CONTROL POINT COORDINATE SYSTEM: NAVD88
NORTHING: 1421049.80
EASTING: 3273631.55
ELEVATION: 6866.33
 3. ALIGNMENT NOT FOR USE IN CONSTRUCTION. REFER TO NORTHINGS AND EASTINGS
 4. PLAN SET APPROVAL APPLIES TO THE LIMITS OF CONSTRUCTION. PLEASE SEE GRANDVIEW FILING NUMBER 1 PLAN SET FOR GRADING OUTSIDE OF THE CHANNEL LIMITS OF CONSTRUCTION.
 5. TRIBUTARY 1 TO BE CONSTRUCTED WITH FILING 1 (AREA SOUTH OF TRIBUTARY 1). TRIBUTARY 2 TO BE CONSTRUCTED WITH FILING 2 (AREA NORTH OF TRIBUTARY 1 AND SOUTHWEST OF TRIBUTARY 2). BOX CULVERTS/CROSSINGS ALONG TRIBUTARY 2 TO BE CONSTRUCTED WITH TRIBUTARY IMPROVEMENTS.



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FLORIDA LICENSED PROFESSIONAL ENGINEER
GREGORY L. PARKS
37081

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APPROVED: GLP	JOB NUMBER: 201662.03	0" = 1"
CAD DATE: 7/10/2024		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD FILE: J:\2020\201662.03\CAD\dwgs\C\PLAN AND PROFILE		

NO.	DATE	BY	REVISION DESCRIPTION

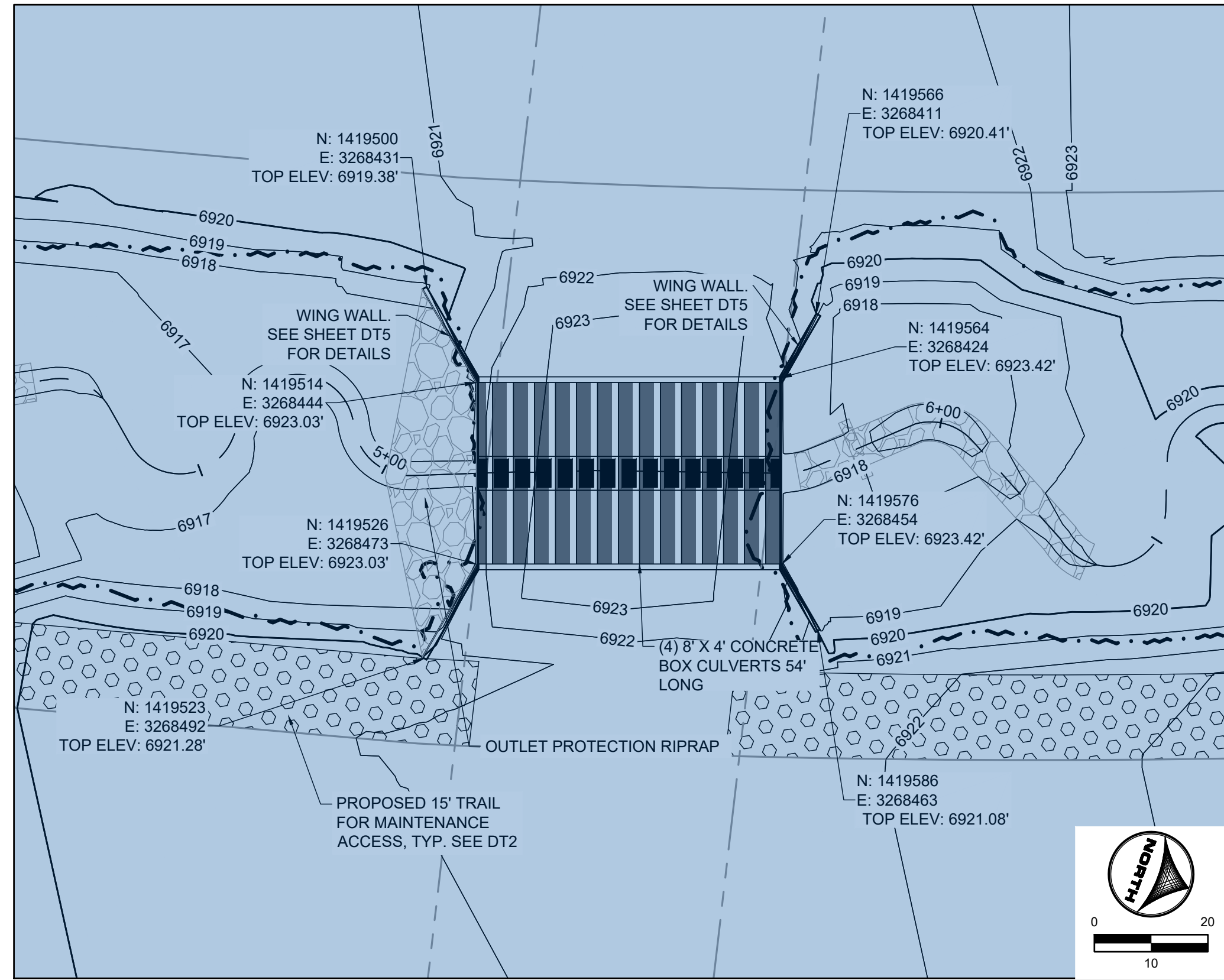
HR GREEN - DENVER
5613 DTC PARKWAY SUITE 950
DENVER CO 80111
PHONE: 720.602.4999
FAX: 713.965.0044

GRANDVIEW RESERVE
DR HORTON
FALCON, COLORADO

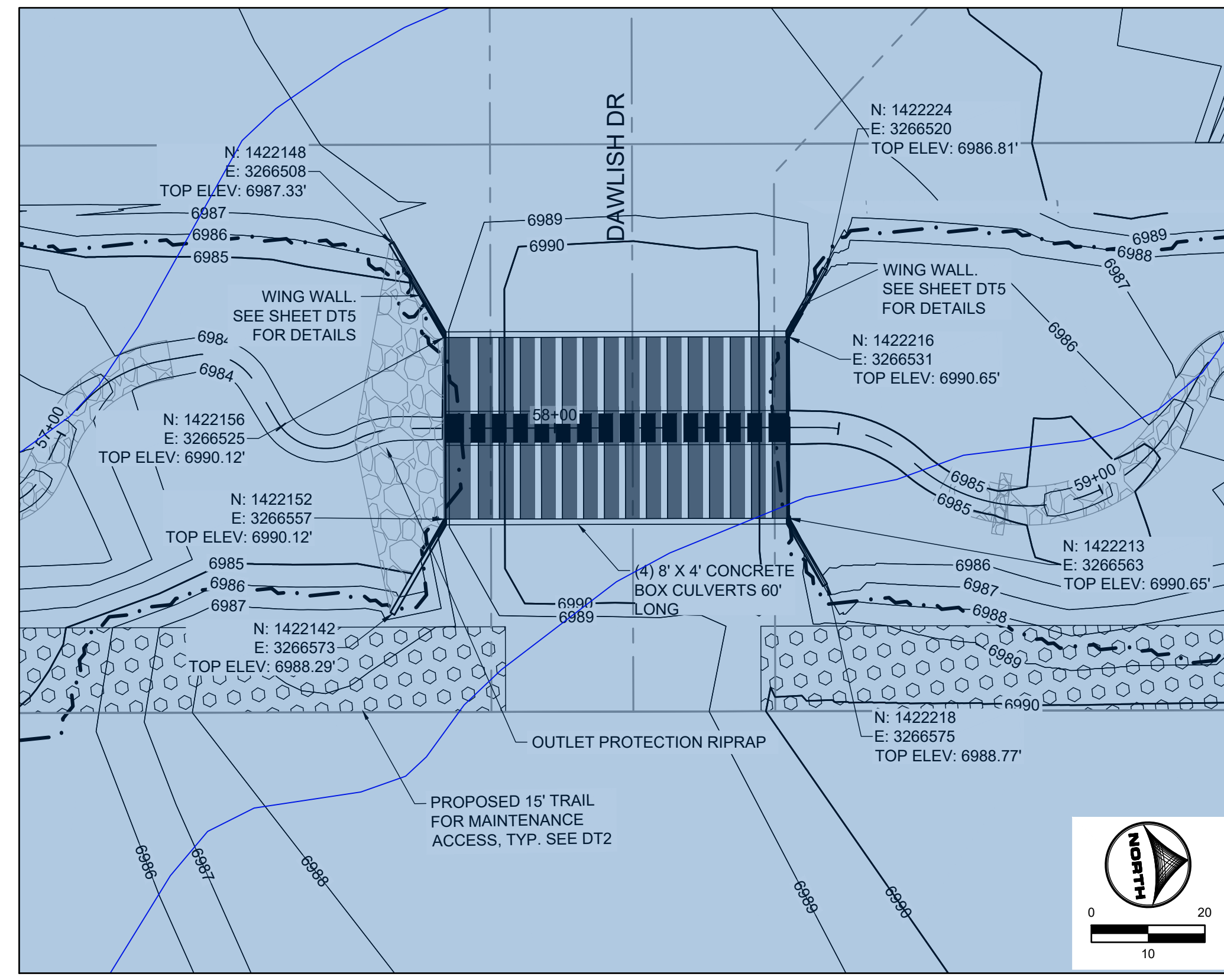
CONSTRUCTION DOCUMENTS
DRAINAGE TRIBUTARY 2 PLAN AND PROFILE

SHEET **PP4** 33

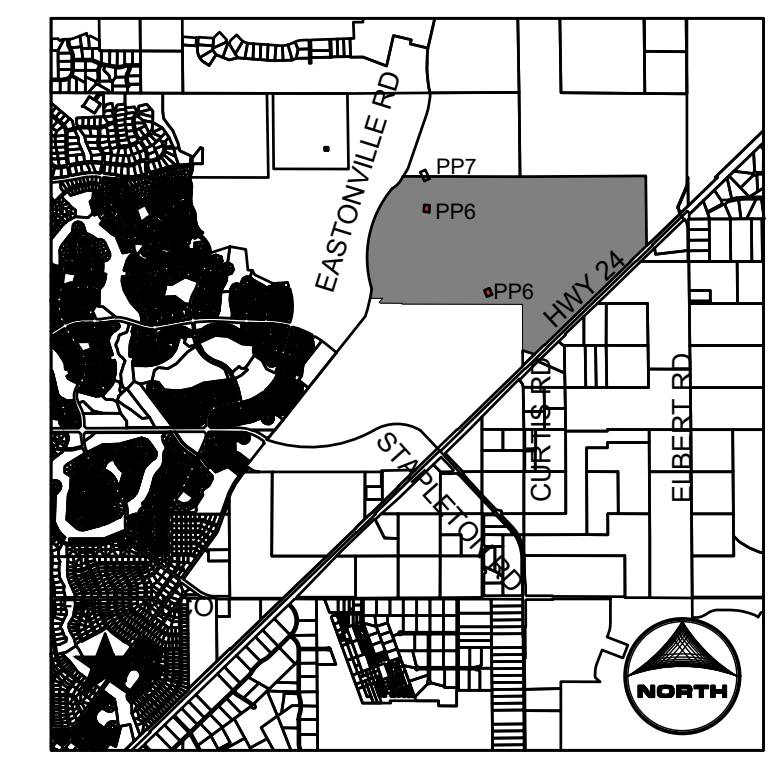
HR GREEN - DENVER 5613 DTC PARKWAY SUITE 950 DENVER CO 80111 PHONE: 720.602.4999 FAX: 713.965.0044
 DRAWN BY: TBI JOB DATE: 7/10/2024 BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0" = 1"
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 CAD DATE: 7/10/2024
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ROAD G CULVERT CROSSING



DAWLISH DR CULVERT CROSSING

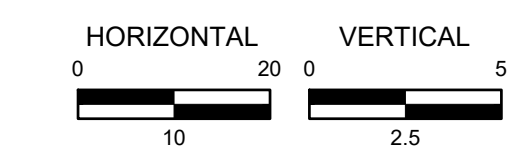
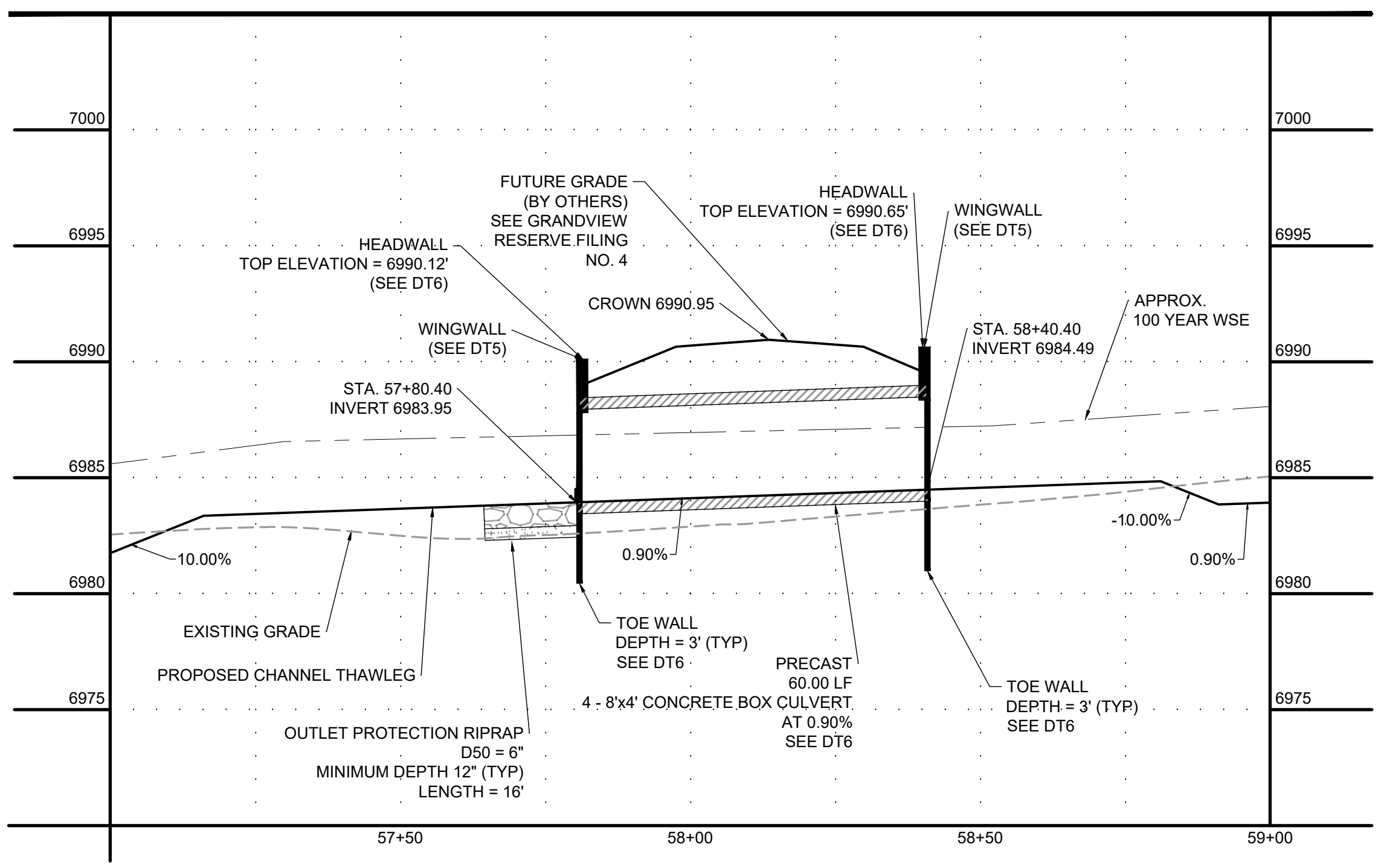
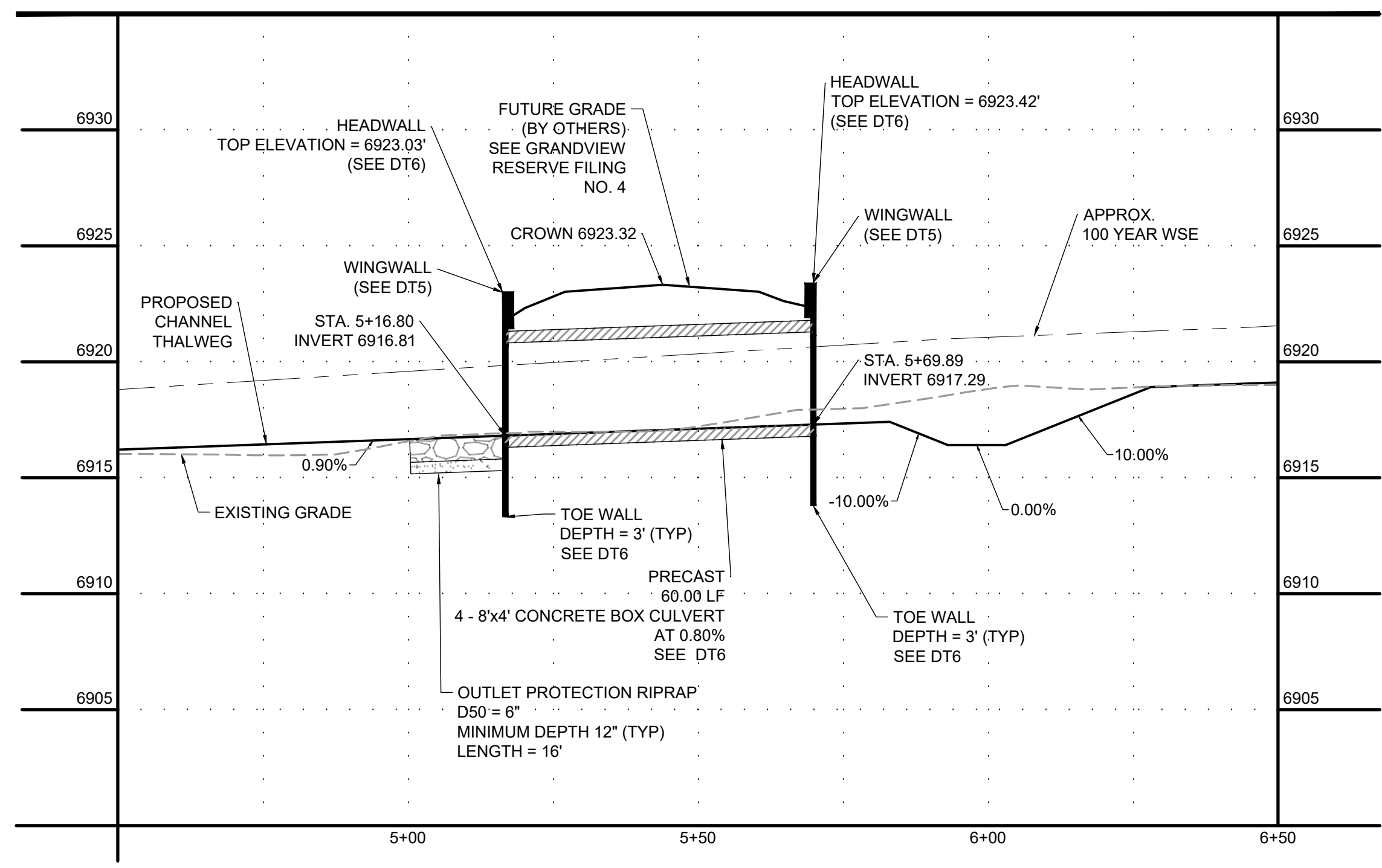


- PROJECT LEGEND:**
- PROPERTY LINE
 - - - EXISTING EASEMENT
 - EXISTING GAS LINE
 - EXISTING TELEPHONE LINE
 - X - X - EXISTING FENCE LINE
 - - - EXISTING SECTION LINE
 - EXISTING SWALE
 - OHE EXISTING OVERHEAD ELECTRIC
 - EXISTING TELEPHONE POLE
 - - - 5250 EXISTING MAJOR CONTOUR
 - - - EXISTING MINOR CONTOUR
 - 5250 PROPOSED MAJOR CONTOUR
 - - - PROPOSED MINOR CONTOUR
 - FLOW ARROW
 - LIMITS OF CONSTRUCTION
 - - - PROPOSED 100-YR FLOODPLAIN
 - EXISTING WETLANDS - JURISDICTIONAL
 - EXISTING WETLANDS - NONJURISDICTIONAL
 - PROPOSED MAINTENANCE TRAIL
 - EFFECTIVE 100-YR FLOODPLAIN

- NOTES:**
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 Utility Notification Center of Colorado

COLORADO LICENSED PROFESSIONAL ENGINEER
 37081



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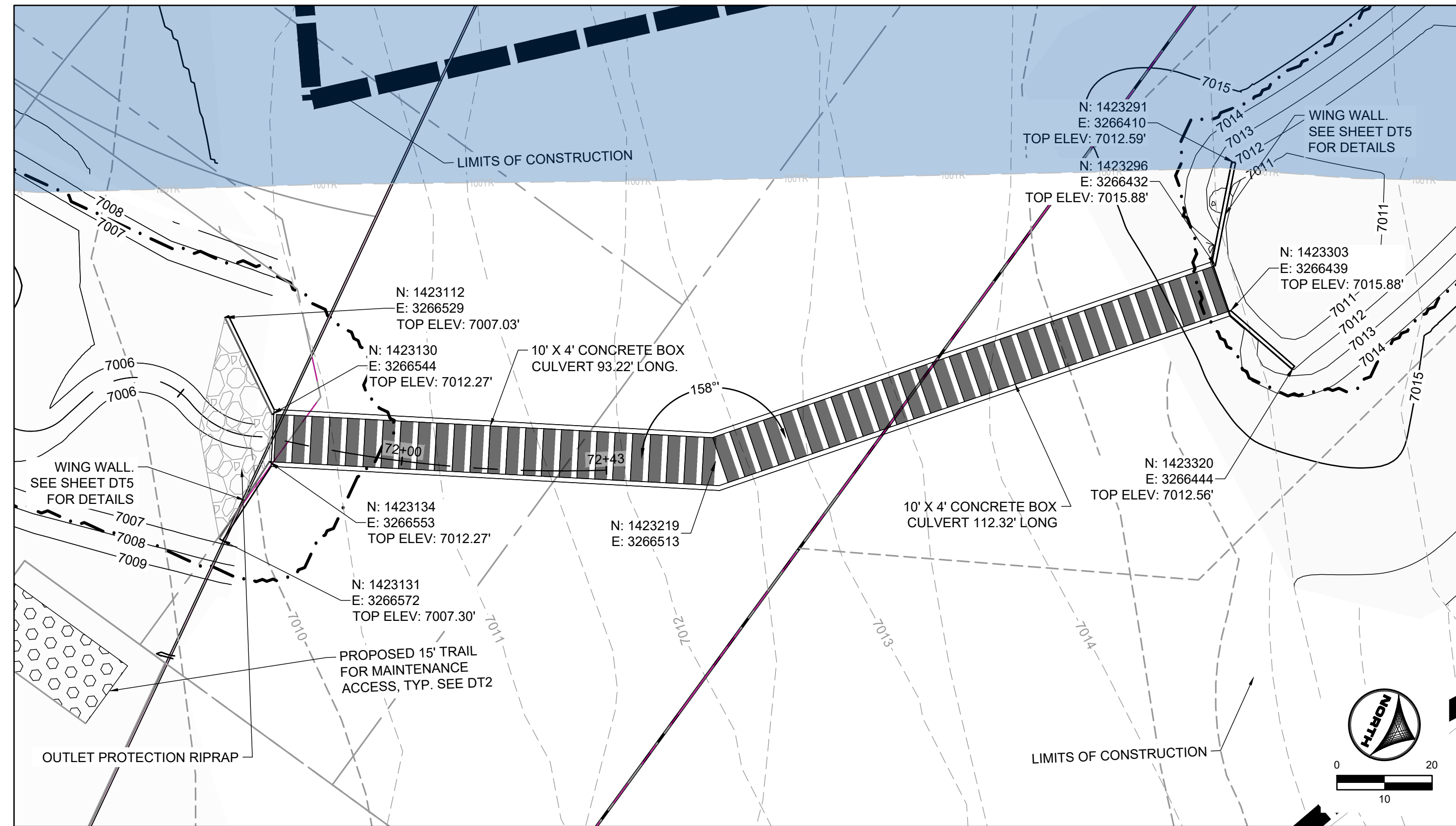
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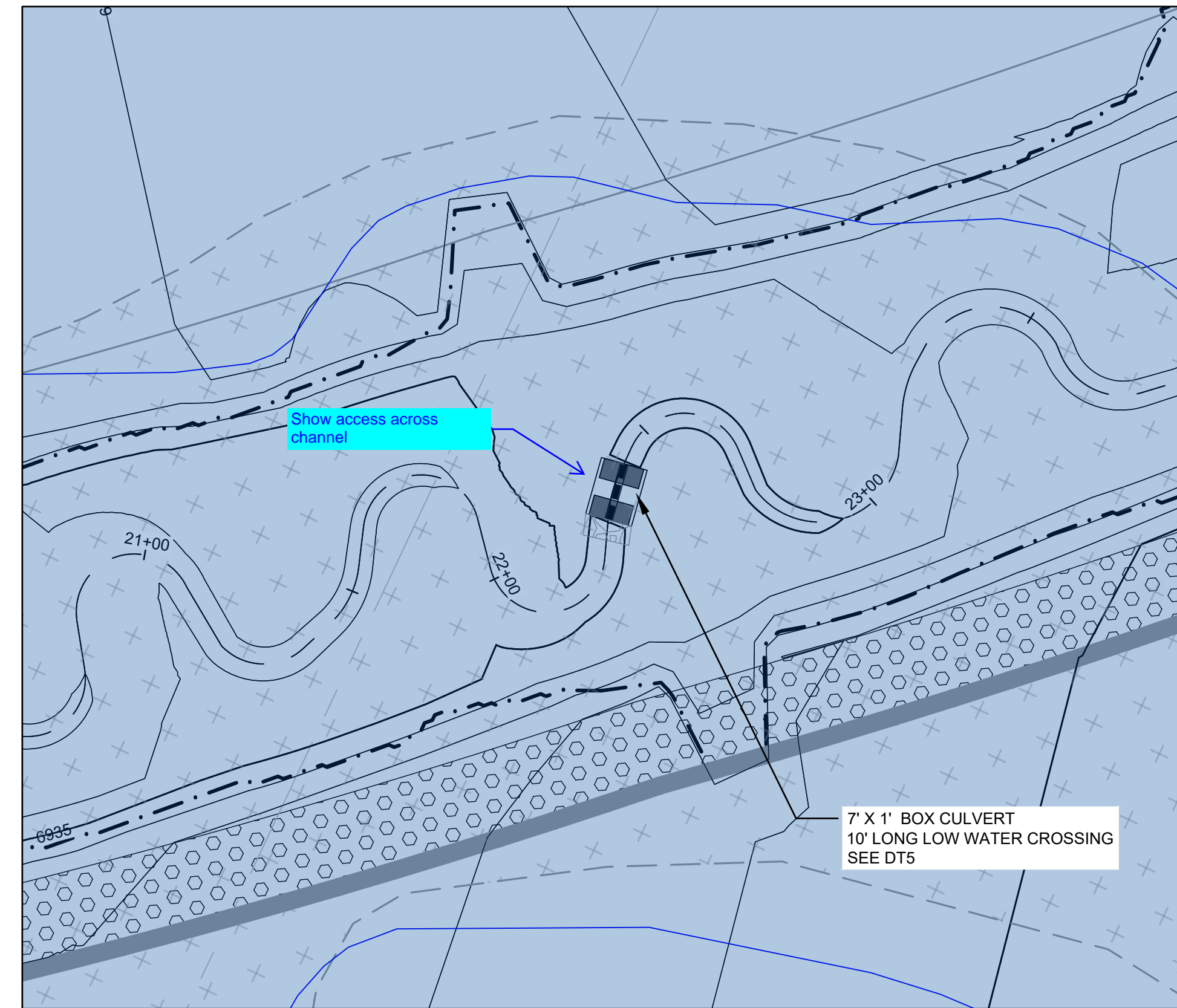
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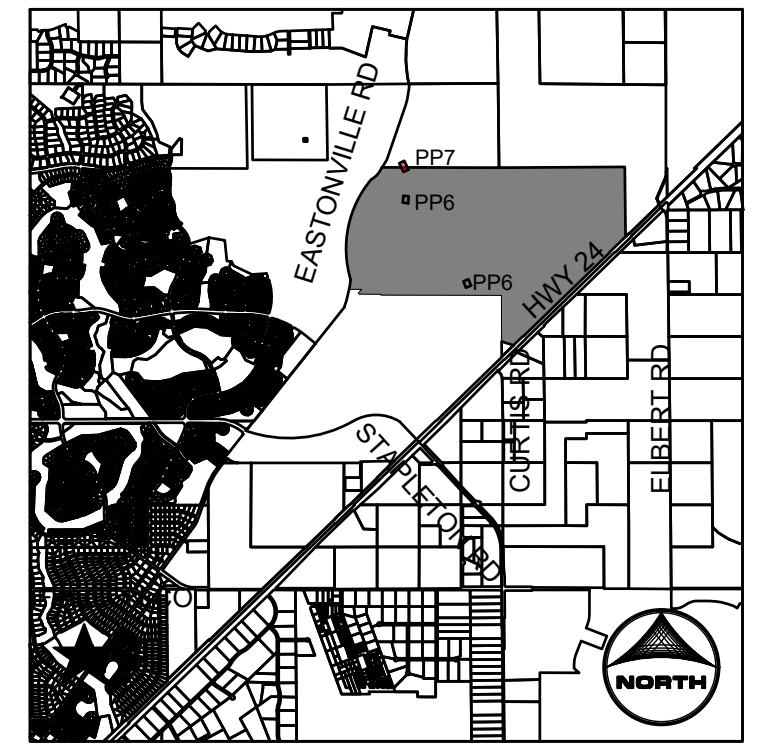
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REX ROAD CULVERT CROSSING

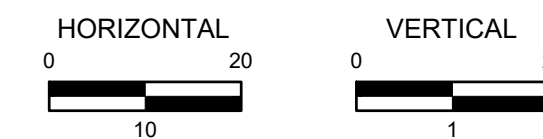
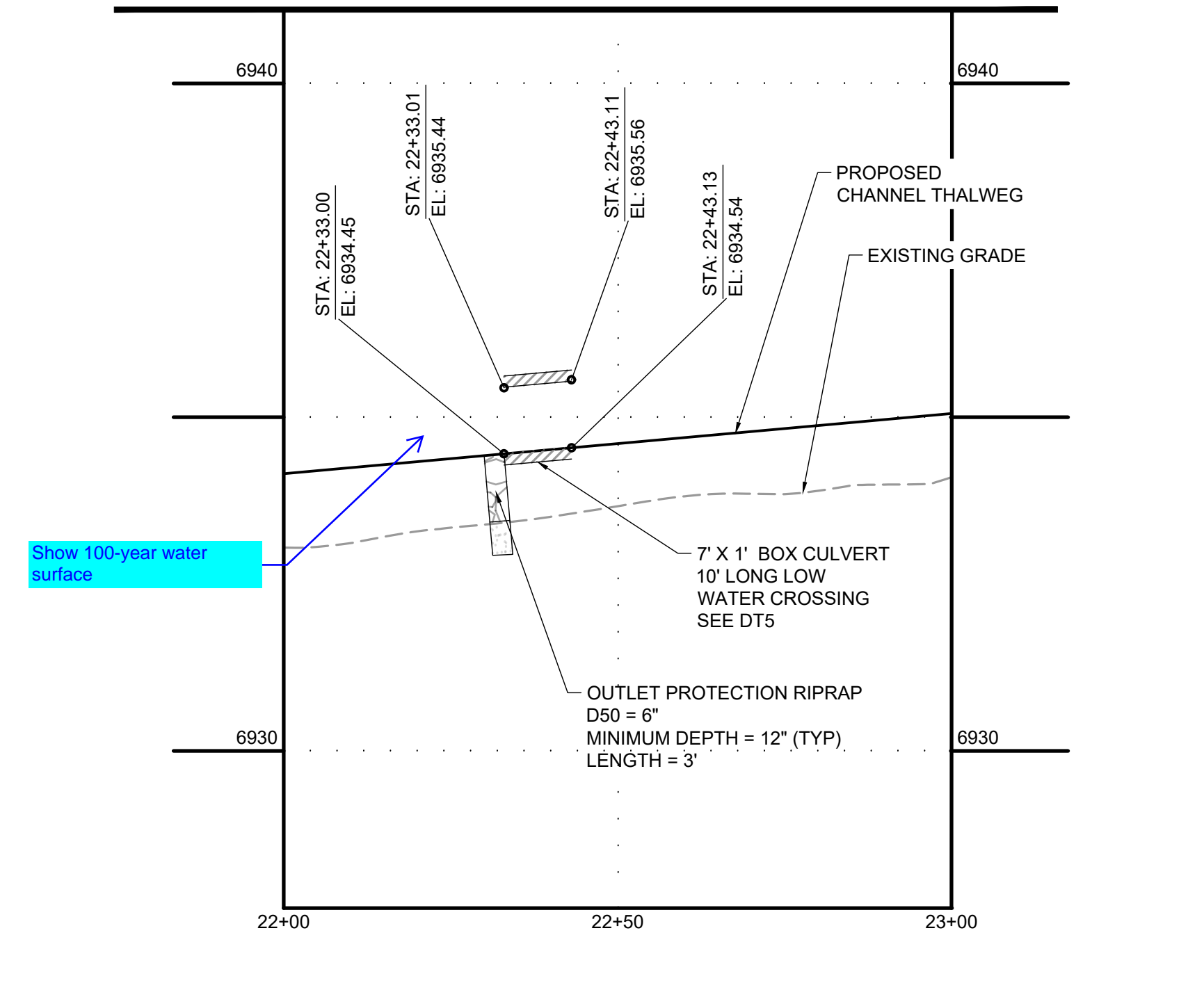
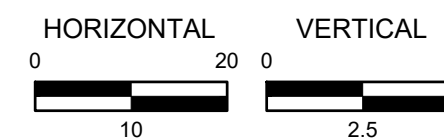
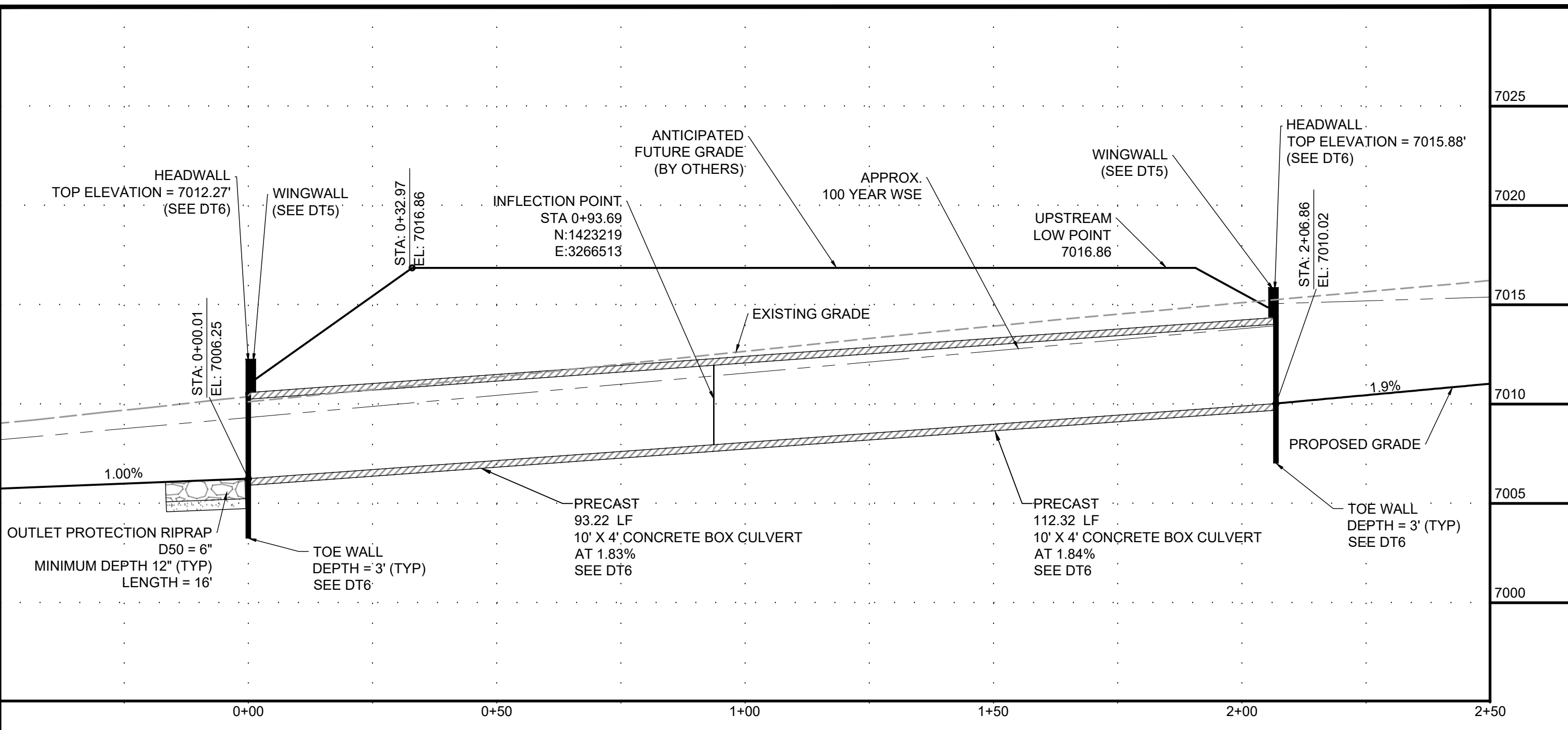


LOW WATER CROSSING



- KEYMAP**
- PROJECT LEGEND:**
- PROPERTY LINE
 - - - EXISTING EASEMENT
 - - - EXISTING GAS LINE
 - - - EXISTING TELEPHONE LINE
 - X - X - EXISTING FENCE LINE
 - - - EXISTING SECTION LINE
 - - - EXISTING SWALE
 - - - EXISTING OVERHEAD ELECTRIC
 - - - EXISTING TELEPHONE POLE
 - - - EXISTING MAJOR CONTOUR
 - - - EXISTING MINOR CONTOUR
 - - - PROPOSED MAJOR CONTOUR
 - - - PROPOSED MINOR CONTOUR
 - FLOW ARROW
 - LIMITS OF CONSTRUCTION
 - - - PROPOSED 100-YR FLOODPLAIN
 - + + + EXISTING WETLANDS - JURISDICTIONAL
 - + + + EXISTING WETLANDS - NONJURISDICTIONAL
 - ○ ○ PROPOSED MAINTENANCE TRAIL
 - EFFECTIVE 100-YR FLOODPLAIN

- NOTES:**
- BASIS OF BEARINGS: THE EAST LINE OF SECTION 21, BEING MONUMENTED AT THE SOUTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, AND BEING MONUMENTED AT THE NORTHEAST CORNER BY A 3-1/4" ALUMINUM SURVEYOR'S CAP STAMPED "PS INC PLS 30087 1996", BEING APPROPRIATELY MARKED, BEING ASSUMED TO BEAR NORTH 00 DEGREES 55 MINUTES 26 SECONDS WEST, A DISTANCE OF 5290.17 FEET.
 - BENCHMARK:**
 DESIGNATION = F 24, E 24
 PID = JK0240
 DESCRIPTION = DISK ON TOP OF CONCRETE MONUMENT
 CONTROL POINT COORDINATE SYSTEM:
 NAVD88
 NORTHING: 1421049.80
 EASTING: 3273631.55
 ELEVATION: 6866.33
 - ALIGNMENT NOT FOR USE IN CONSTRUCTION. REFER TO NORTHINGS AND EASTINGS
 - PLAN SET APPROVAL APPLIES TO THE LIMITS OF CONSTRUCTION. PLEASE SEE GRANDVIEW FILING NUMBER 1 PLAN SET FOR GRADING OUTSIDE OF THE CHANNEL LIMITS OF CONSTRUCTION.
 - TRIBUTARY 1 TO BE CONSTRUCTED WITH FILING 1 (AREA SOUTH OF TRIBUTARY 1). TRIBUTARY 2 TO BE CONSTRUCTED WITH FILING 2 (AREA NORTH OF TRIBUTARY 1 AND SOUTHWEST OF TRIBUTARY 2). BOX CULVERTS/CROSSINGS ALONG TRIBUTARY 2 TO BE CONSTRUCTED WITH TRIBUTARY IMPROVEMENTS.



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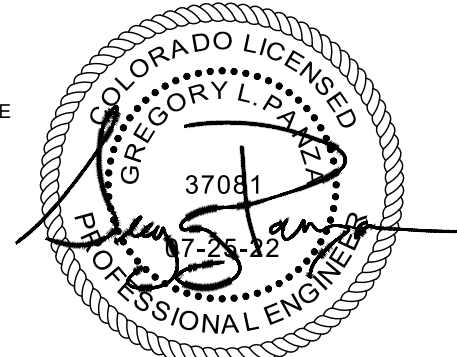


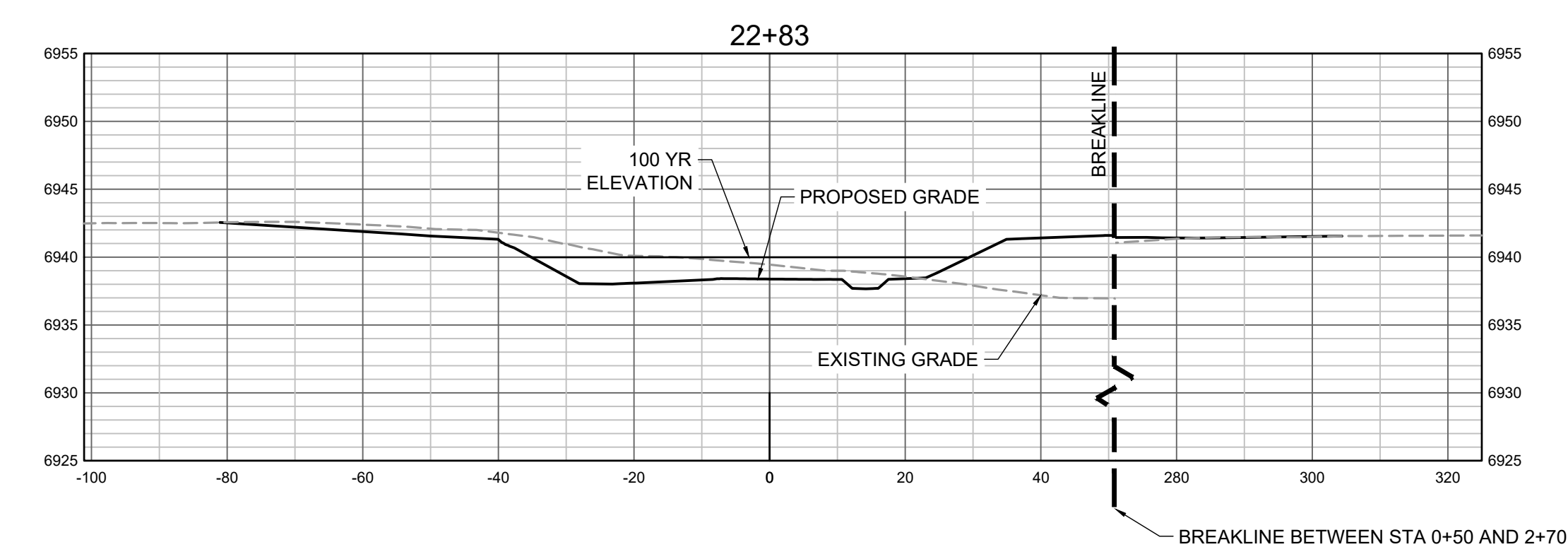
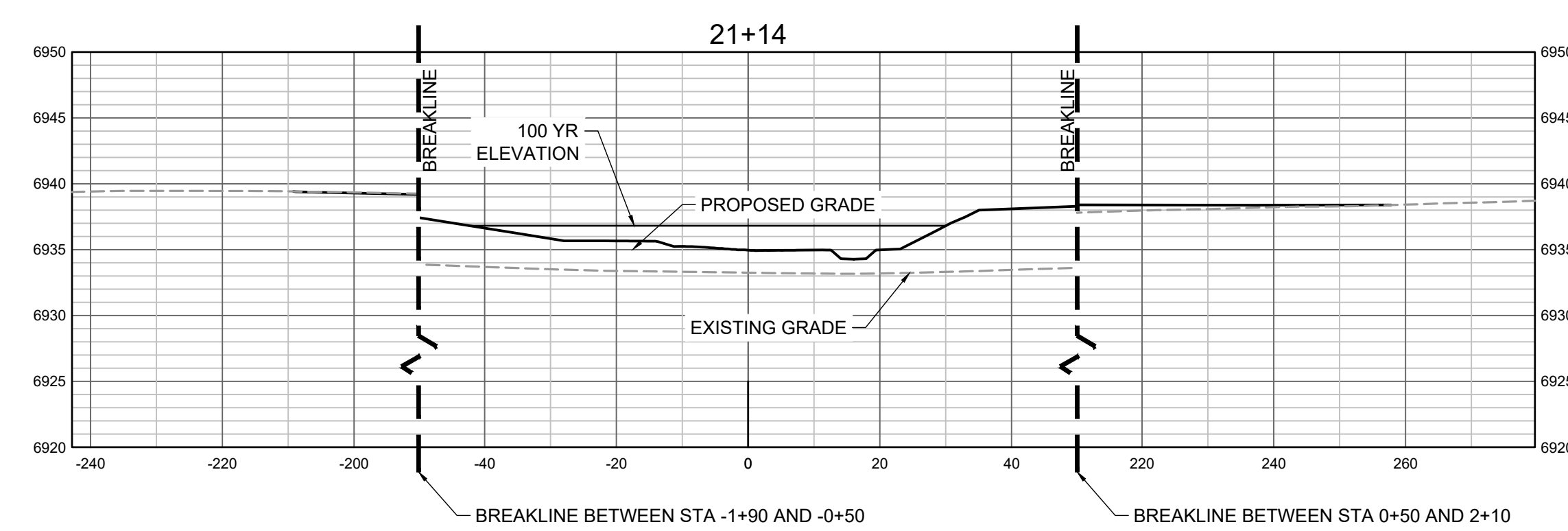
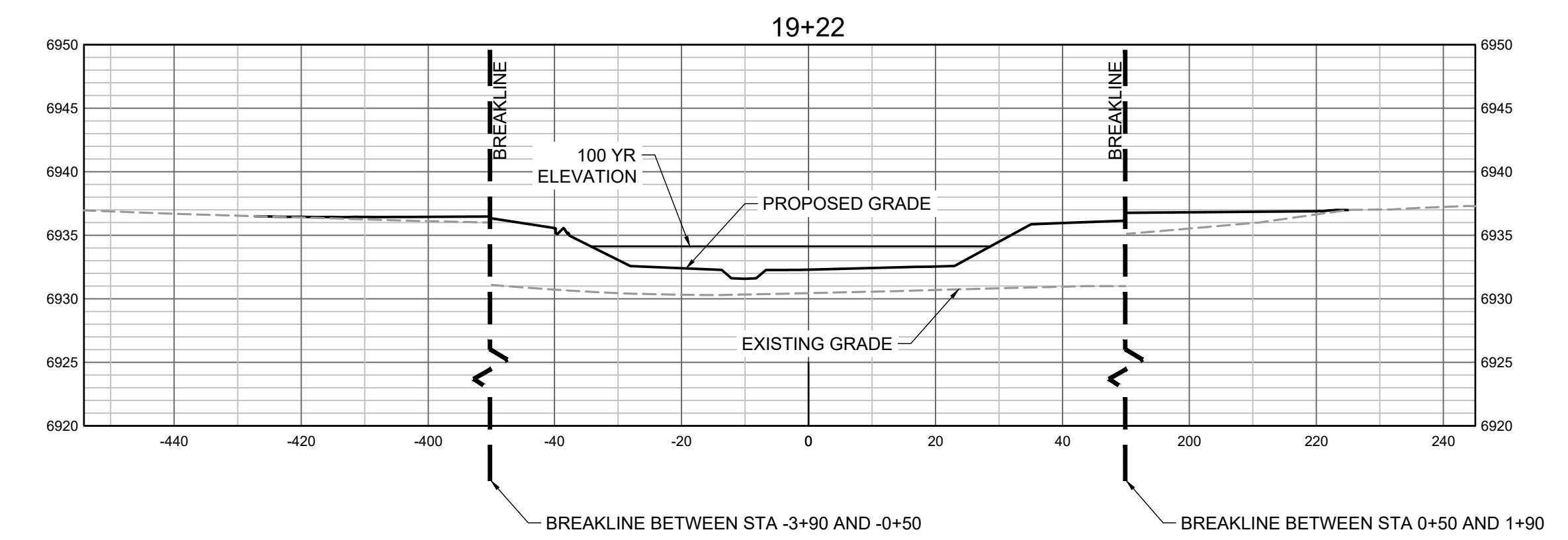
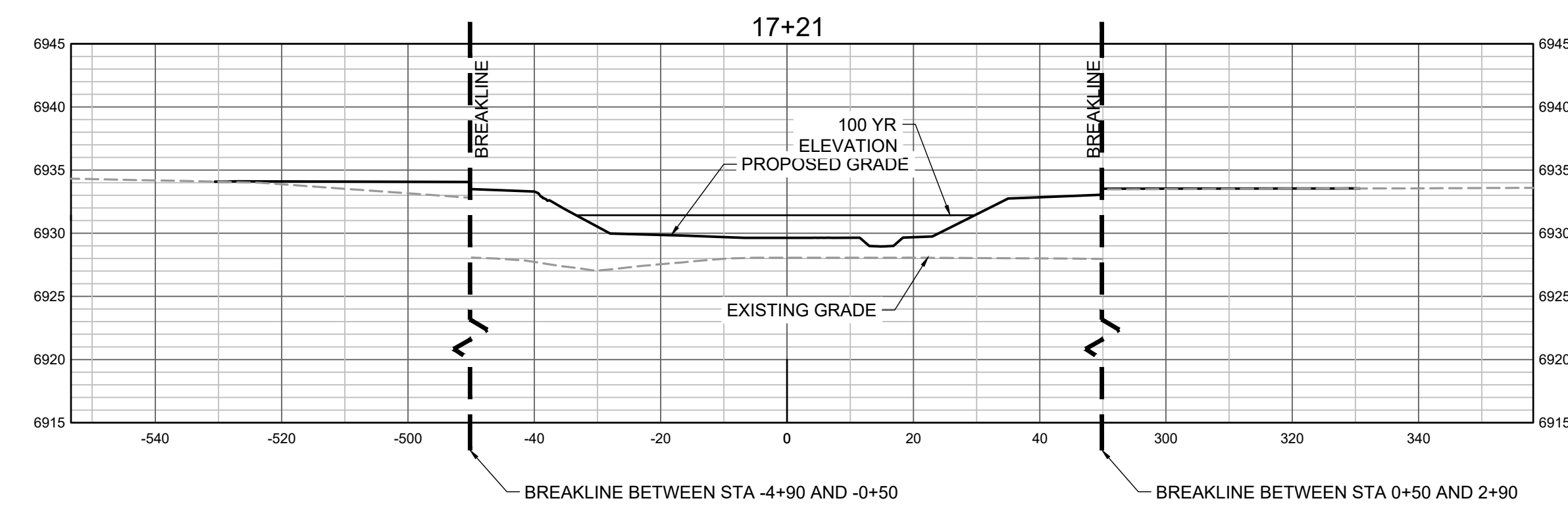
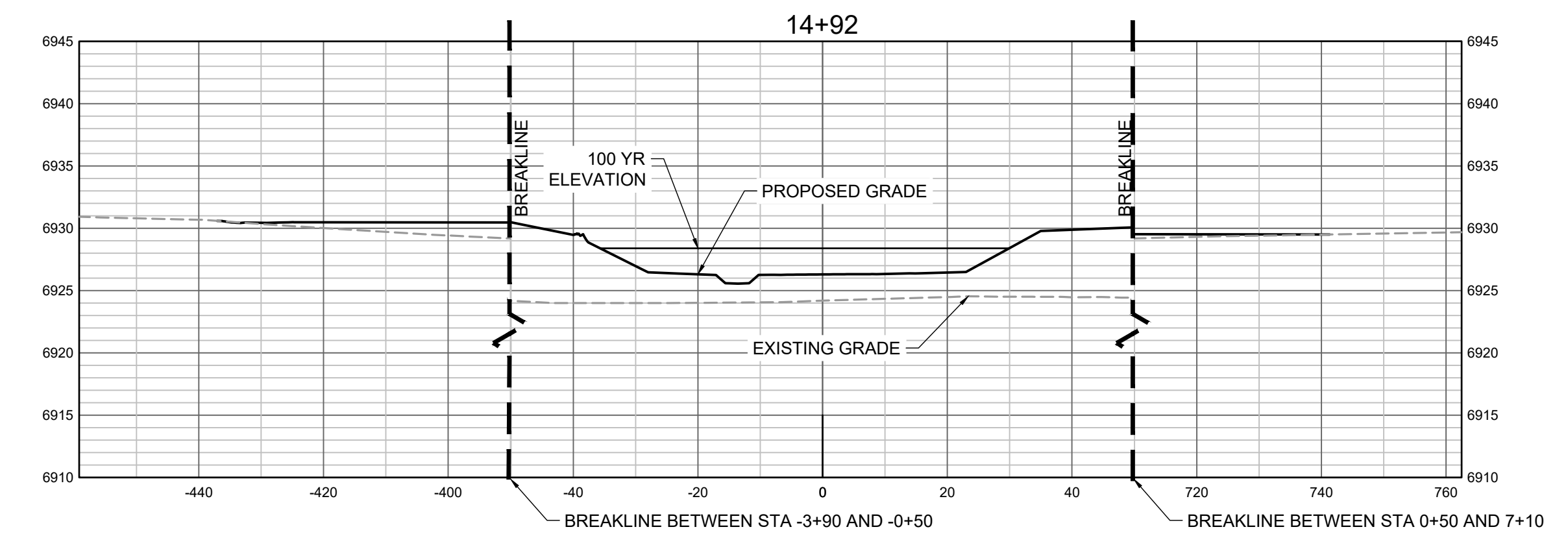
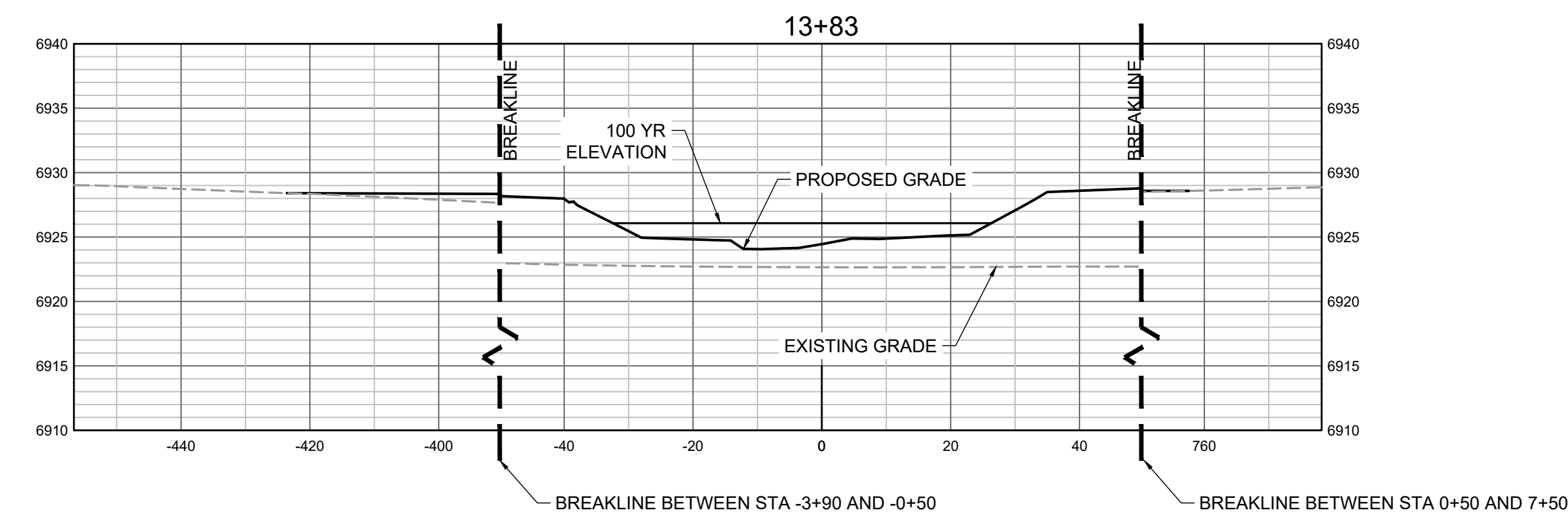
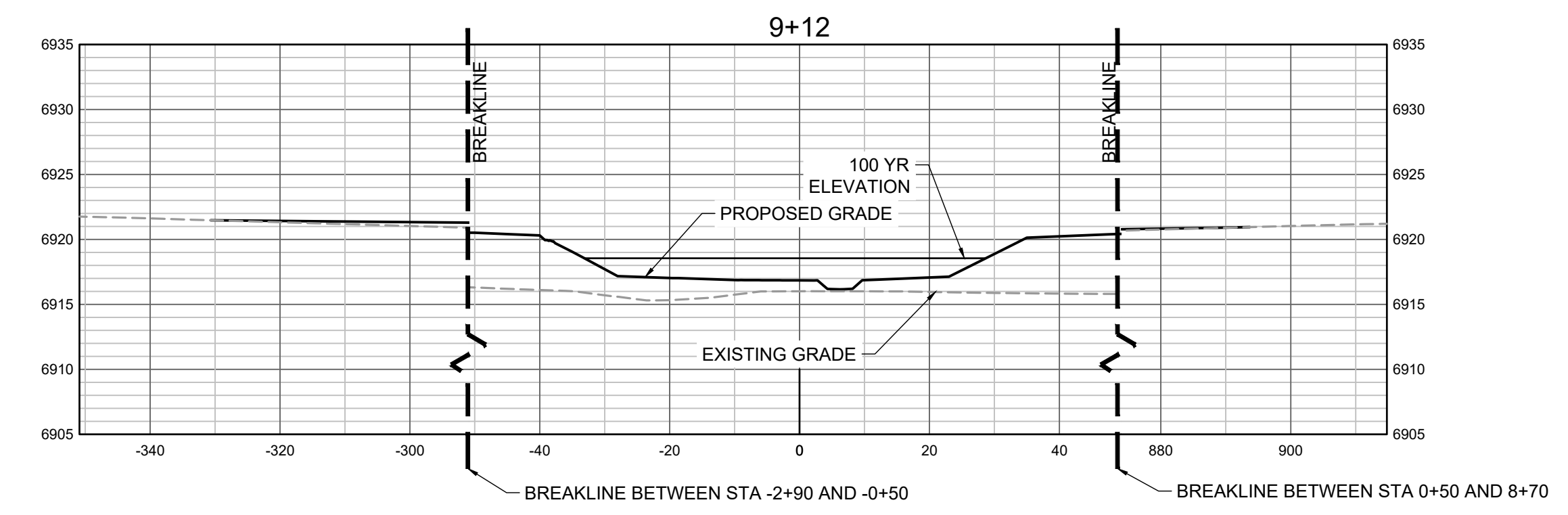
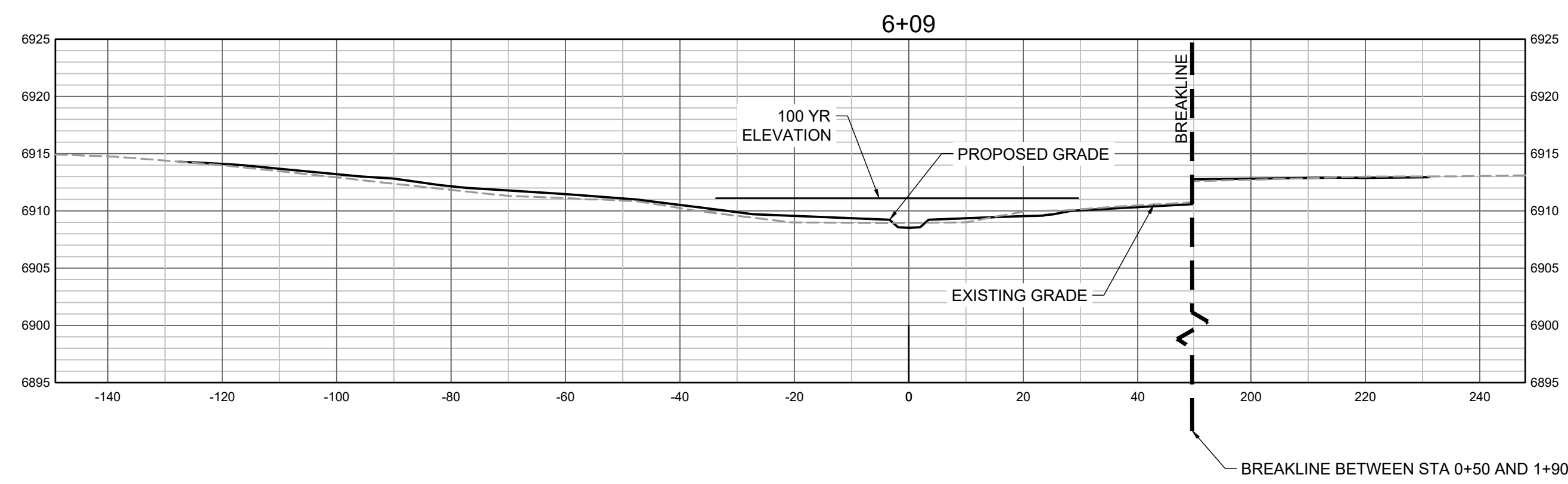
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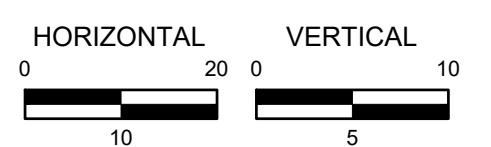
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SHEET
 PP7
 36





PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1. REFER TO THE GRANDVIEW RESERVE FILING 1 PLAN SET FOR CONTINUATION OF GRADING THAT IS BEING TIED INTO OUTSIDE OF CHANNEL GRADING LIMITS.



HR GREEN Xref: xgs-1-dh01; 01-XC-PR-100%_FP_DELIMITATION

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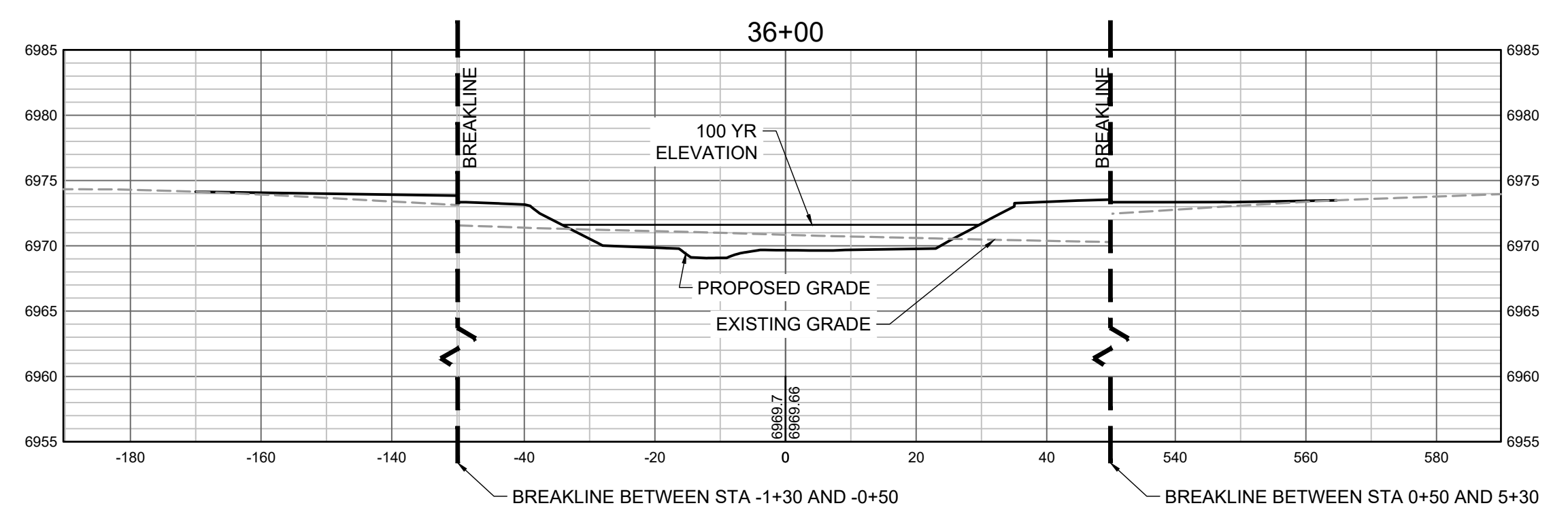
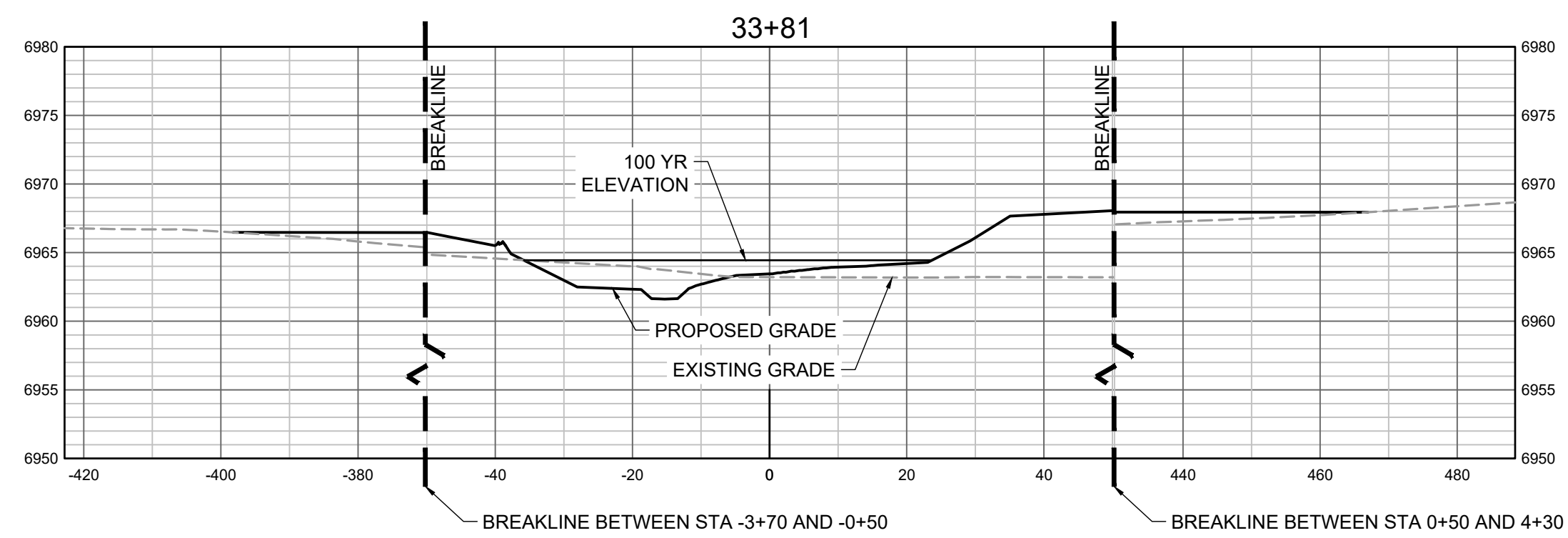
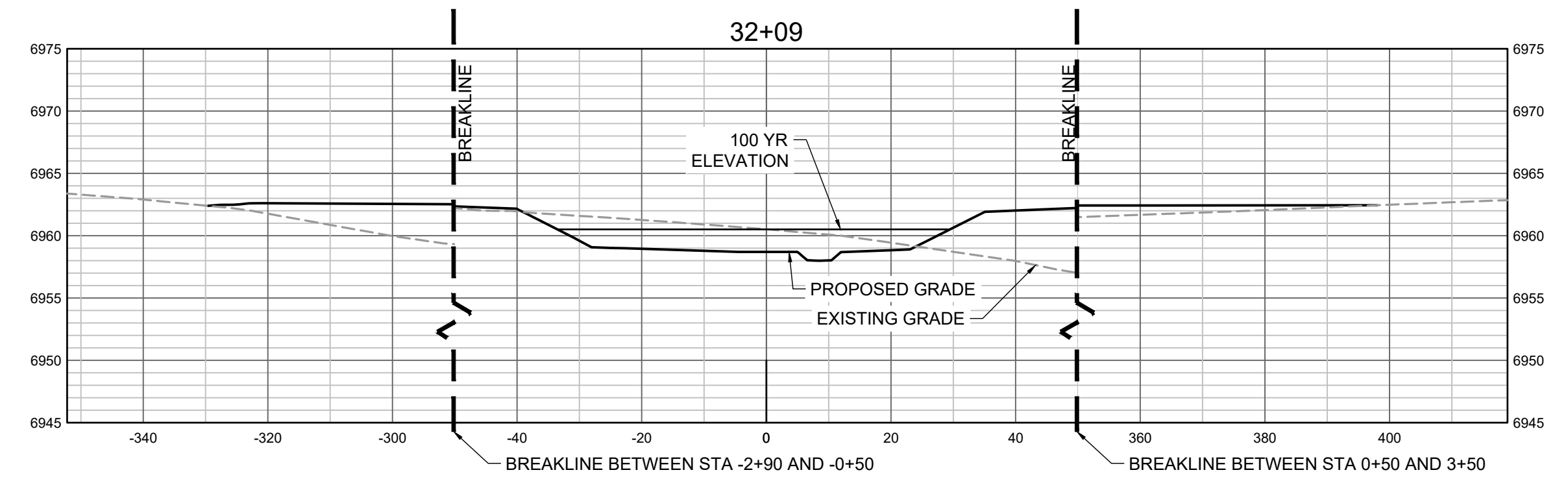
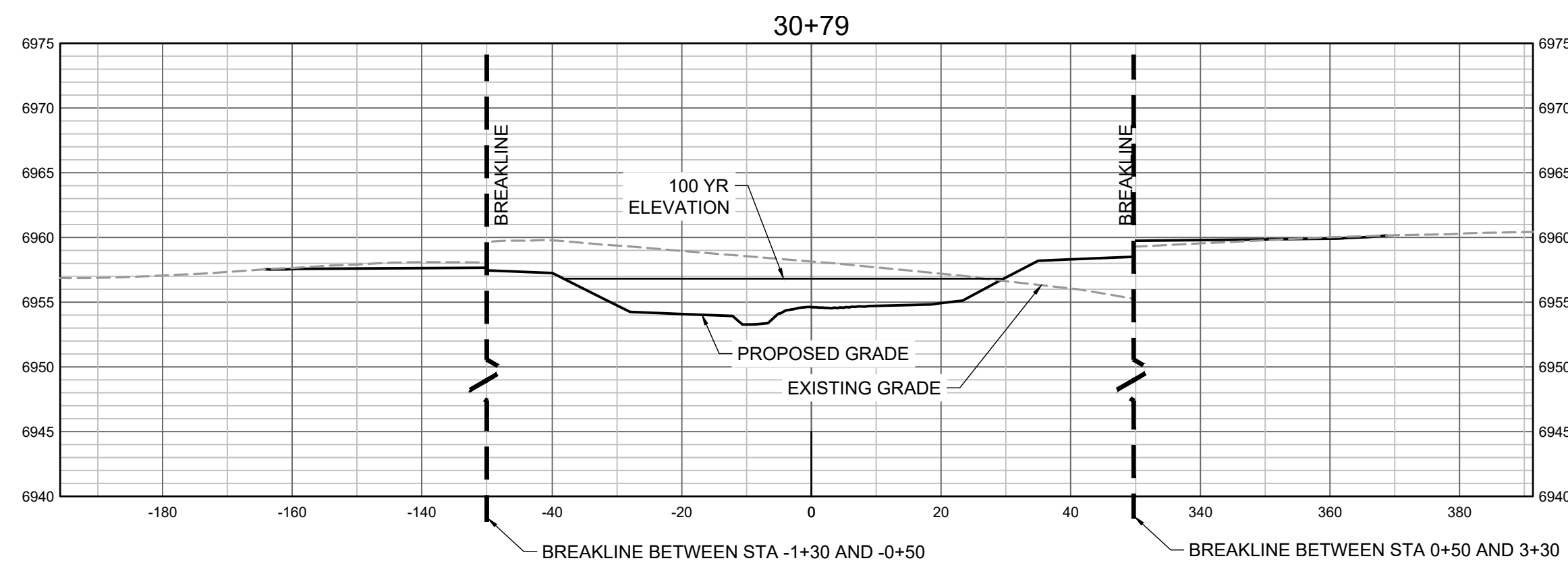
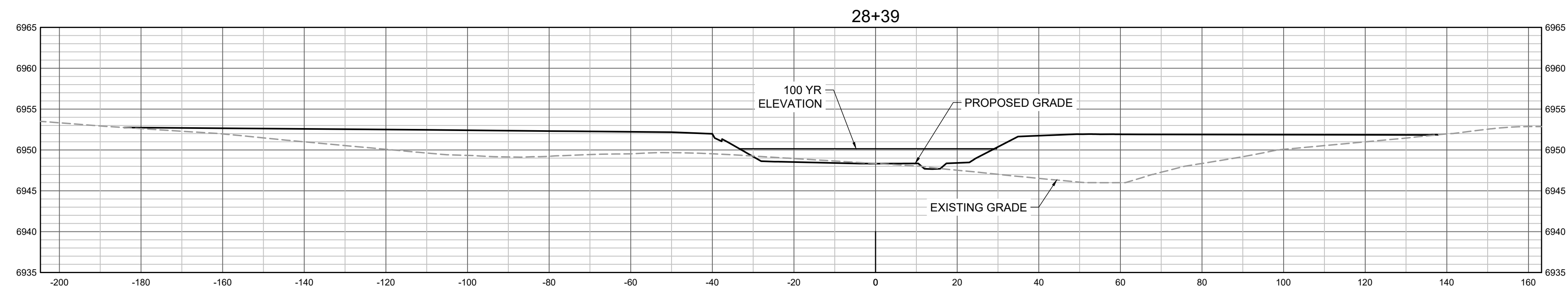
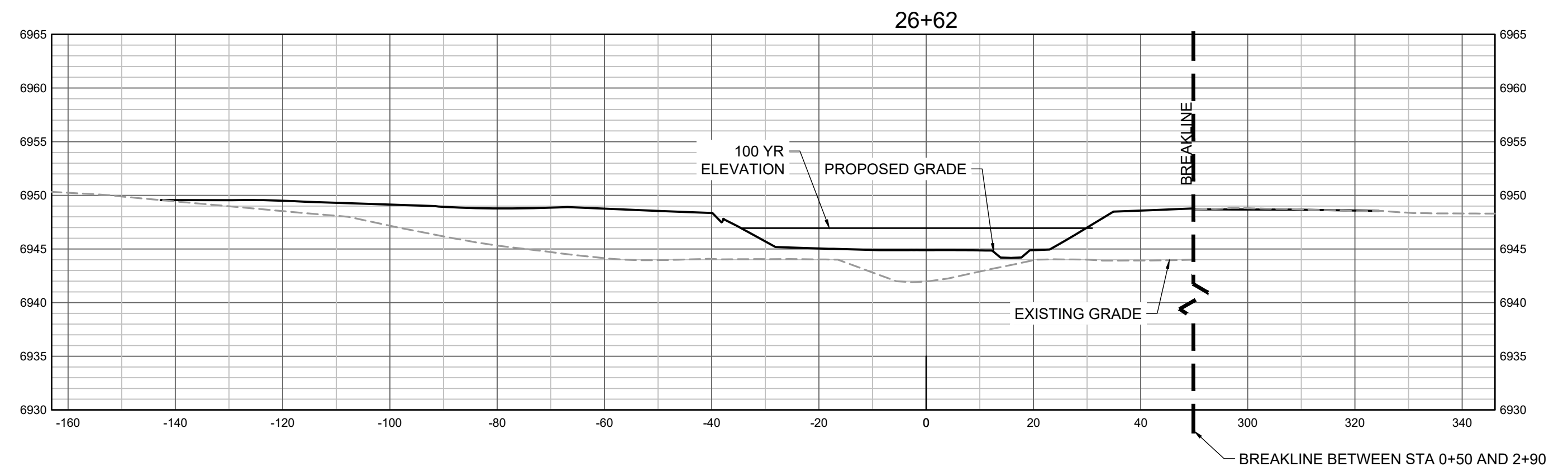
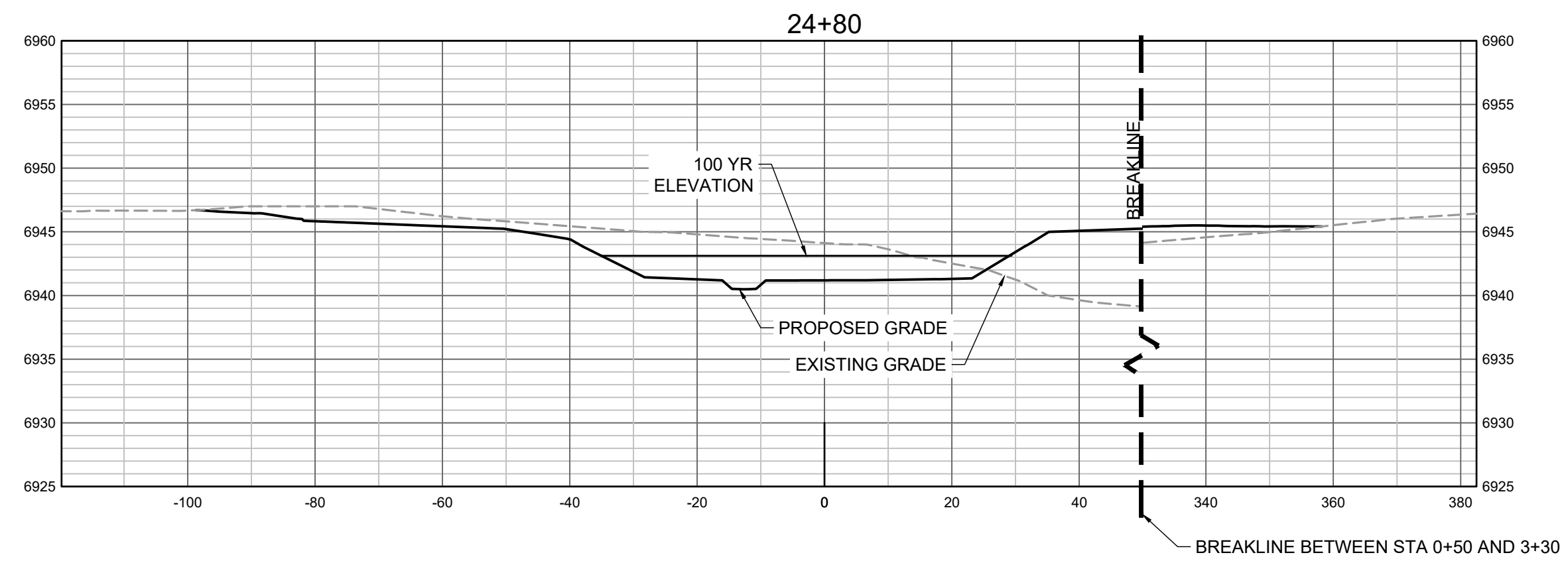
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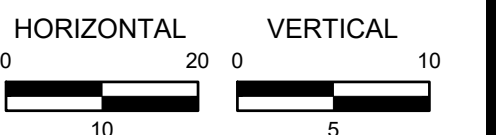
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CONSTRUCTION DOCUMENTS
 TRIBUTARY 2 CROSS SECTIONS

SHEET
CS1
37



PROPOSED GRADES TO TIE INTO GRANDVIEW RESERVE FILING 1. REFER TO THE GRANDVIEW RESERVE FILING 1 PLAN SET FOR CONTINUATION OF GRADING THAT IS BEING TIED INTO OUTSIDE OF CHANNEL GRADING LIMITS.



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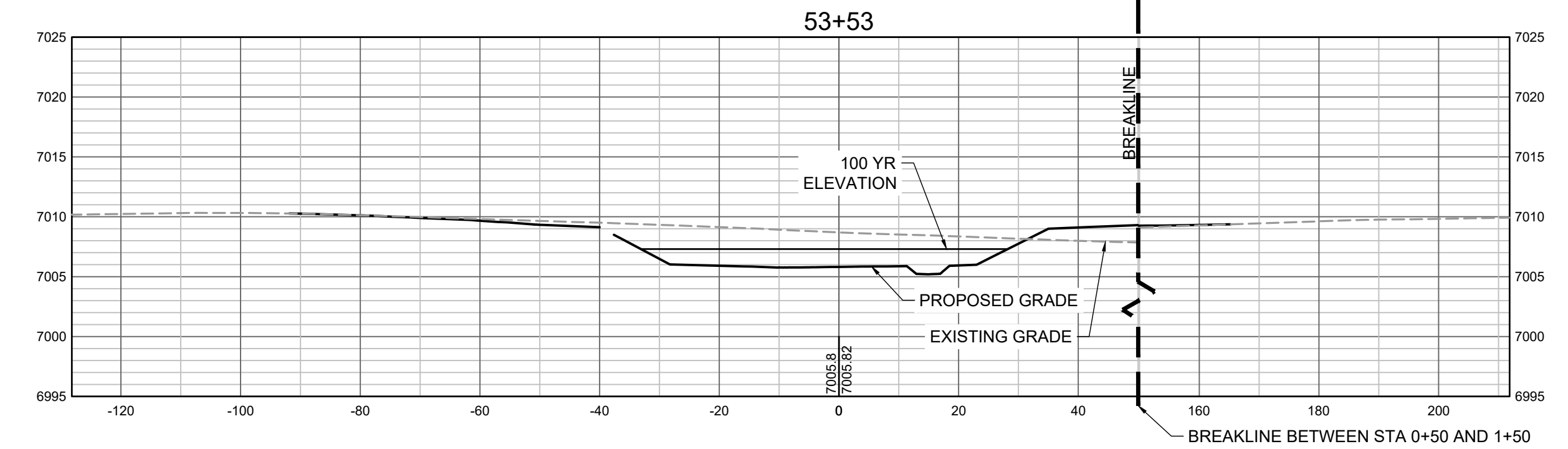
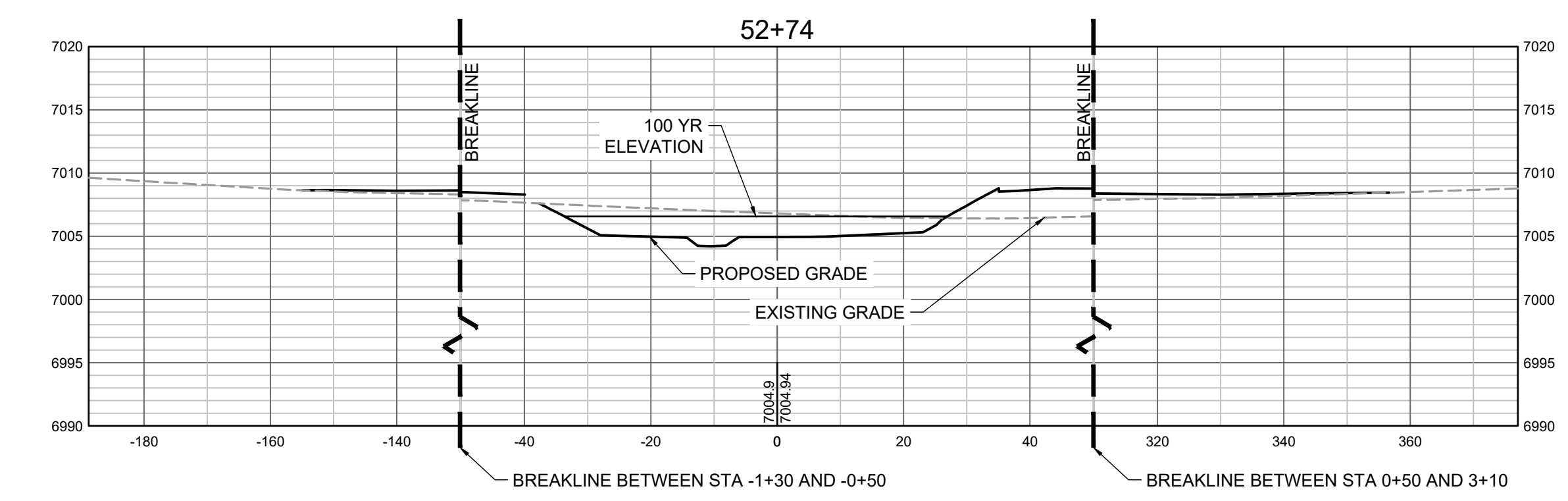
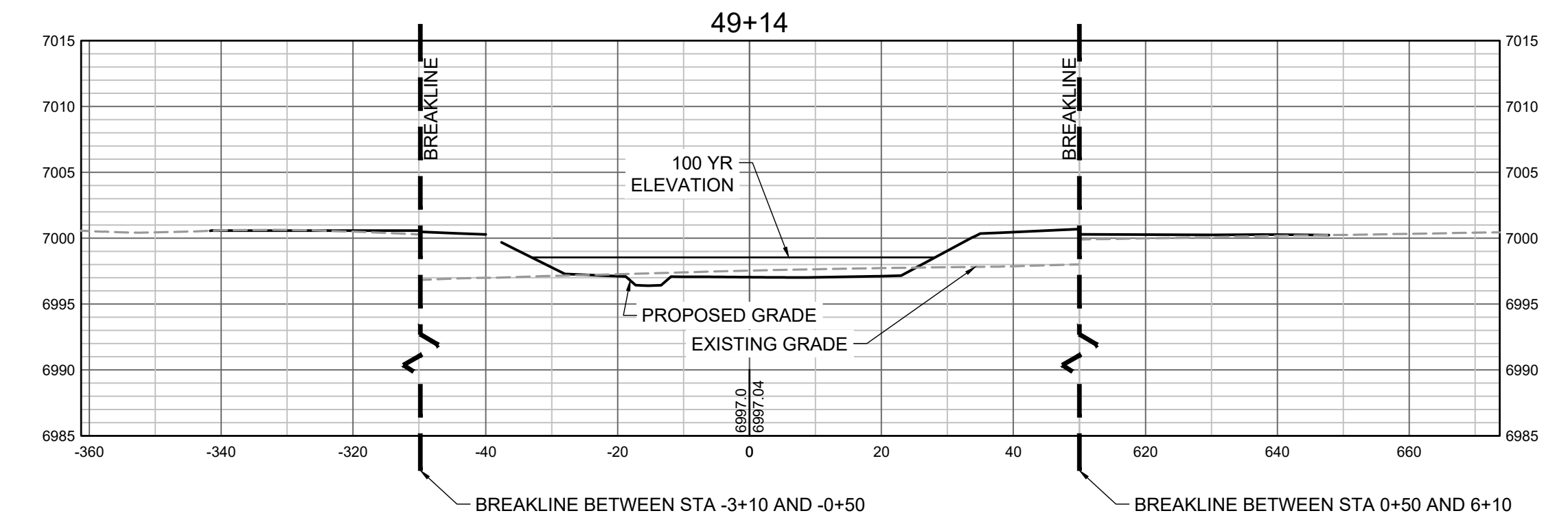
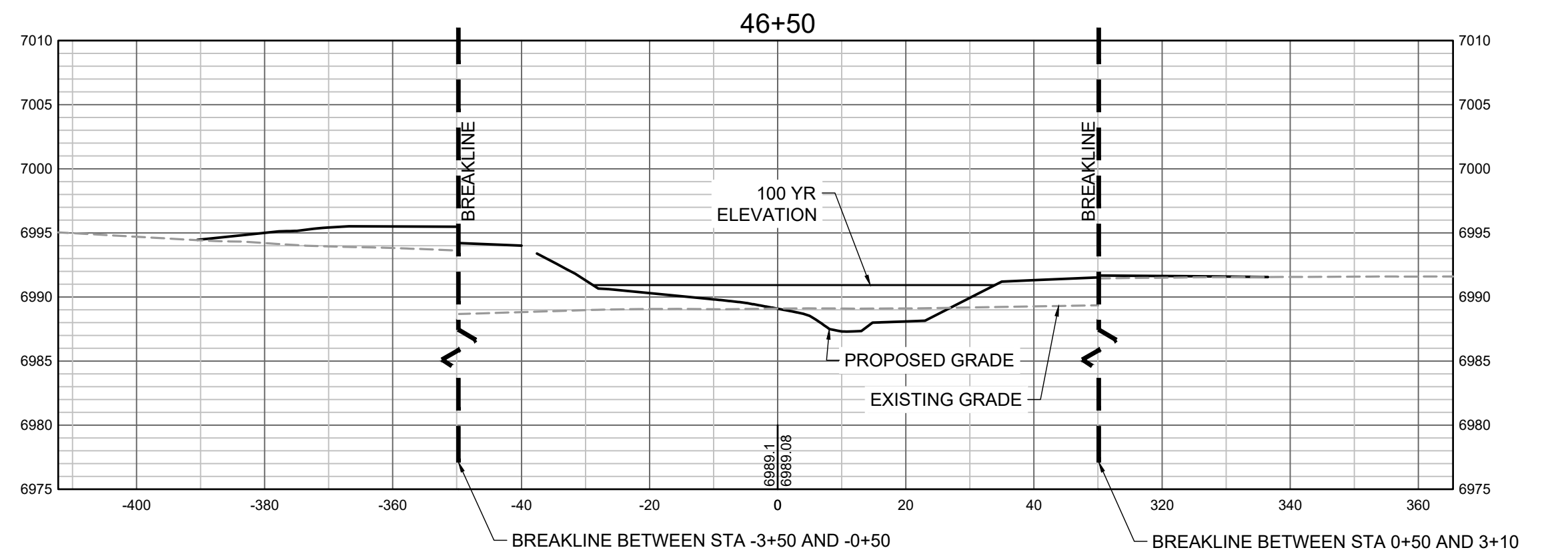
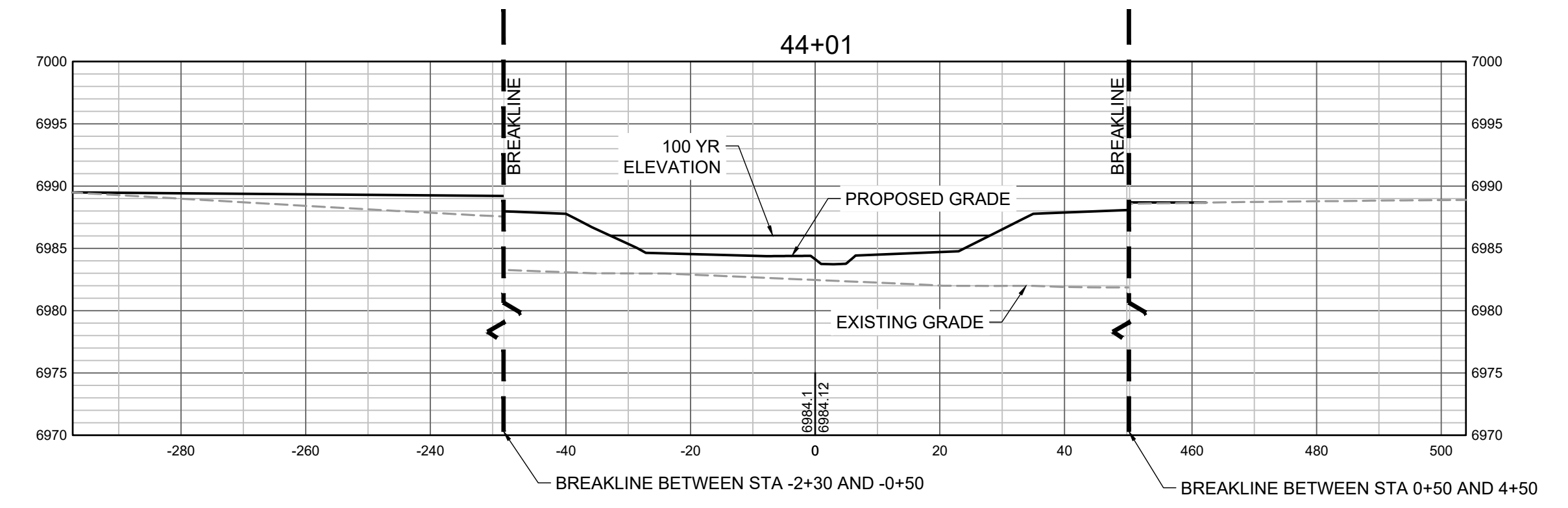
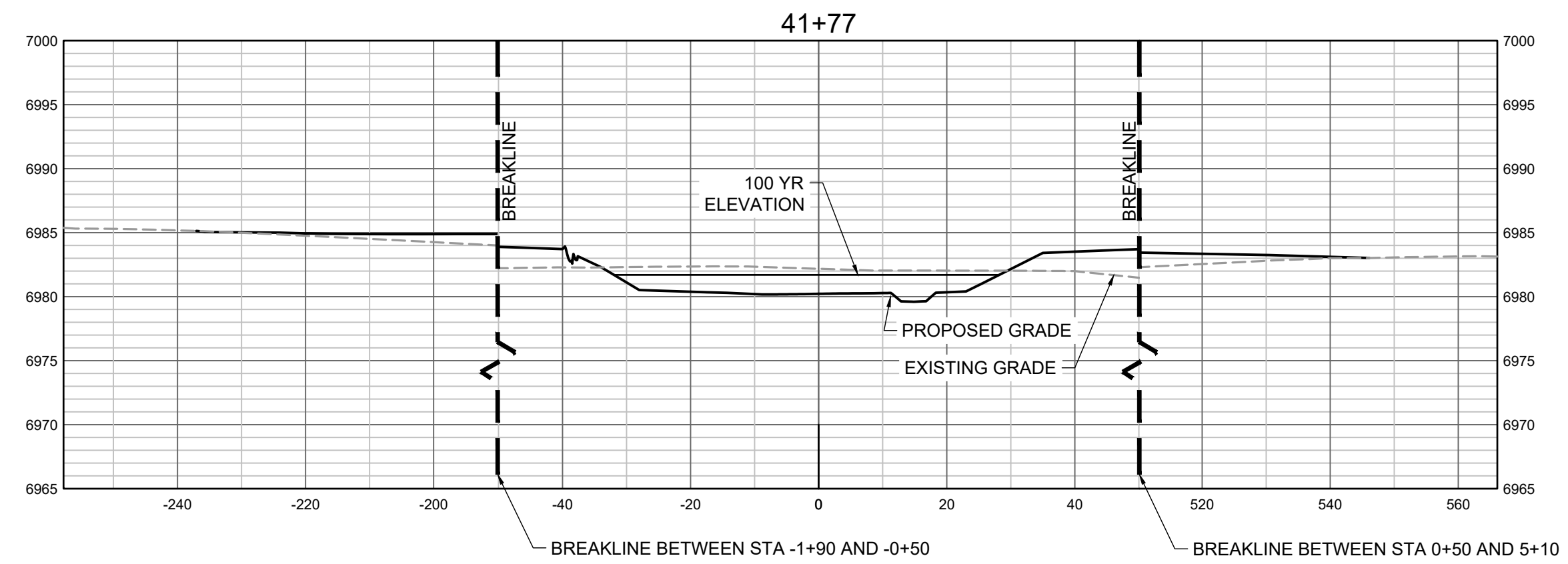
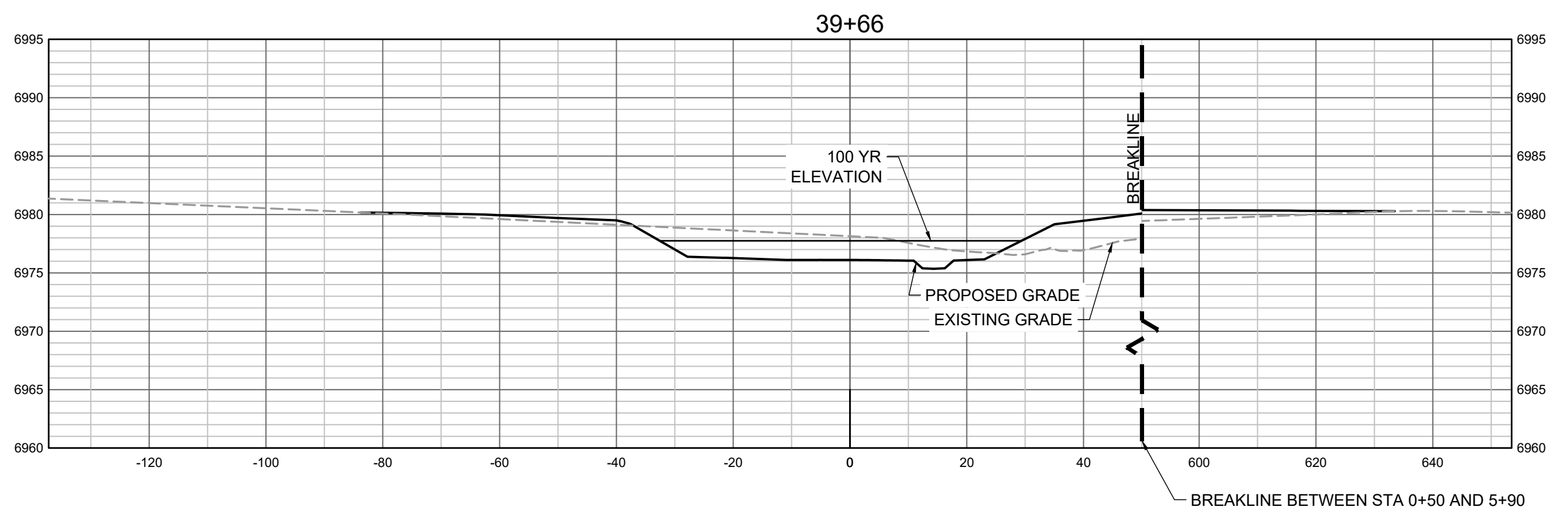
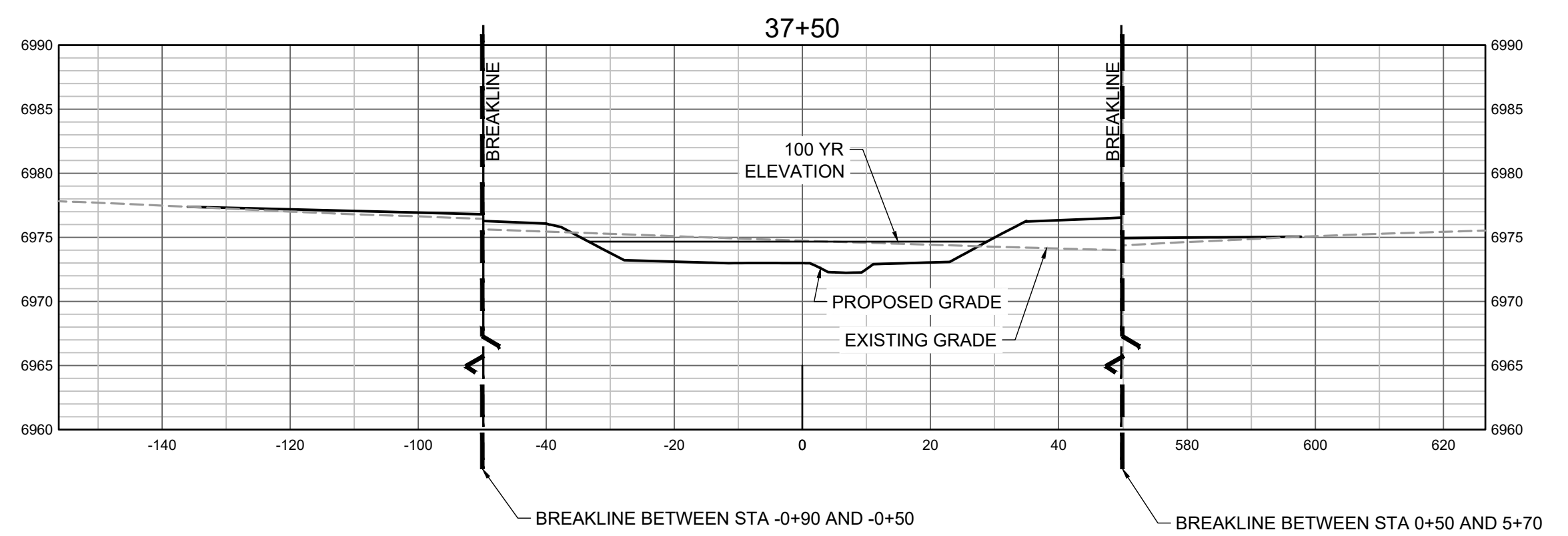


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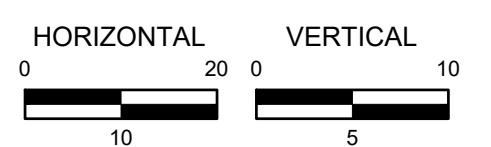
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HR GREEN Xrefs: xgs-1-dh01; 01-XC-PR_100YR_FP_DELINEATION

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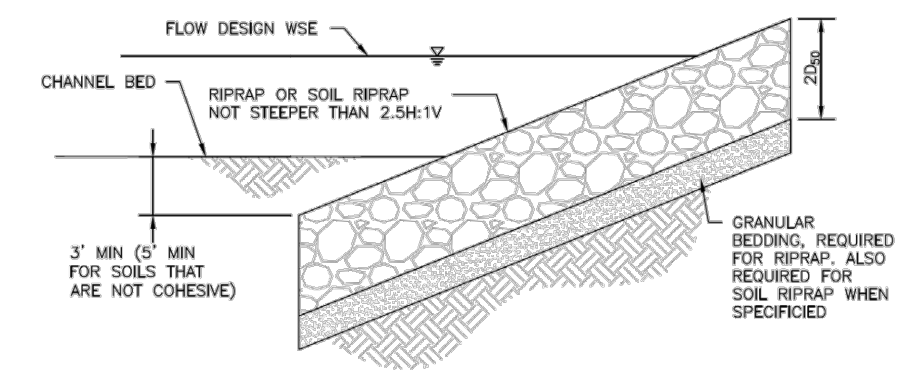
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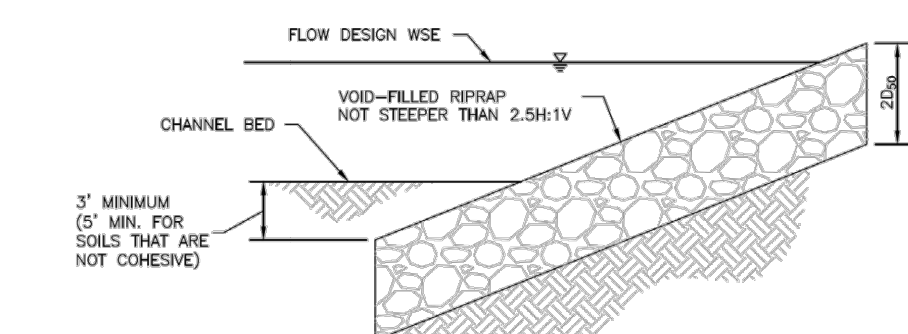
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RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D ₅₀ * (INCHES)
TYPE VL	70 - 100	12	6
	50 - 70	9	
	2 - 10	2	
TYPE L	70 - 100	15	9
	50 - 70	12	
	2 - 10	3	
TYPE M	70 - 100	21	12
	50 - 70	18	
	2 - 10	4	
TYPE H	70 - 100	30	18
	50 - 70	24	
	2 - 10	6	

*D₅₀ = MEAN ROCK SIZE

Figure 8-34. Riprap and soil riprap placement and gradation (part 1 of 3)



APPROPRIATE PROPORTIONS (BY VOLUME)	MATERIAL TYPE	MATERIAL DESCRIPTION
6 PARTS	RIPRAP	D ₅₀ = 6 INCH (TYPE VL) OR D ₅₀ = 9 INCH (TYPE L), SEE TABLE 3
1 PART	VOID-FILL MATERIAL	VTC (VEHICLE TRACKING CONTROL) ROCK (CRUSHED ROCK WITH 100% PASSING 4-INCH SIEVE, 50-70% PASSING 3-INCH SIEVE, 0-10% PASSING 2-INCH SIEVE)
1 PART	VOID-FILL MATERIAL	4-INCH MINUS PIT RUN SURGE (ROUND RIVER ROCK AND SAND, WELL GRADED, 90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 3-INCH SIEVE, 40-50% PASSING 2-INCH SIEVE)
1 PART	VOID-FILL MATERIAL	TYPE II BEDDING (CRUSHED ROCK WITH 100% PASSING 3-INCH SIEVE, 20-30% PASSING 2-INCH SIEVE, 0-20% PASSING #4 SIEVE, 0-3% PASSING #20 SIEVE)
½ TO 1 PART	VOID-FILL MATERIAL	NATIVE TOPSOIL

VOID-FILLED RIPRAP PLACEMENT AND GRADATION

Figure 8-35. Void-filled riprap placement and gradation (part 1 of 3)

- SOIL RIPRAP NOTES:
- ELEVATION TOLERANCES FOR THE SOIL RIPRAP SHALL BE 0.10 FEET. THICKNESS OF SOIL RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2-INCHES GREATER THAN THE THICKNESS SHOWN.
 - WHERE "SOIL RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP VOIDS ARE TO BE FILLED WITH NATIVE SOIL. THE RIPRAP SHALL BE PRE-MIXED WITH THE NATIVE SOIL AT THE FOLLOWING PROPORTIONS BY VOLUME: 65PERCENT RIPRAP AND 35 PERCENT SOIL. THE SOIL USED FOR MIXING SHALL BE NATIVE TOPSOIL AND SHALL HAVE A MINIMUM FINES CONTENT OF 15 PERCENT. THE SOIL RIPRAP SHALL BE INSTALLED IN A MANNER THAT RESULTS IN A DENSE, INTERLOCKED LAYER OF RIPRAP WITH RIPRAP VOIDS FILLED COMPLETELY WITH SOIL. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL CONSIST PRIMARILY OF SOIL. THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT SOIL.
 - WHERE SPECIFIED (TYPICALLY AS "BURIED SOIL RIPRAP"), A SURFACE LAYER OF TOPSOIL SHALL BE PLACED OVER THE SOIL RIPRAP ACCORDING TO THE THICKNESS SPECIFIED ON THE CONTRACT DRAWINGS. THE TOPSOIL SURFACE LAYER SHALL BE COMPACTED TO APPROXIMATELY 85% OF MAXIMUM DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698. TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.
 - ALL SOIL RIPRAP THAT IS BURIED WITH TOPSOIL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY TOPSOIL PLACEMENT.

U.S. STANDARD SIEVE SIZE	GRADATION FOR GRANULAR BEDDING	
	TYPE I (LOWER LAYER)	TYPE II (UPPER LAYER)
3 INCHES	-	90 - 100
1½ INCHES	-	-
¾ INCHES	-	20 - 90
¾ INCHES	100	-
#4	95 - 100	0 - 20
#16	45 - 80	-
#50	10 - 30	-
#100	2 - 10	-
#200	0 - 2	0 - 3

RIPRAP BEDDING

Figure 8-34. Riprap and soil riprap placement and gradation (part 2 of 3)

APPROPRIATE PROPORTIONS (BY VOLUME)	MATERIAL TYPE	MATERIAL DESCRIPTION
6 PARTS	RIPRAP	D ₅₀ = 12-INCH (TYPE M) OR D ₅₀ = 18-INCH (TYPE H), SEE TABLE 3
2 PART	VOID-FILL MATERIAL	3-INCH MINUS CRUSHED ROCK SURGE (100% PASSING 7-INCH SIEVE, 80-100% PASSING 6-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 10-20% PASSING 1½-INCH SIEVE)
1 PART	VOID-FILL MATERIAL	VTC (VEHICLE TRACKING CONTROL) ROCK (CRUSHED ROCK WITH 100% PASSING 4-INCH SIEVE, 50-70% PASSING 3-INCH SIEVE, 0-10% PASSING 2-INCH SIEVE)
1 PART	VOID-FILL MATERIAL	4-INCH MINUS PIT RUN SURGE (ROUND RIVER ROCK AND SAND, WELL GRADED, 90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 3-INCH SIEVE, 40-50% PASSING 2-INCH SIEVE, 10-20% PASSING #16 SIEVE)
1 PART	VOID-FILL MATERIAL	TYPE II BEDDING (CRUSHED ROCK WITH 100% PASSING 3-INCH SIEVE, 20-30% PASSING 2-INCH SIEVE, 0-20% PASSING #4 SIEVE, 0-3% PASSING #20 SIEVE)
½ TO 1 PART	VOID-FILL MATERIAL	NATIVE TOPSOIL

RIPRAP DESIGNATION	TABLE 3. VOID-FILLED RIPRAP PLACEMENT AND GRADATION	
	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)
TYPE VL	70 - 100	12
	50 - 70	9
	2 - 10	2
TYPE L	70 - 100	15
	50 - 70	12
	2 - 10	3
TYPE M	70 - 100	21
	50 - 70	18
	2 - 10	4
TYPE H	70 - 100	30
	50 - 70	24
	2 - 10	6

*D₅₀ = MEAN ROCK SIZE

NOTE: MIX ON SITE AND PRIOR TO PLACEMENT

Figure 8-35. Void-filled riprap placement and gradation (part 2 of 3)

RIPRAP DESIGNATION	THICKNESS REQUIREMENTS FOR GRANULAR BEDDING		
	MINIMUM BEDDING THICKNESS (INCHES)		
	FINE-GRAINED SOILS 1	COARSE-GRAINED SOILS 2	
	TYPE I (LOWER LAYER)	TYPE II (UPPER LAYER)	TYPE II
VL (D ₅₀ = 6 IN)	4	4	6
L (D ₅₀ = 9 IN)	4	4	6
M (D ₅₀ = 12 IN)	4	4	6
H (D ₅₀ = 18 IN)	4	6	8
VH (D ₅₀ = 24 IN)	4	6	8

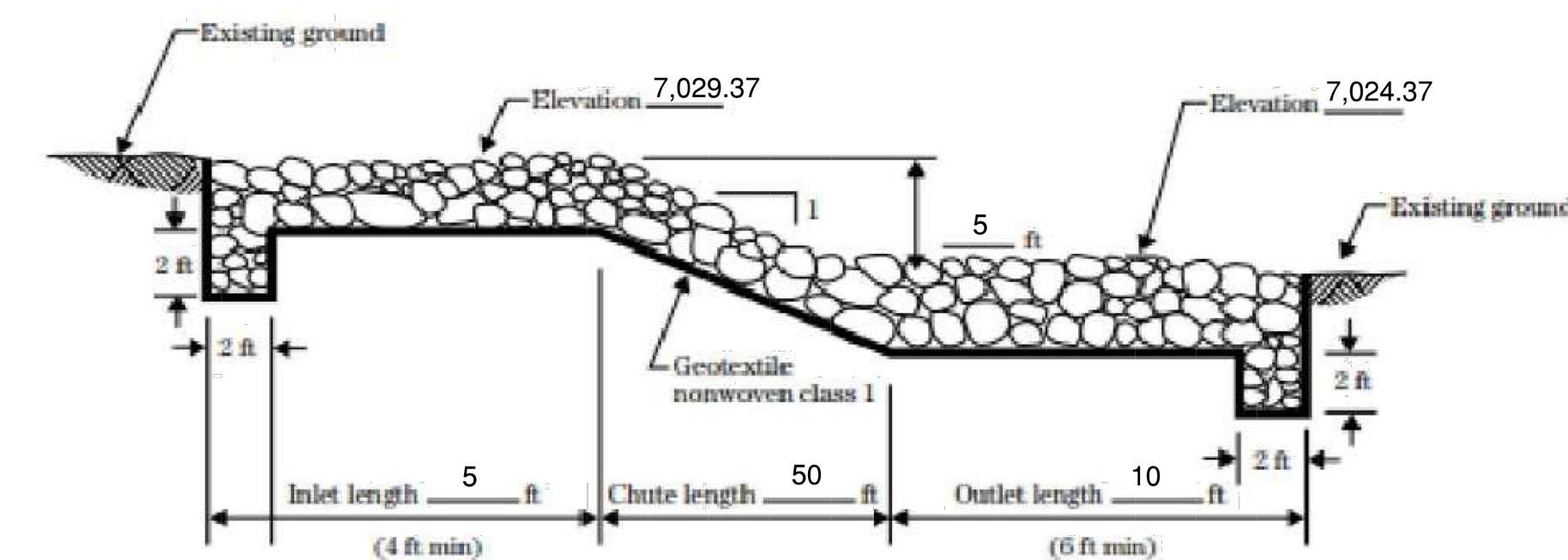
- NOTES:
- MAY SUBSTITUTE ONE 12-INCH LAYER OF TYPE II BEDDING. THE SUBSTITUTION OF ONE LAYER OF TYPE II BEDDING SHALL NOT BE PERMITTED AT DROP STRUCTURES. THE USE OF A COMBINATION OF FILTER FABRIC AND TYPE II BEDDING AT DROP STRUCTURES IS ACCEPTABLE.
 - FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

Figure 8-34. Riprap and soil riprap placement and gradation (part 3 of 3)

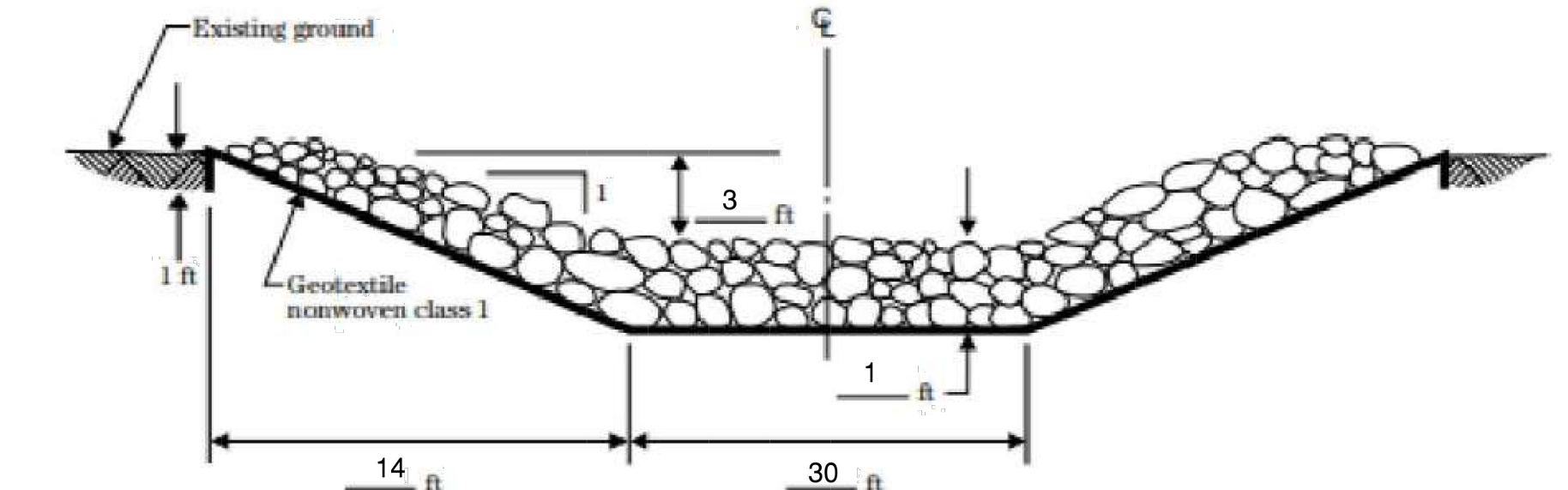
- VOID-FILLED RIPRAP PLACEMENT AND GRADATION NOTES:
- WHERE "VOID-FILLED RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP SHALL BE MIXED WITH THE MATERIALS AND ASSOCIATED PROPORTIONS LISTED IN TABLE 1 OR TABLE 2 TO FILL THE VOIDS OF THE RIPRAP.
 - THE MIX PROPORTIONS PROVIDED IN TABLE 1 AND TABLE 2 ARE APPROXIMATE AND ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER.
 - THE RIPRAP AND VOID-FILLED MATERIALS SHALL BE STOCKPILED SEPARATELY AND THOROUGHLY MIXED PRIOR TO PLACEMENT AND SHALL BE INSTALLED AND COMPACTED SO THAT A DENSE, INTERLOCKED LAYER OF RIPRAP AND VOID-FILL MATERIAL IS PROVIDED WITH RIPRAP VOIDS COMPLETELY FILLED. THE LOOSE MATERIAL SHALL BE PLACED IN A SINGLE LIFT OF SUFFICIENT HEIGHT SUCH THAT FINAL GRADE WILL BE ACHIEVED UPON COMPACTED. IF THE COMPACTED MATERIAL IS BELOW FINAL GRADE, PLACEMENT OF ONLY THE SMALLER VOID-FILL MATERIAL IS NECESSARY TO ACHIEVE FINAL GRADE. IN SUCH CASES, IT IS NECESSARY TO ADD MORE STANDARD SIZED VOID-FILLED RIPRAP AND REMIX THE ENTIRE THICKNESS OF ROCK TO ACHIEVE THE DESIGN SECTION. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL CONSIST PRIMARILY OF THE VOID-FILL MATERIALS. THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT FILLING THE VOIDS.
 - COMPACTION OF THE VOID-FILLED RIPRAP SHALL BE PERFORMED BY WHEEL ROLLING WITH HEAVY RUBBER-TIRED EQUIPMENT (E.G. FRONT END LOADER). THE MOISTURE CONTENT OF THE MIXTURE SHALL BE AT OPTIMUM CONDITIONS PRIOR TO COMPACTION AND WATER SHALL BE ADDED, AS NECESSARY, AT THE DIRECTION OF THE ENGINEER.
 - WHERE INDICATED ON THE DRAWINGS, A SURFACE LAYER OF MOIST TOPSOIL SHALL BE PLACED OVER THE VOID-FILLED RIPRAP. THE TOPSOIL SURFACE LAYER SHALL BE COMPACTED TO APPROXIMATELY 85% OF MAXIMUM DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698. TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.
 - ALL VOID-FILLED RIPRAP THAT IS BURIED WITH TOPSOIL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY TOPSOIL PLACEMENT.

Figure 8-35. Void-filled riprap placement and gradation (part 3 of 3)

Figure TS14P-32 Design drawings for rock chute grade control structure



Profile along centerline



Typical section of chute

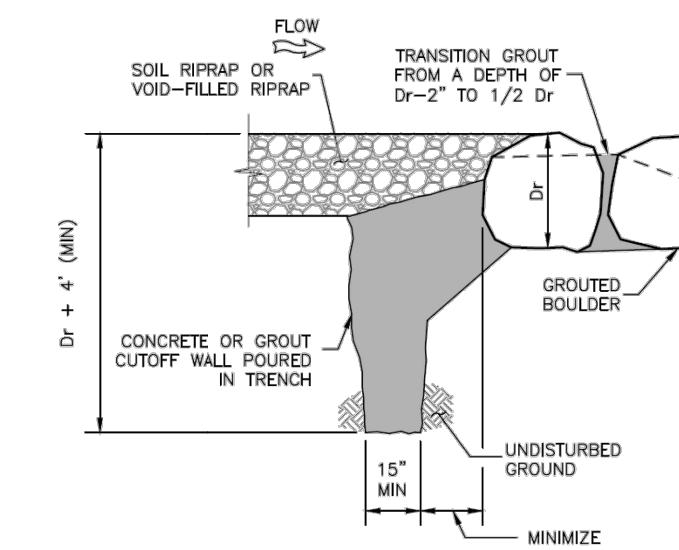


Figure 9-9. Concrete or grout cutoff wall upstream of drop structure

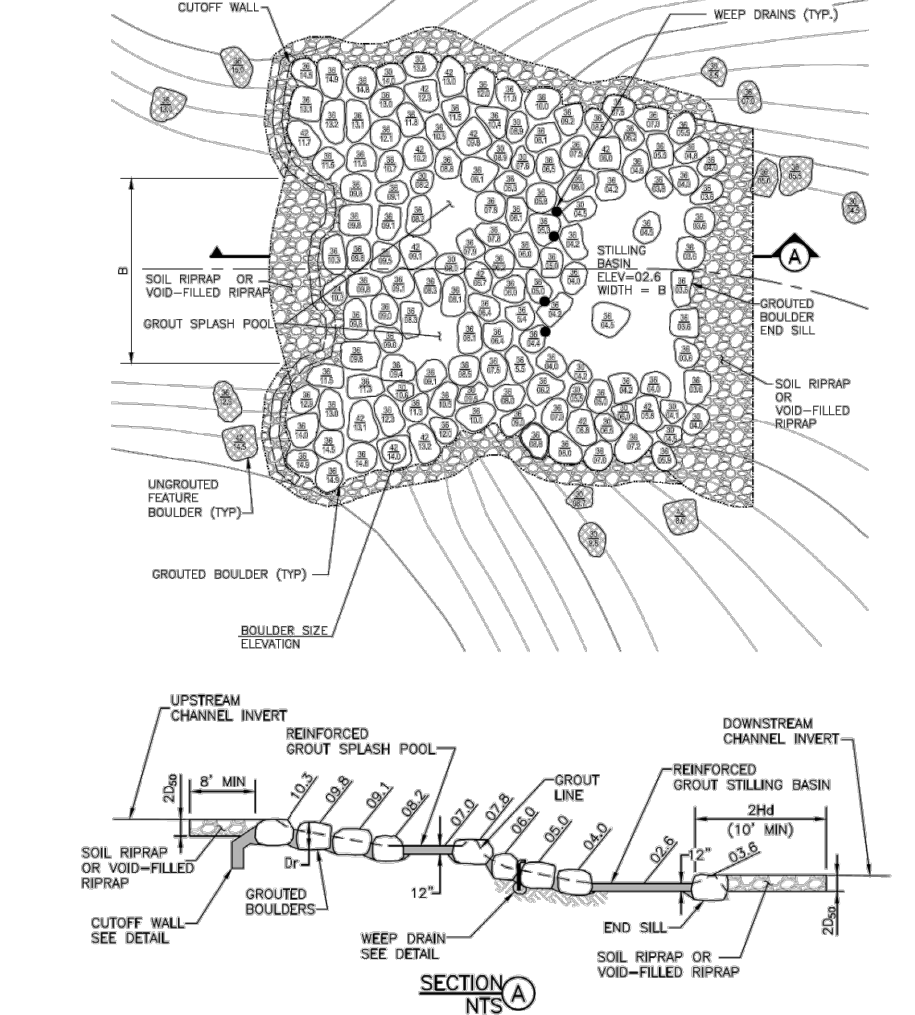


Figure 9-14. Example of complex grouted stepped boulder drop structure

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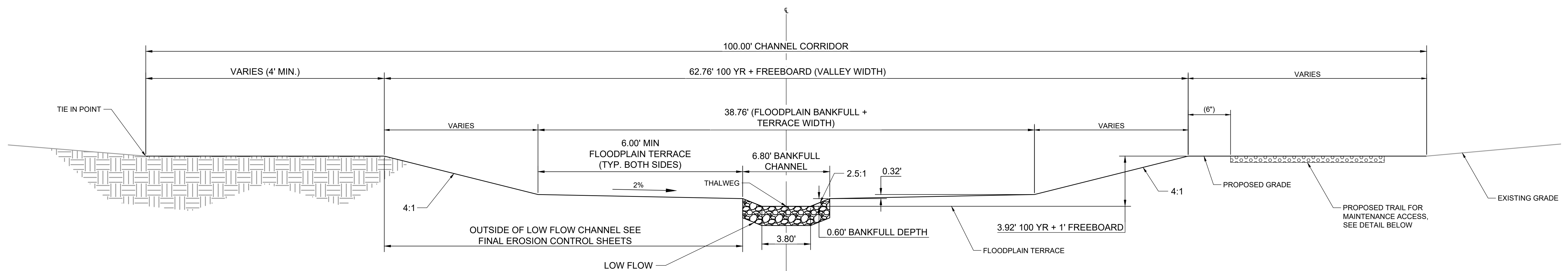
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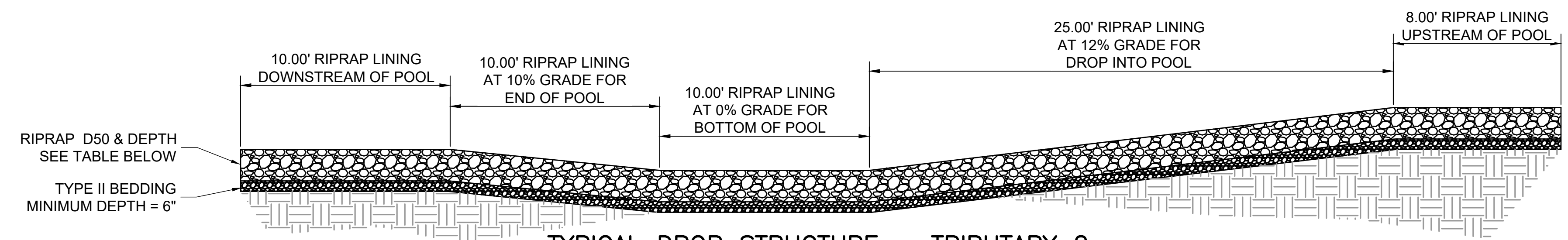
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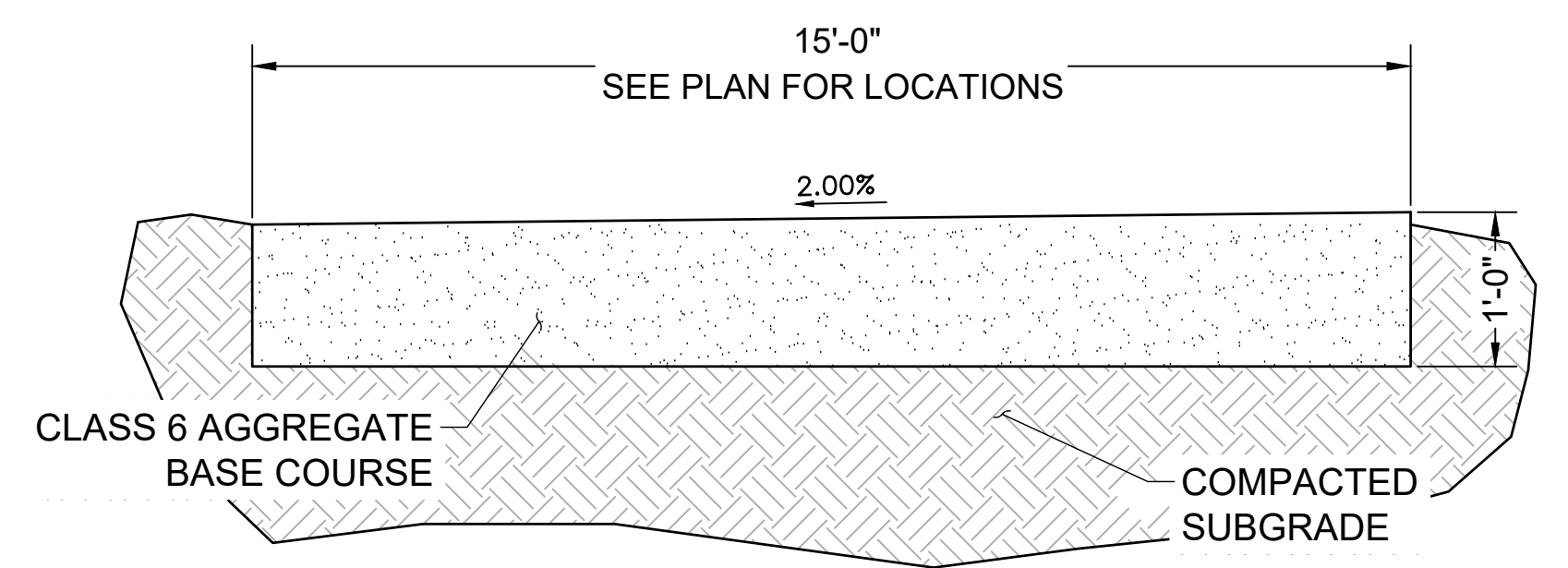
- NOTES:
- BANKFULL CHANNEL MAY SHIFT LEFT OR RIGHT WITHIN THE BANKFULL + TERRACE WIDTH SO LONG AS THE MINIMUM FLOOD PLAIN TERRACE WIDTH OF 6' IS MAINTAINED ON BOTH SIDES.
 - VALLEY WIDTH MAY SHIFT WITHIN THE 100' CHANNEL CORRIDOR.
 - SEE PROFILES FOR ELEVATION AT THALWEG.

1 **TYPICAL CROSS SECTION - TRIBUTARY 2**
SCALE: N.T.S.



2 **TYPICAL DROP STRUCTURE - TRIBUTARY 2**
SCALE: N.T.S.

DROP STRUCTURES RIPRAP			
DROP STRUCTURE STYLE	RIPRAP TYPE	D50 SIZE (IN)	MINIMUM DEPTH (IN)
A	L	9	18
B	M	12	24



MAINTENANCE ROAD TYPICAL SECTION
SCALE: NTS

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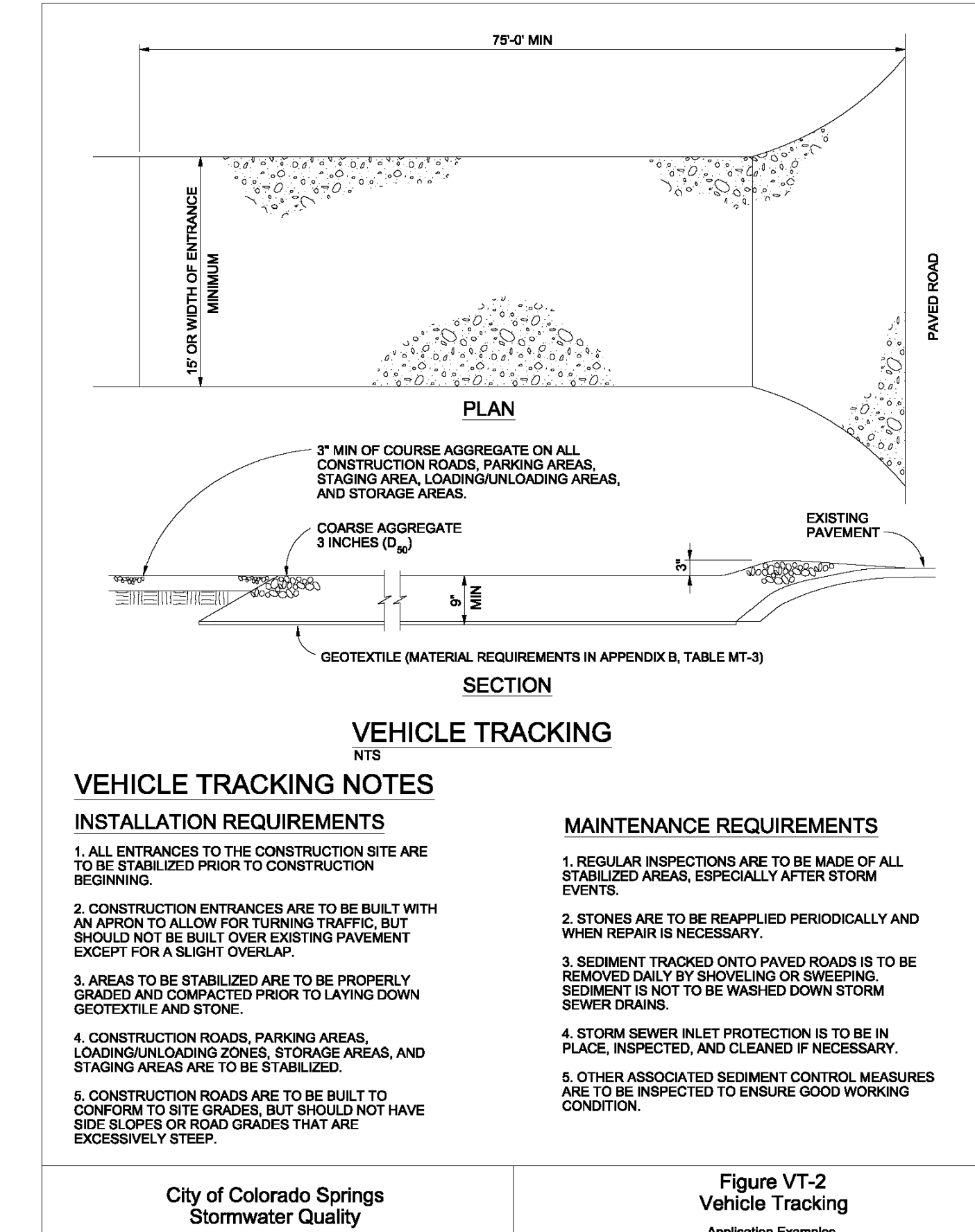
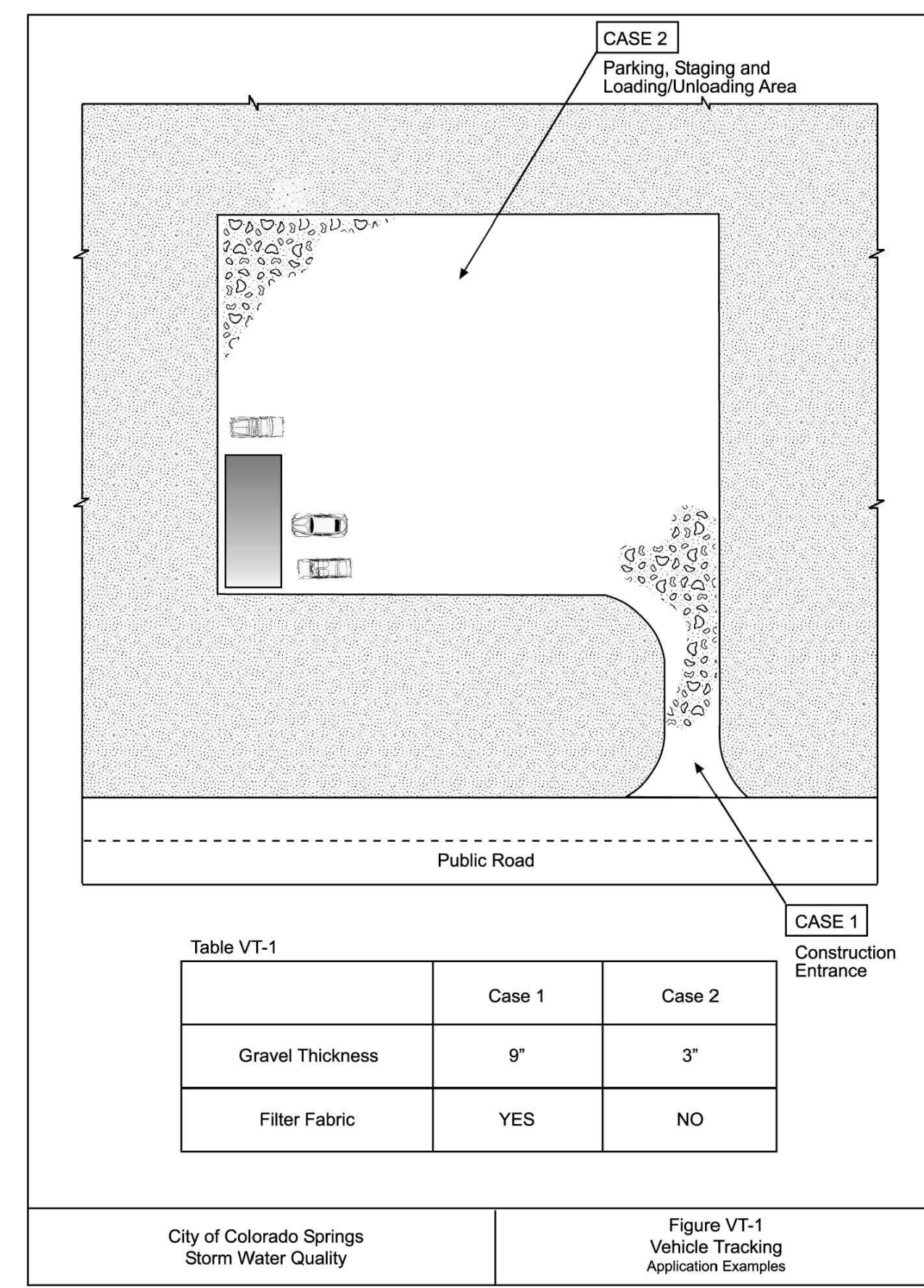
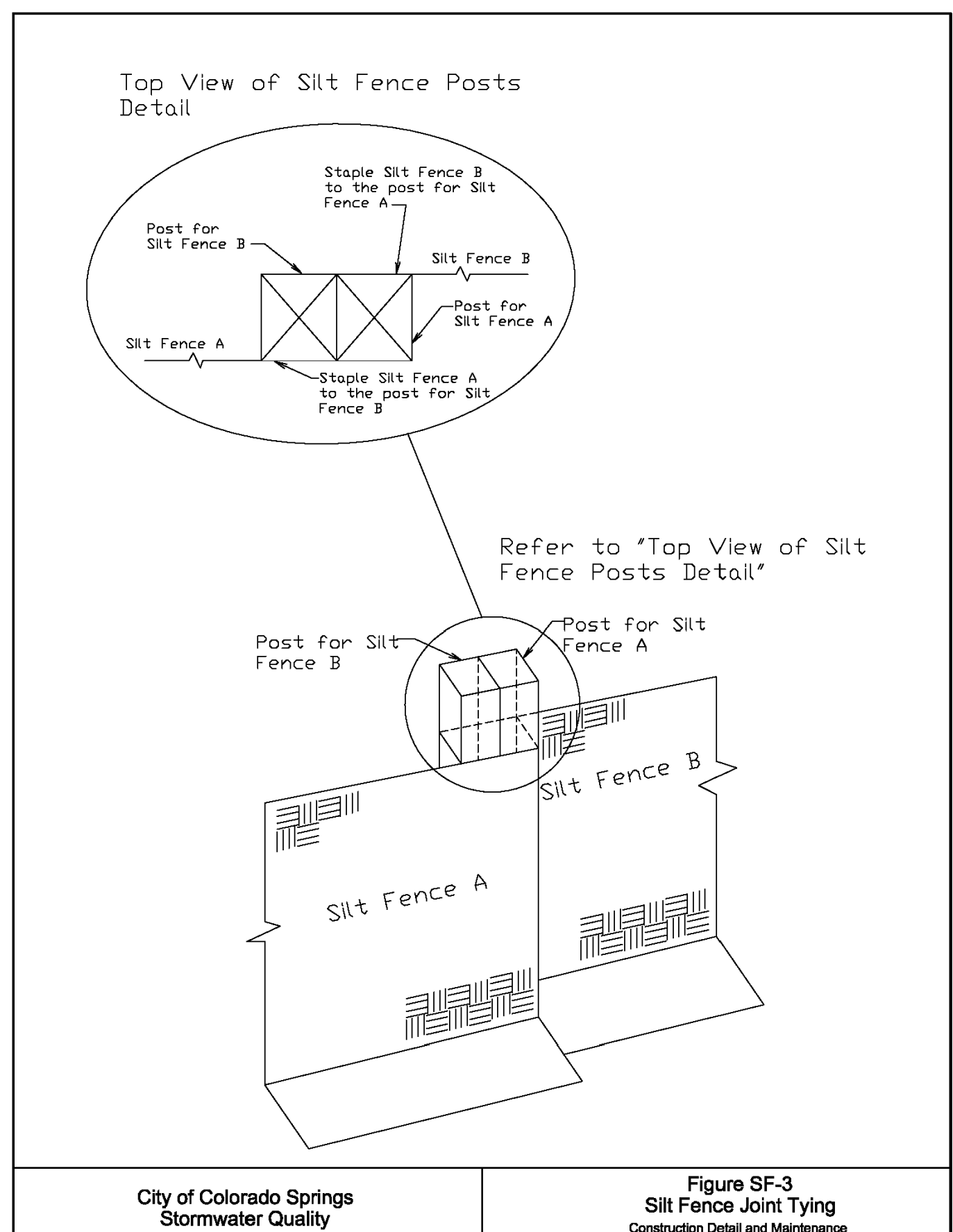
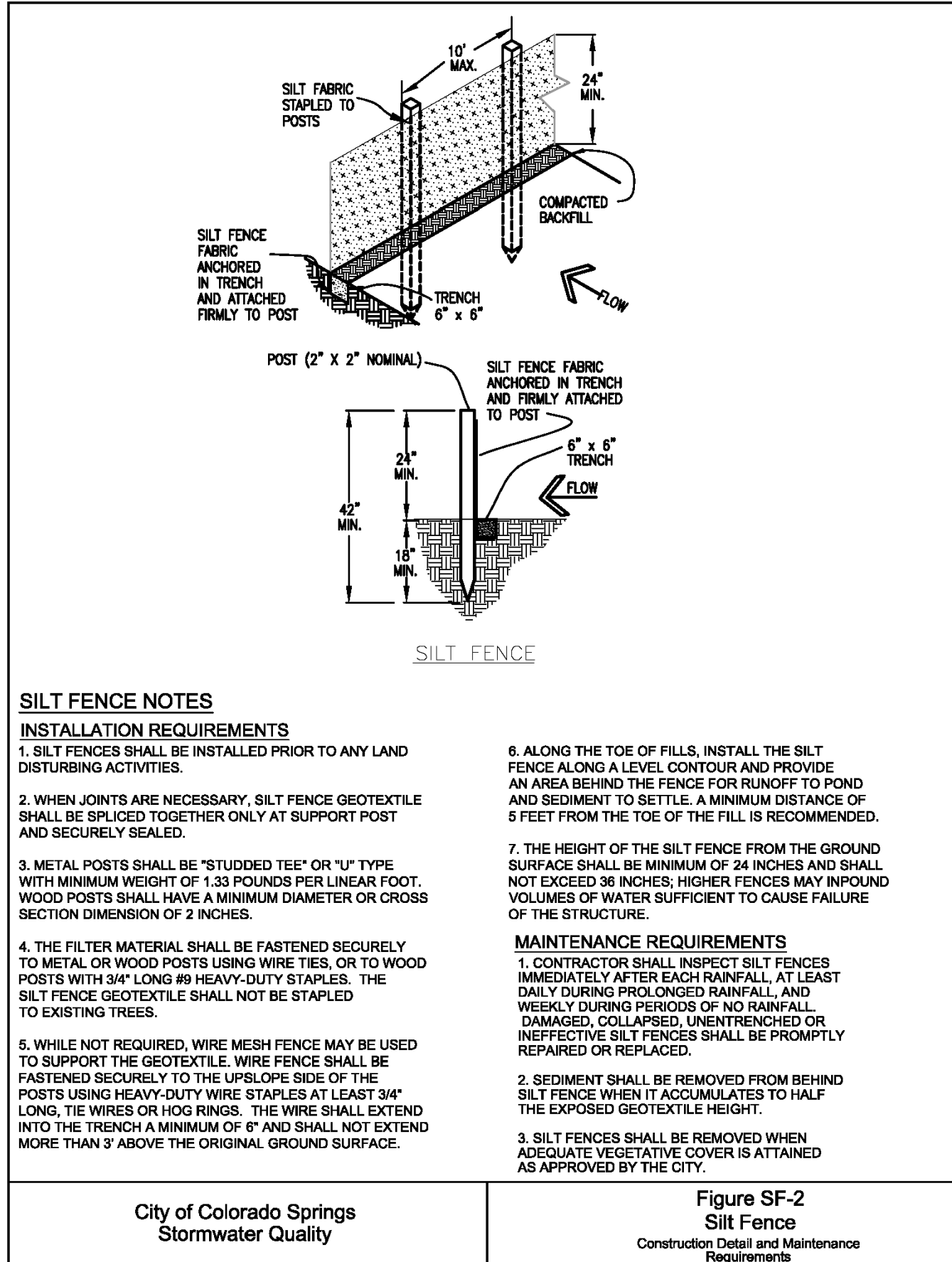
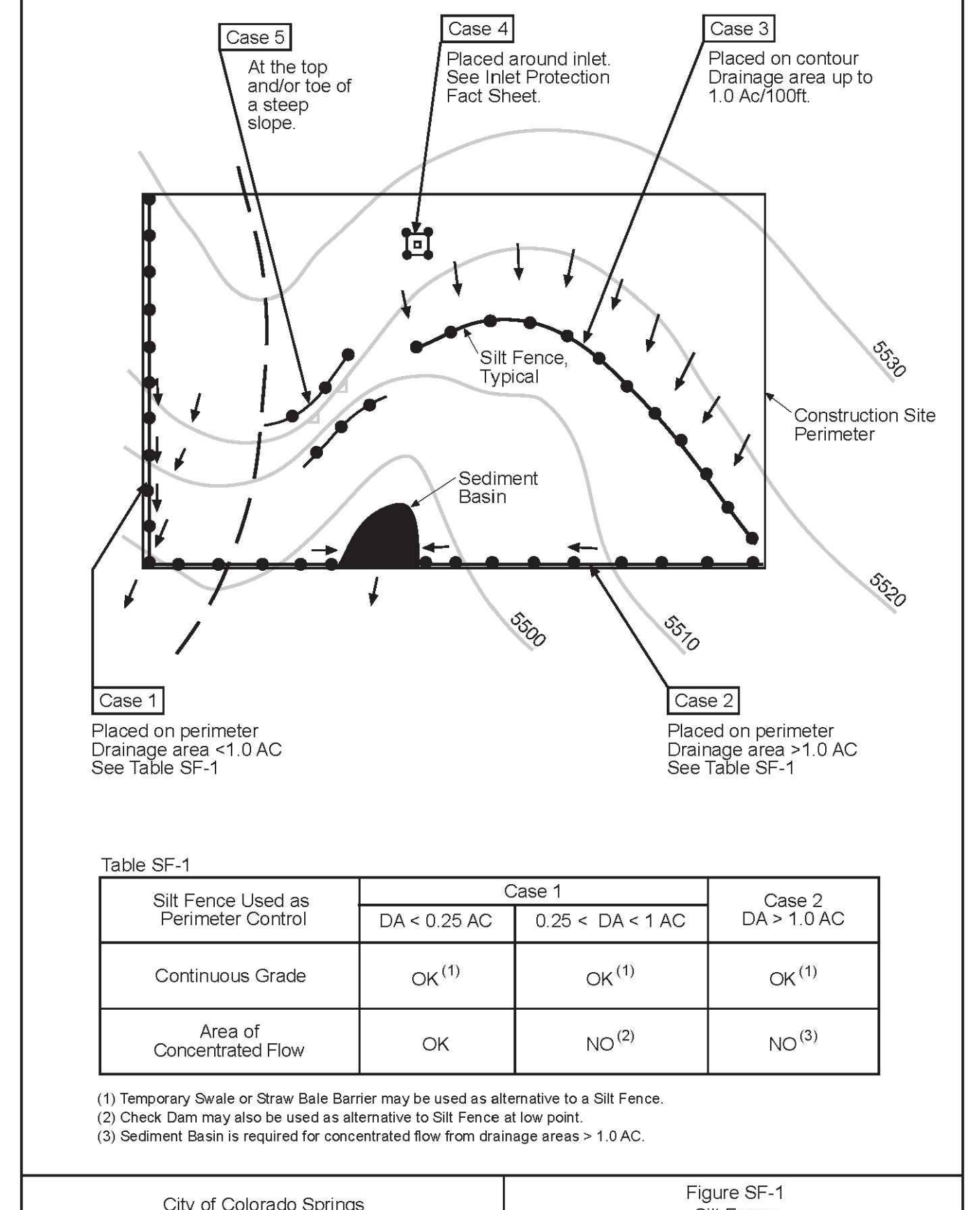
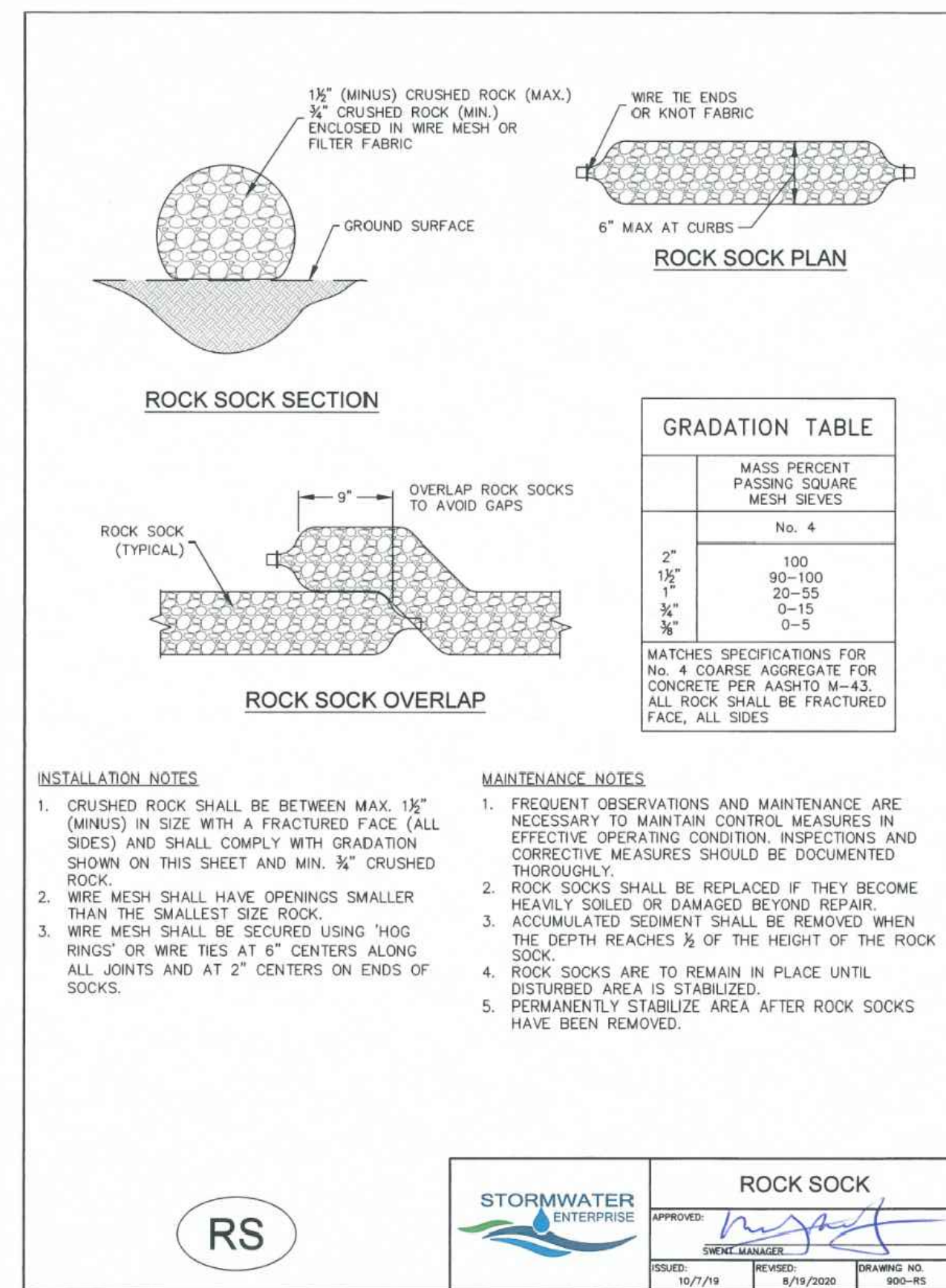
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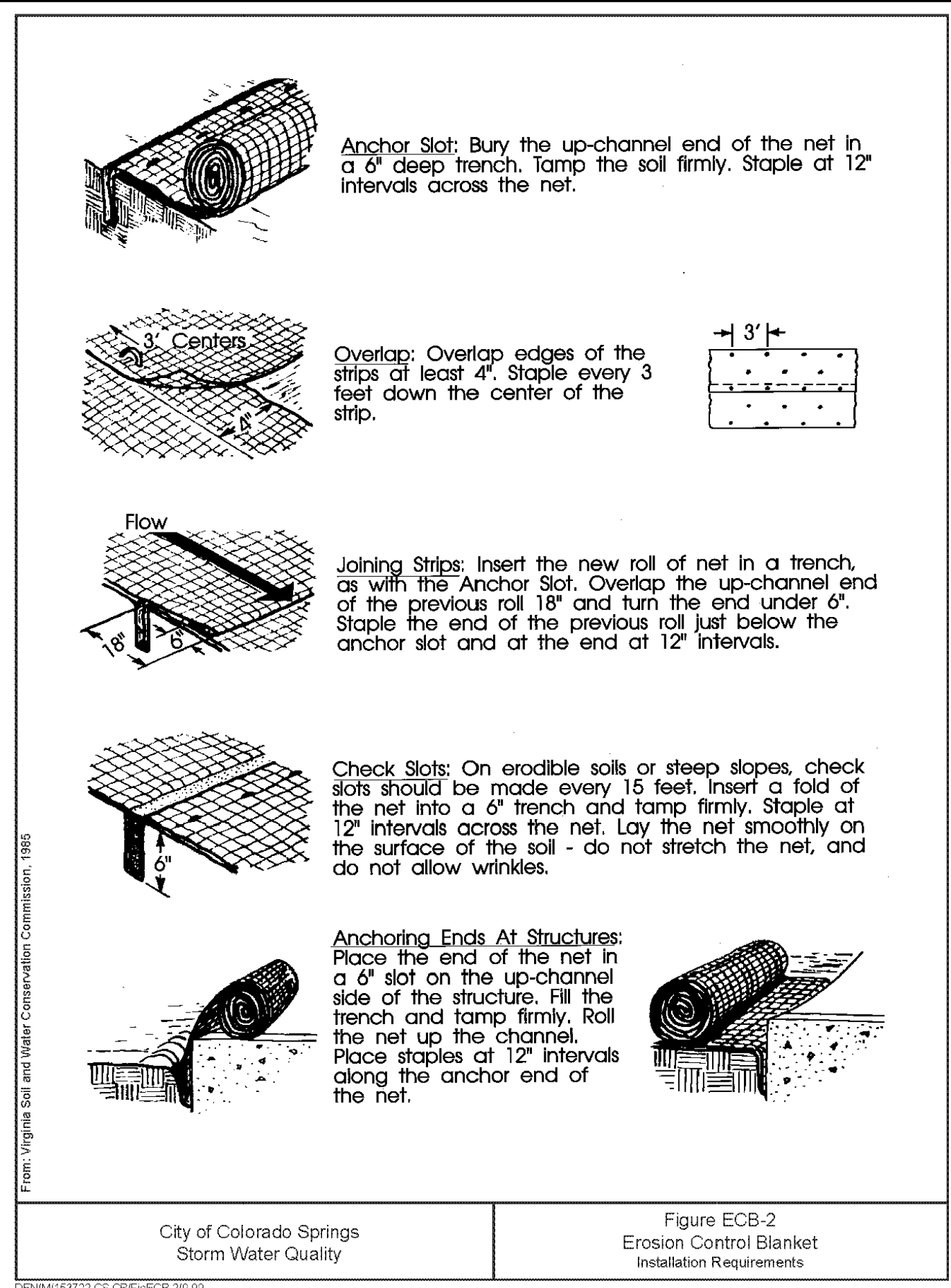
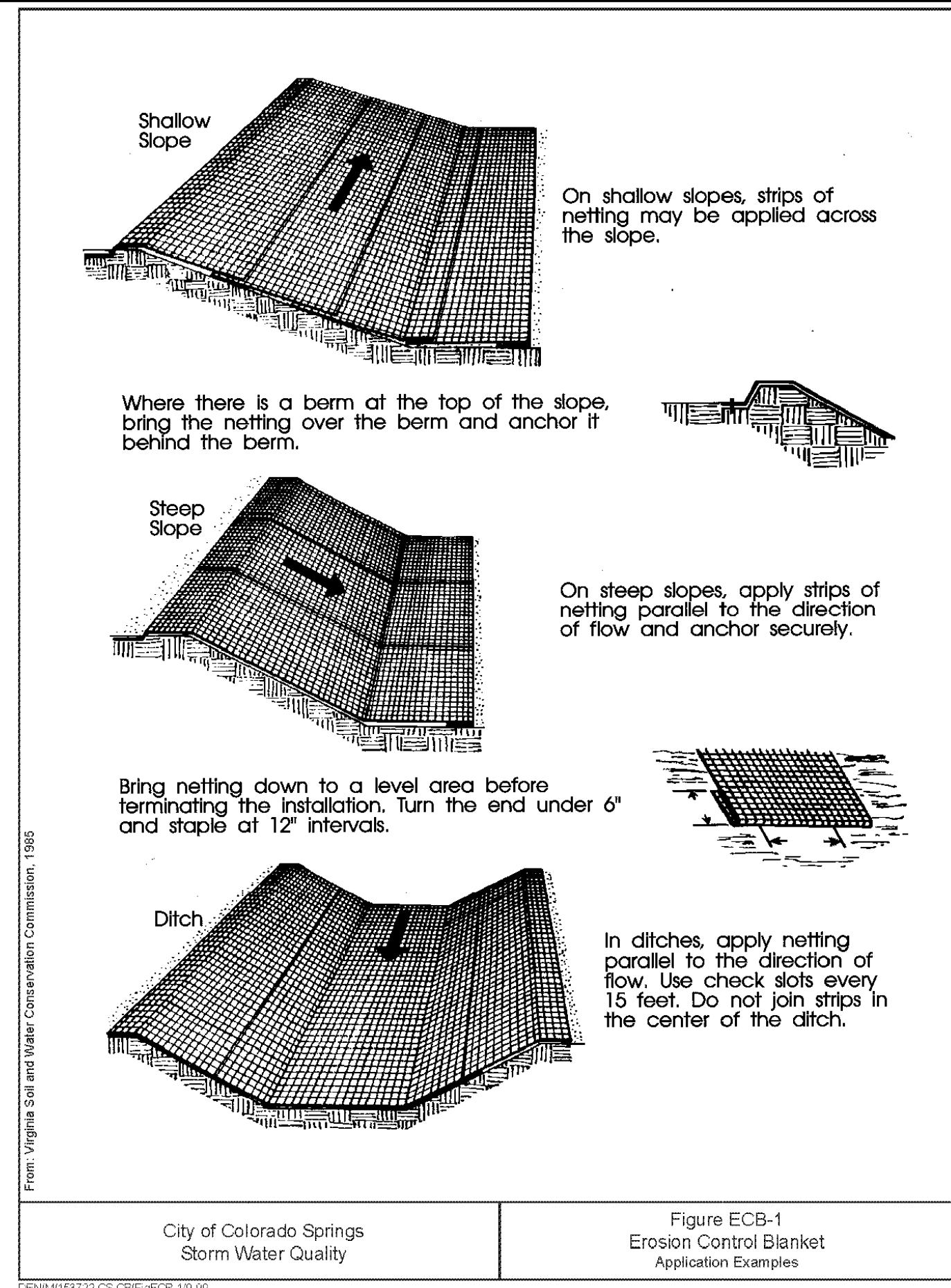
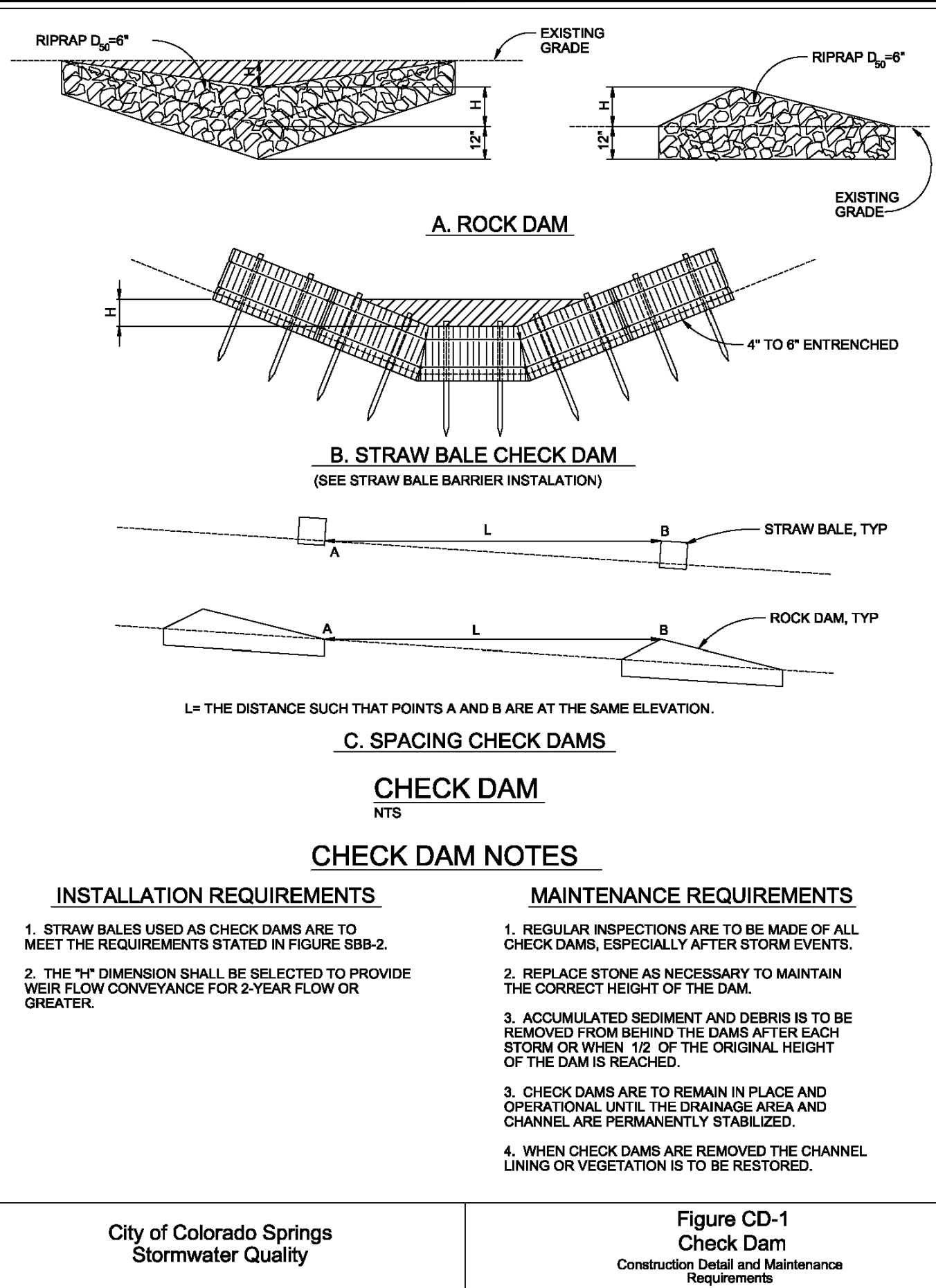
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RECOMMENDED ANNUAL GRASSES

SPECIES (COMMON NAME)	GROWTH SEASON	SEEDING DATE	POUNDS OF PURE LIVE SEED (PLS) (PLS/ACRE)	PLANTING DEPTH (INCHES)
1. OATS	COOL	MARCH 16 - APRIL 30	35-50	1-2
2. SPRING WHEAT	COOL	MARCH 16 - APRIL 30	25-35	1-2
3. SPRING BARLEY	COOL	MARCH 16 - APRIL 30	25-35	1-2
4. ANNUAL RYEGRASS	COOL	MARCH 16 - JUNE 30	10-15	1/2
5. MILLET	WARM	MAY 16 - JULY 15	3-15	1/2-3/4
6. SUDANGRASS	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
7. SORGHUM	WARM	MAY 16 - JULY 15	5-10	1/2-3/4
8. WINTER WHEAT	COOL	SEPTEMBER 1 - 30	20-35	1-2
9. WINTER BARLEY	COOL	SEPTEMBER 1 - 30	20-35	1-2
10. WINTER RYE	COOL	SEPTEMBER 1 - 30	20-35	1-2
11. TRITICALE	COOL	SEPTEMBER 1 - 30	25-40	1-2

THIS TABLE WAS TAKEN FROM UDFCD FOR RECOMMENDED ANNUAL GRASSES FOR THE DENVER METROPOLITAN AREA. THIS TABLE MAY BE USED UNLESS A SITE-SPECIFIC SEED MIX IS REQUESTED AND APPROVED.

TABLE TS-1

TEMPORARY SEEDING NOTES

INSTALLATION REQUIREMENTS

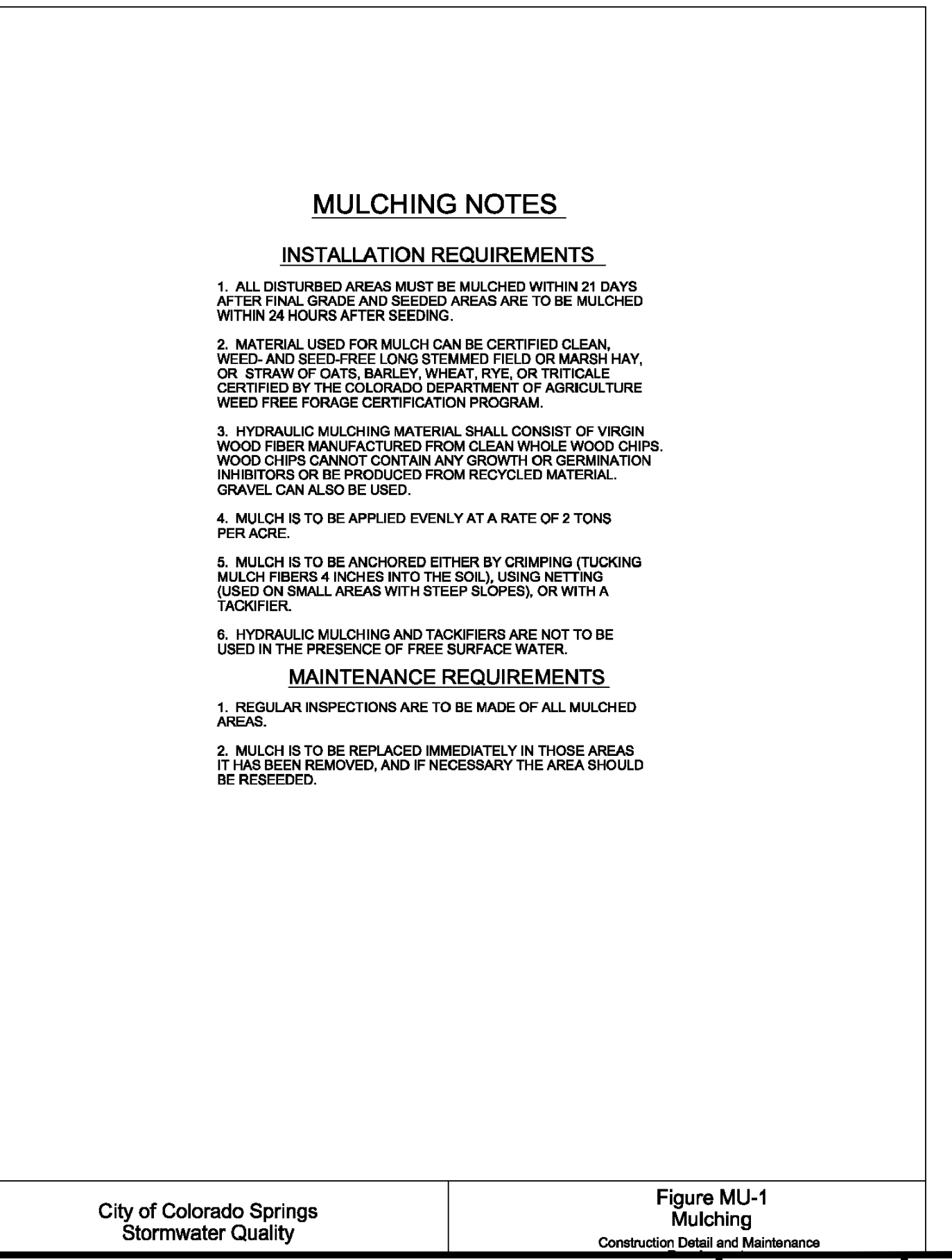
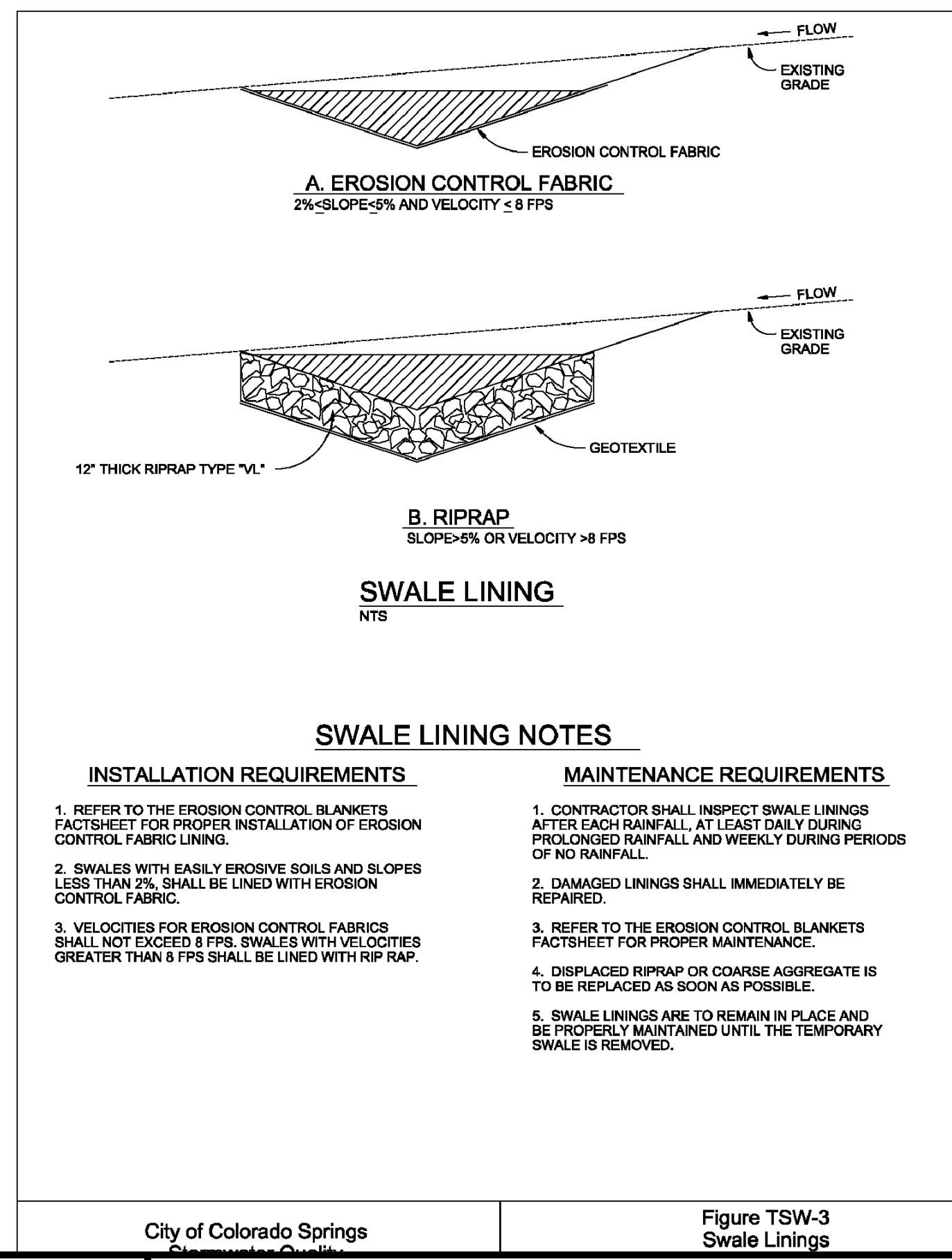
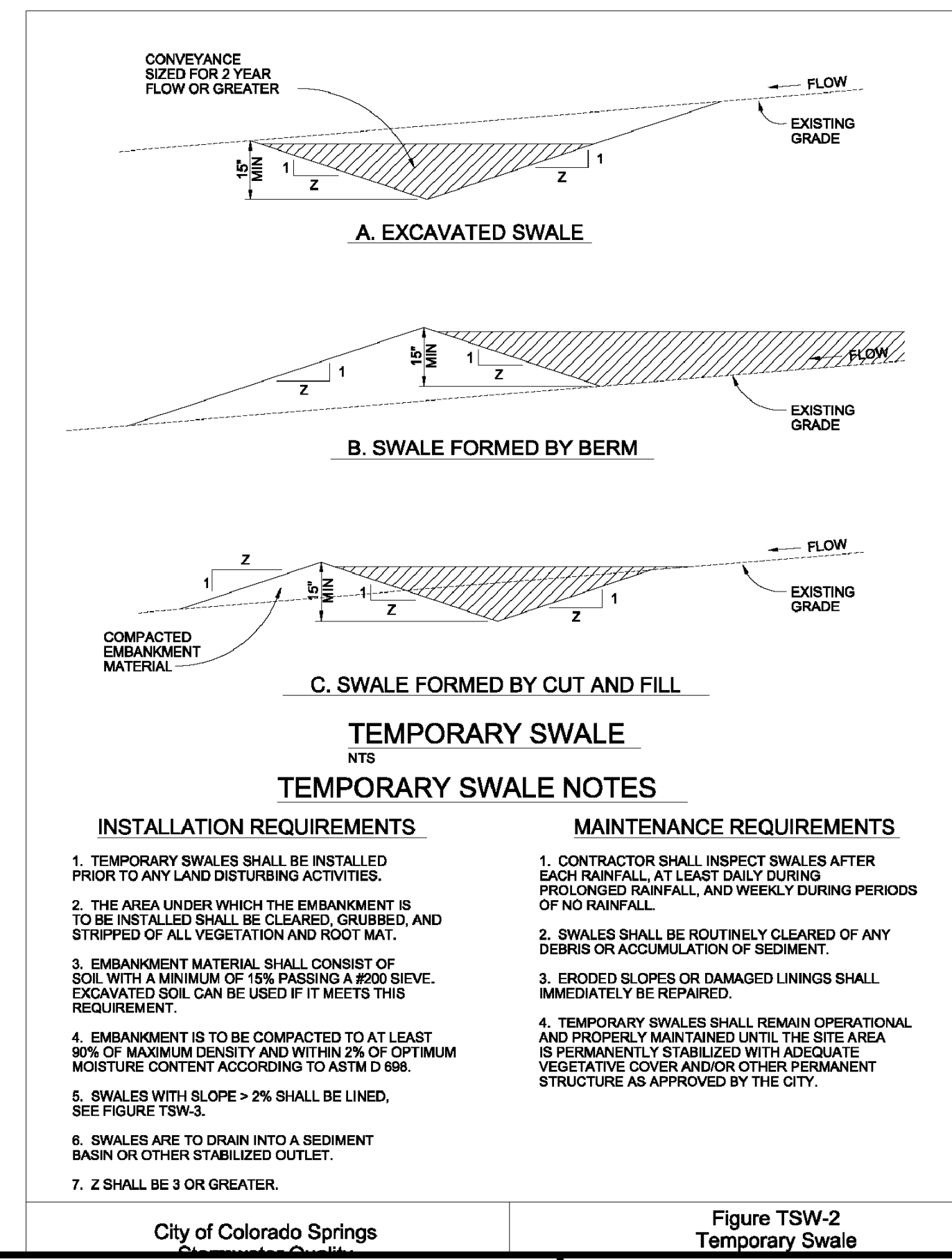
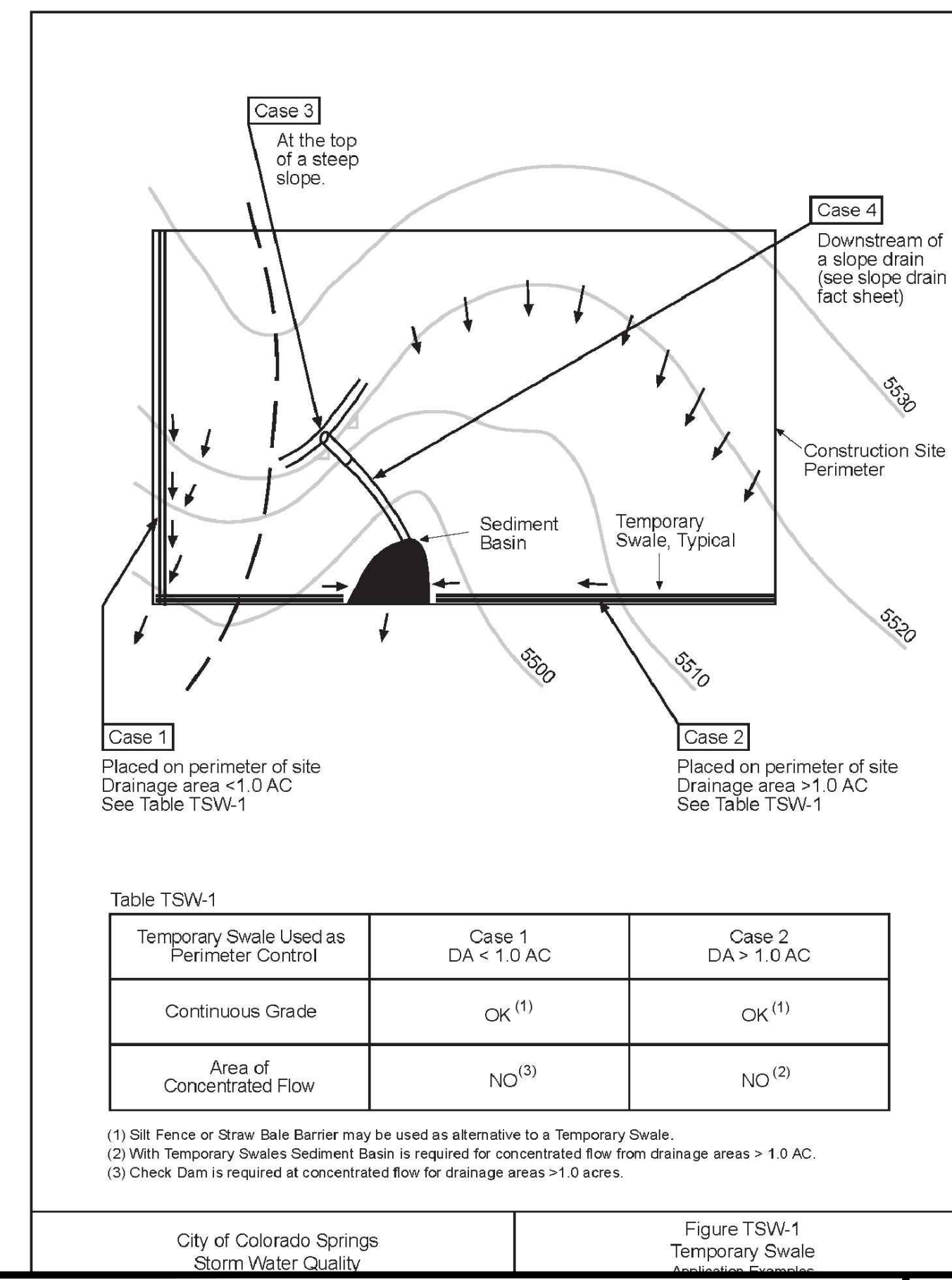
1. DISTURBED AREAS ARE TO BE SEEDED WITHIN 21 DAYS AFTER CONSTRUCTION ACTIVITY OR GRADING ENDS IF SEASON ALLOWS.
2. IF NECESSARY, SOIL IS TO BE CONDITIONED FOR PLANT GROWTH BY APPLYING TOPSOIL, FERTILIZER, OR LIME.
3. SOIL IS TO BE TILLED IMMEDIATELY PRIOR TO APPLYING SEEDS. COMPACT SOILS ESPECIALLY NEED TO BE LOOSENED.
4. SEEDED DEPTH IS TO BE 4 INCHES FOR SLOPES FLATTER THAN 2:1, AND 1 INCH FOR SLOPES STEEPER THAN 2:1.
5. ANNUAL GRASSES LISTED IN TABLE TS-1 ARE TO BE USED FOR TEMPORARY SEEDING. SEED MIXES ARE NOT TO CONTAIN ANY NOXIOUS WEED SEEDS INCLUDING RUSSIAN OR CANADIAN THISTLE, KNARWEED, PURPLE LOOSESTRIFE, EUROPEAN BINDWEED, JOHNSON GRASS, AND LEAFY SPURGE.
6. TABLE TS-1 ALSO PROVIDES REQUIREMENTS FOR SEEDING RATES, SEEDING DATES, AND PLANTING DEPTHS FOR THE APPROVED TYPES OF ANNUAL GRASSES.
7. SEEDING IS TO BE APPLIED USING MECHANICAL TYPE DRILLS EXCEPT WHERE SLOPES ARE STEEP OR ACCESS IS LIMITED THEN HYDRAULIC SEEDING MAY BE USED.
8. ALL SEEDED AREAS ARE TO BE MULCHED (SEE FACTSHEET ON MULCHING).
9. IF HYDRAULIC SEEDING IS USED THEN HYDRAULIC MULCHING SHALL BE DONE SEPARATELY TO AVOID SEEDS BECOMING ENCAPSULATED IN THE MULCH.

MAINTENANCE REQUIREMENTS

1. REGULAR INSPECTIONS ARE TO BE MADE OF ALL SEEDED AREAS TO ENSURE GROWTH.
2. AREAS WHERE GROWTH IS NOT OCCURRING QUICKLY OR THE MULCH HAS BEEN REMOVED SHALL BE RE-SEEDED AS SOON AS POSSIBLE AND RE-MULCHED IF NEEDED.
3. SEEDED AREAS ARE NOT TO BE DRIVEN OVER WITH CONSTRUCTION EQUIPMENT OR VEHICLES.

City of Colorado Springs Stormwater Quality

Figure TS-1
Temporary Seeding
Construction Detail and Maintenance Requirements



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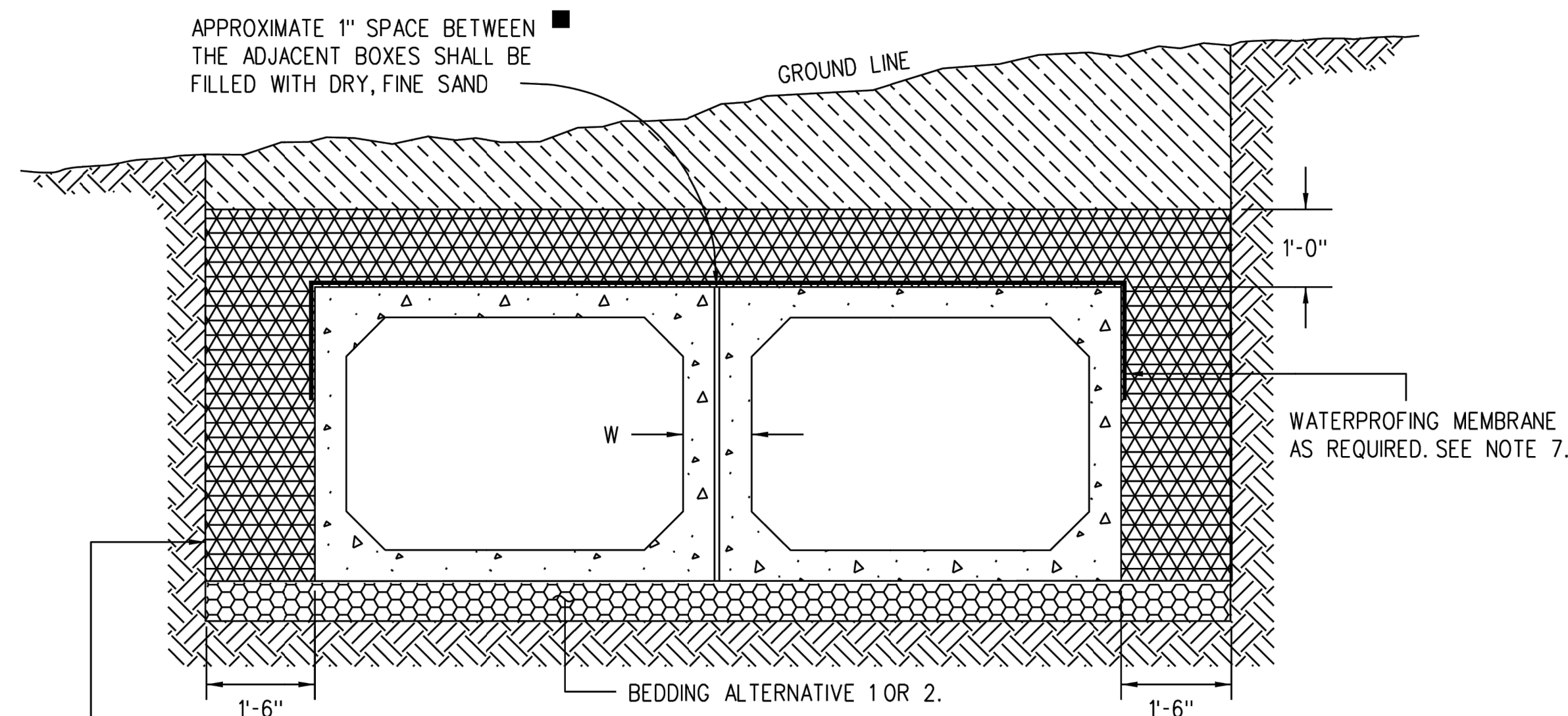
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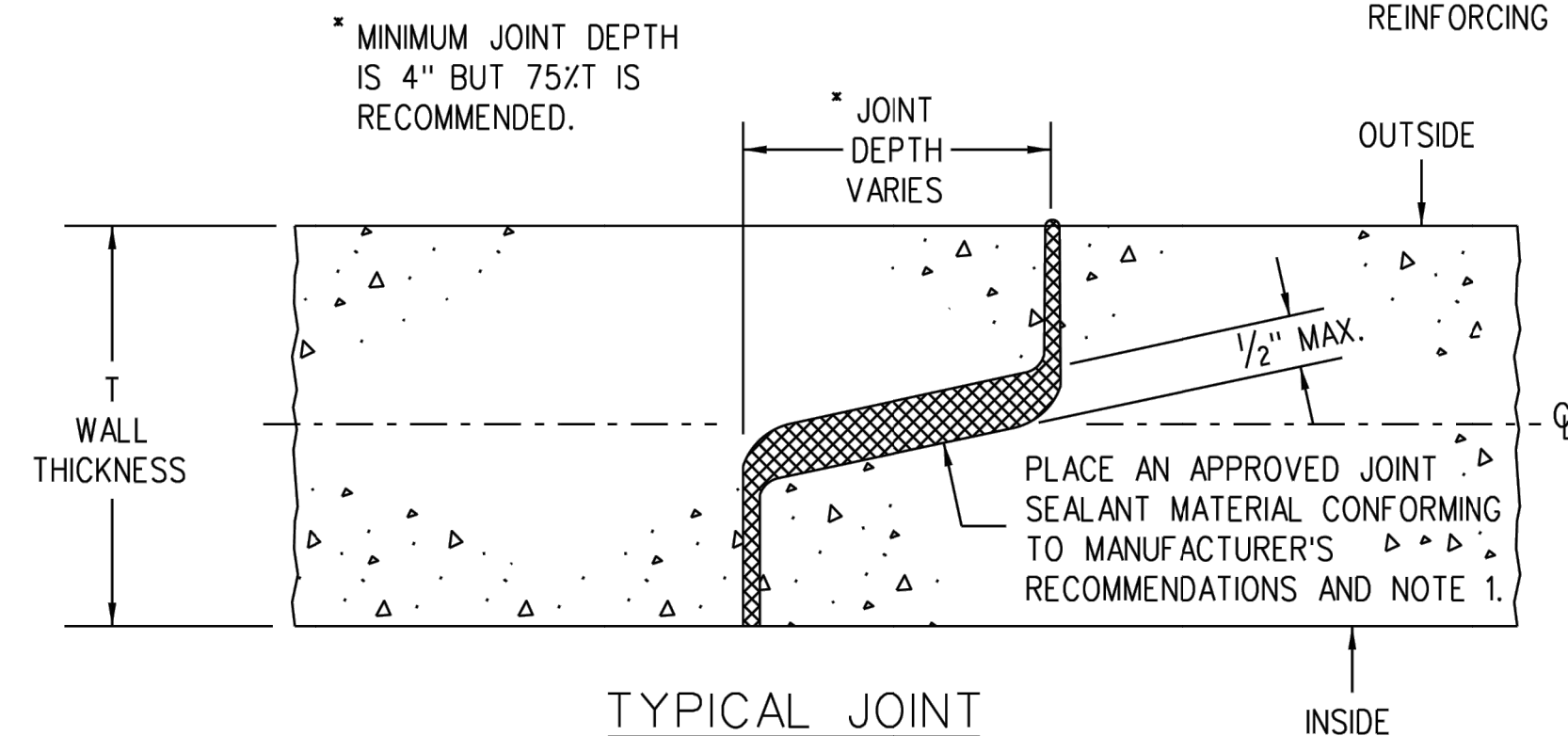
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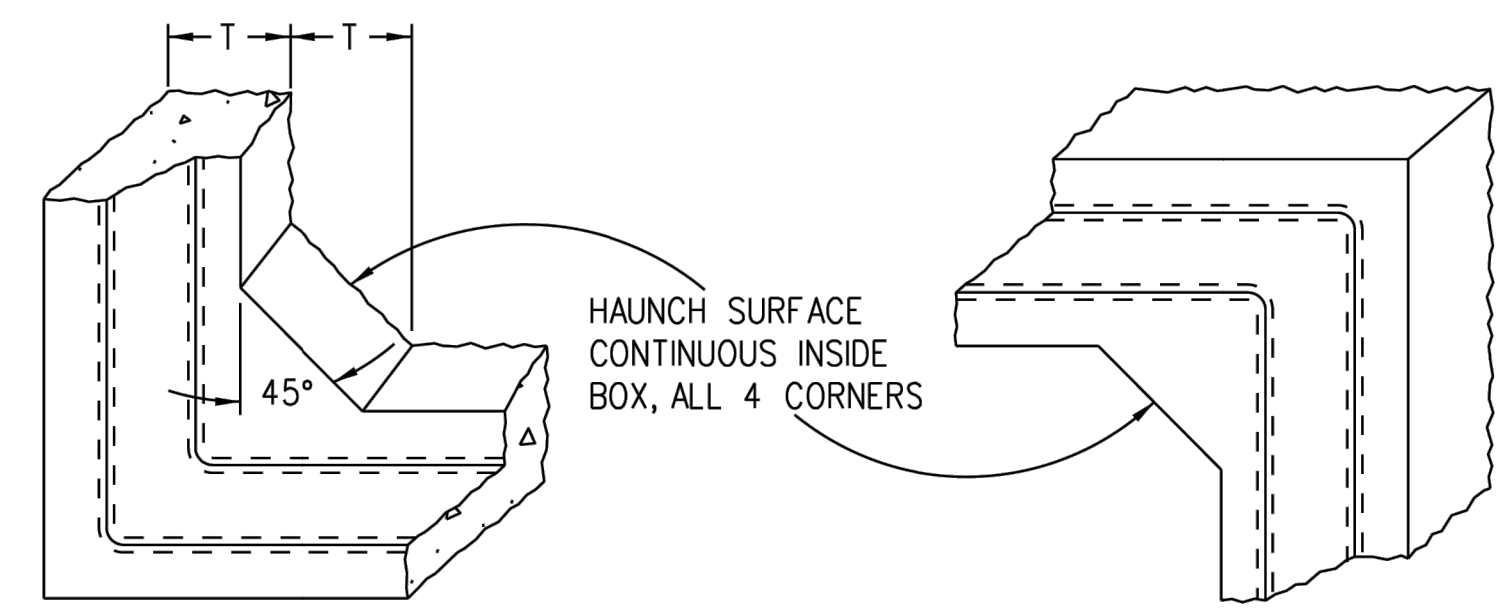
EXCAVATION & BACKFILL WILL BE MEASURED AND PAID FOR TO THIS LINE IN ACCORDANCE WITH SECTION 206.

■ GROUT OR FOAM SEALANT SHALL BE USED WHEN SPECIFIED ON THE PLANS.

EXCAVATION & BACKFILL
(DOUBLE PARALLEL PRECAST BOX CULVERT INSTALLATION SHOWN)



TYPICAL JOINT



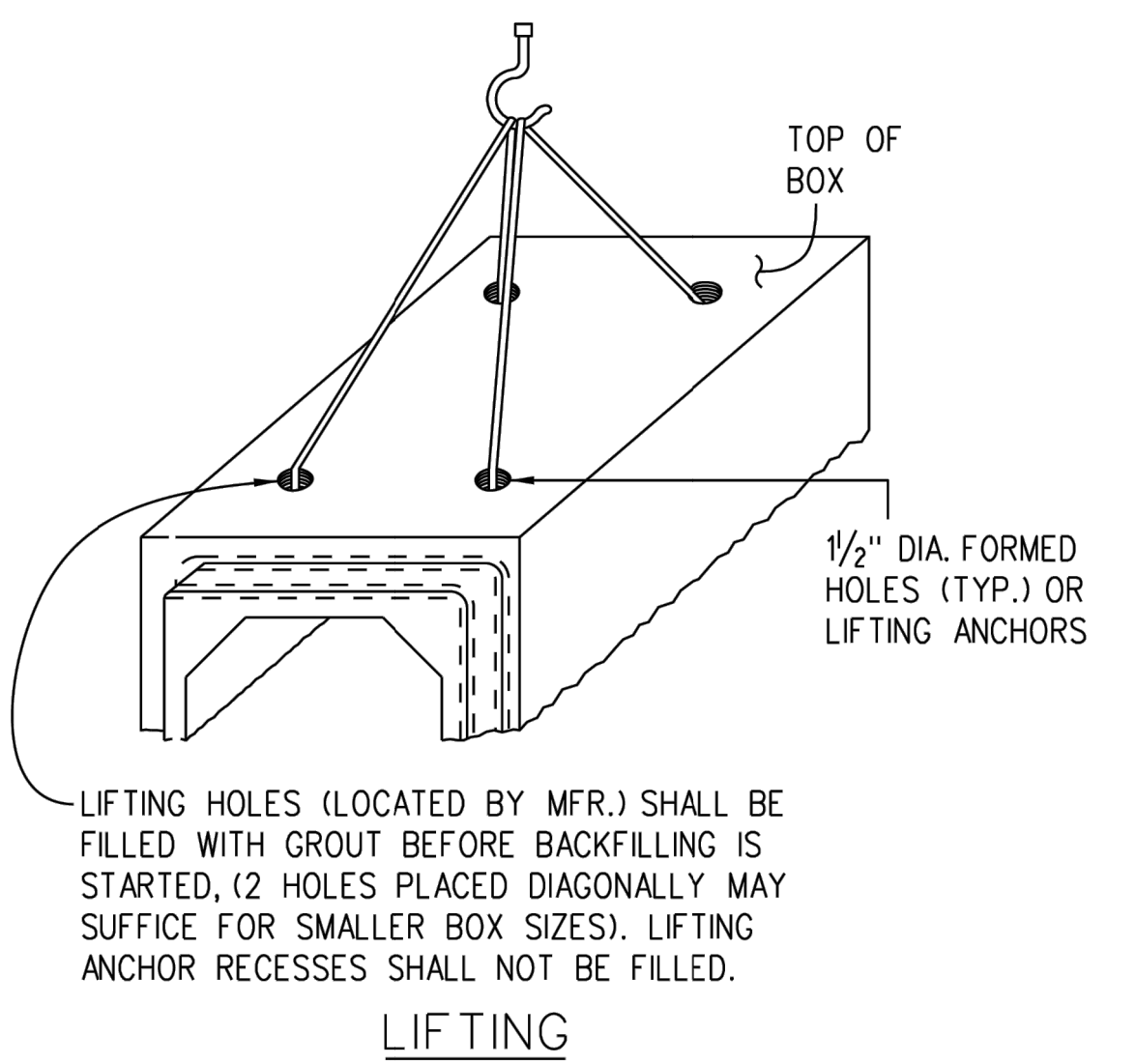
CORNERS

NOSE ANGLE DETAIL
SEE STANDARD PLANS M-601-2, AND 3 TYPICAL AT ADJACENT BOXES DRILL AND GROUT REINFORCING BARS (TYP.)

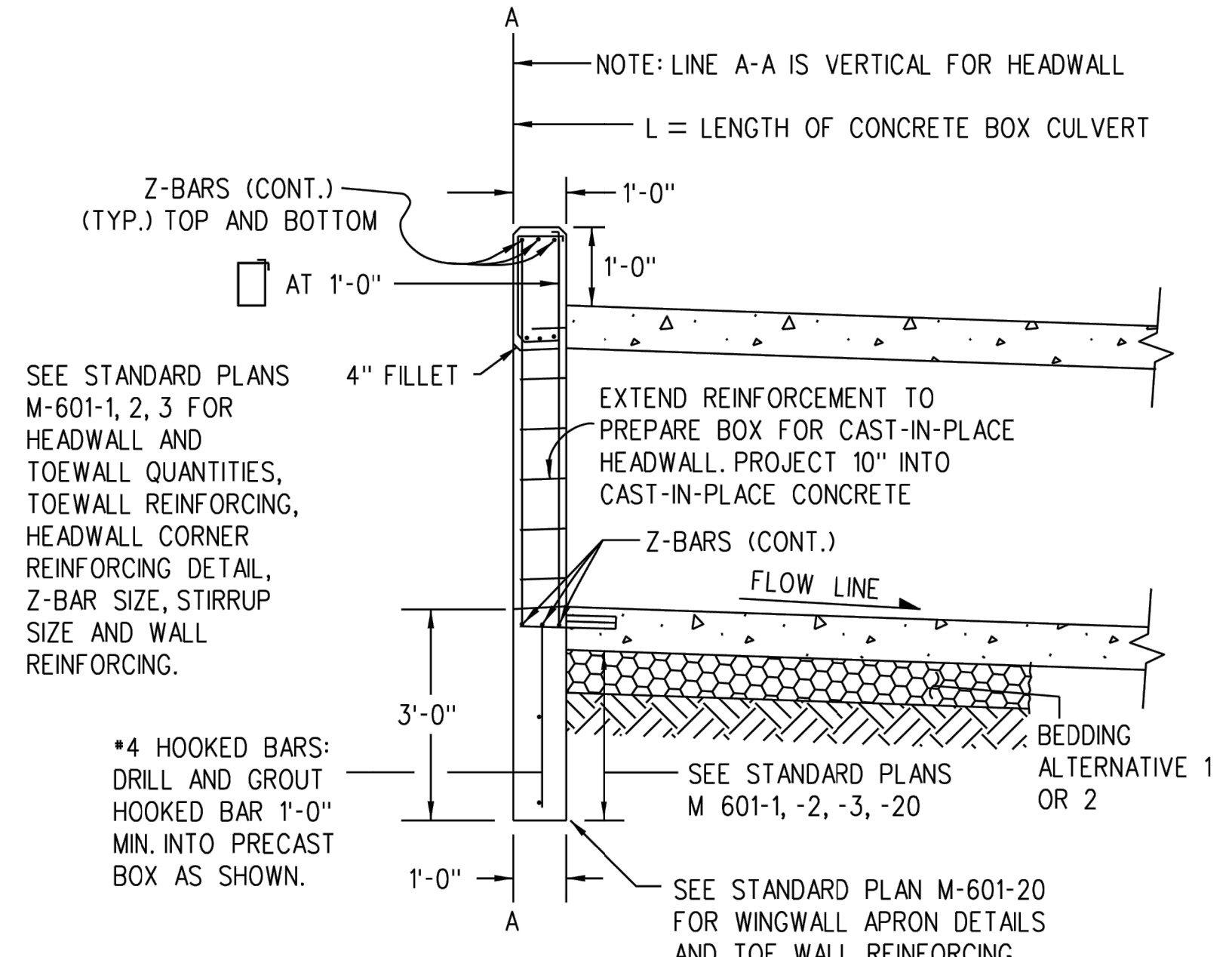


SEE STANDARD PLANS M-601-1, 2, 3 FOR HEADWALL AND TOEWALL QUANTITIES, TOEWALL REINFORCING, HEADWALL CORNER REINFORCING DETAIL, Z-BAR SIZE, STIRRUP SIZE AND WALL REINFORCING.

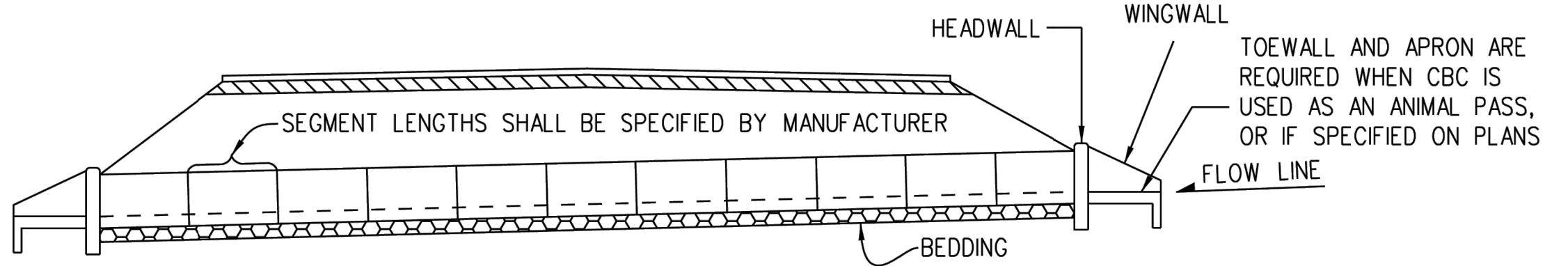
*4 HOOKED BARS: DRILL AND GROUT HOOKED BAR 1'-0" MIN. INTO PRECAST BOX AS SHOWN.



LIFTING



CULVERT END (WITH HEADWALL)



TYPICAL CULVERT INSTALLATION

GENERAL NOTES

1. ALL PRECAST CONCRETE BOX CULVERTS SHALL CONFORM TO THE LRFD DESIGN REQUIREMENTS OF ASTM C 1577, AND THE FOLLOWING SPECIFICATIONS:

ITEM OR CONDITION	AASHTO	EQUIV. ASTM	CDOT SPECIFICATION
PREFORMED JOINT MATERIAL	M 198, 6.1 OR 6.2	C 990, 6.1 OR 6.2	705.01

ELECTRONICALLY SEALED DESIGN CALCULATIONS, INDEPENDENT CHECK, AND RATING FOR A PRECAST CONCRETE BOX WITH SPANS NOT INCLUDED IN C 1577 SHALL BE PROVIDED BY THE MANUFACTURER IN ACCORDANCE WITH THE CURRENT CDOT BRIDGE DESIGN AND RATING MANUALS.

2. THE CONTRACTOR SHALL SUBMIT ELECTRONICALLY SEALED SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

3. BEDDING ALTERNATIVE 1 OR 2 IS REQUIRED:
BEDDING ALTERNATIVE IS AT THE CONTRACTOR'S OPTION. BEDDING AND EXCAVATION FOR BEDDING WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.
BEDDING ALTERNATIVE 1 CONSISTS OF 6 IN. OF AGGREGATE BASE COURSE (CLASS 6) COMPACTED TO NOT LESS THAN 95% MAXIMUM DENSITY DETERMINED IN CONFORMANCE WITH AASHTO T 180.
BEDDING ALTERNATIVE 2 CONSISTS OF AN 3 IN. THICK, MINIMUM, LEAN CONCRETE BASE. CEMENT CONTENT = 250 LBS./CU. YD.

AGGREGATE GRADATION FOR ALTERNATIVE 2 BEDDING:

PASSING 2 IN. SIEVE	—	100%
PASSING NO. 4 SIEVE	—	20% TO 70%
PASSING NO. 200 SIEVE	—	5% TO 15%

4. CBC JOINTS USING RUBBER GASKETS SHALL MEET ASTM C1677.

5. CLASS 1 DRAINAGE GEOTEXTILE SHALL BE COMPLETELY WRAPPED AROUND ALL CBC JOINTS WHICH DO NOT HAVE RUBBER GASKETS. THE GEOTEXTILE SHALL EXTEND A MINIMUM OF 1 FT. ON EACH SIDE OF JOINTS AND SHALL OVERLAP AND BE SECURELY ATTACHED FOR AT LEAST 1 FT. AT ITS ENDS. THE WRAP SHALL BE A SMOOTH FIT (NOT LOOSE OR STRETCHED) JUST PRIOR TO BACKFILL. THE GEOTEXTILE MATERIAL SHALL MEET THE APPLICABLE REQUIREMENTS OF SECTION 420. COST FOR GEOTEXTILE WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

6. FOR ANY CULVERT SPAN OR COMBINATION OF SPANS FOR MULTIPLE BOXES 20 FEET OR GREATER, A FOUNDATION INVESTIGATION AND REPORT ARE REQUIRED.

7. FOR FILL HEIGHTS LESS THAN 2 FEET, A WATERPROOFING MEMBRANE OR 30 MIL THICK GEOMEMBRANE SHALL BE PROVIDED FOR THE TOP OF THE TOP SLAB AND 18 INCHES DOWN ALONG THE TOPS OF THE EXTERIOR WALLS.

8. SEE M-601-1, 2, AND 3 FOR CAST-IN-PLACE CONCRETE BOX CULVERT DETAILS.

LEGEND

	STRUCTURE EXCAVATION LIMITS		EARTH
	STRUCTURE BACKFILL, (CLASS 1)		BEDDING
	EMBAKMENT MATERIAL		CONCRETE MATERIAL

Computer File Information

Creation Date:	07/31/19
Designer Initials:	JBK
Last Modification Date:	09/10/20
Detailer Initials:	LTA
CAD Ver.:	MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments
09/10/20	Added the Waterproofing Membrane in the "Excavation and Backfill" detail and revised General Note 7. Added ASTM C 1577 design requirements in General Note 1, and revised the table. Added Electronically Sealed requirements in notes 1 and 2. Revised note 6.

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Project Development Branch JBK

PRECAST CONCRETE BOX CULVERT

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.

M-603-3

Standard Sheet No. 1 of 1

Project Sheet Number:

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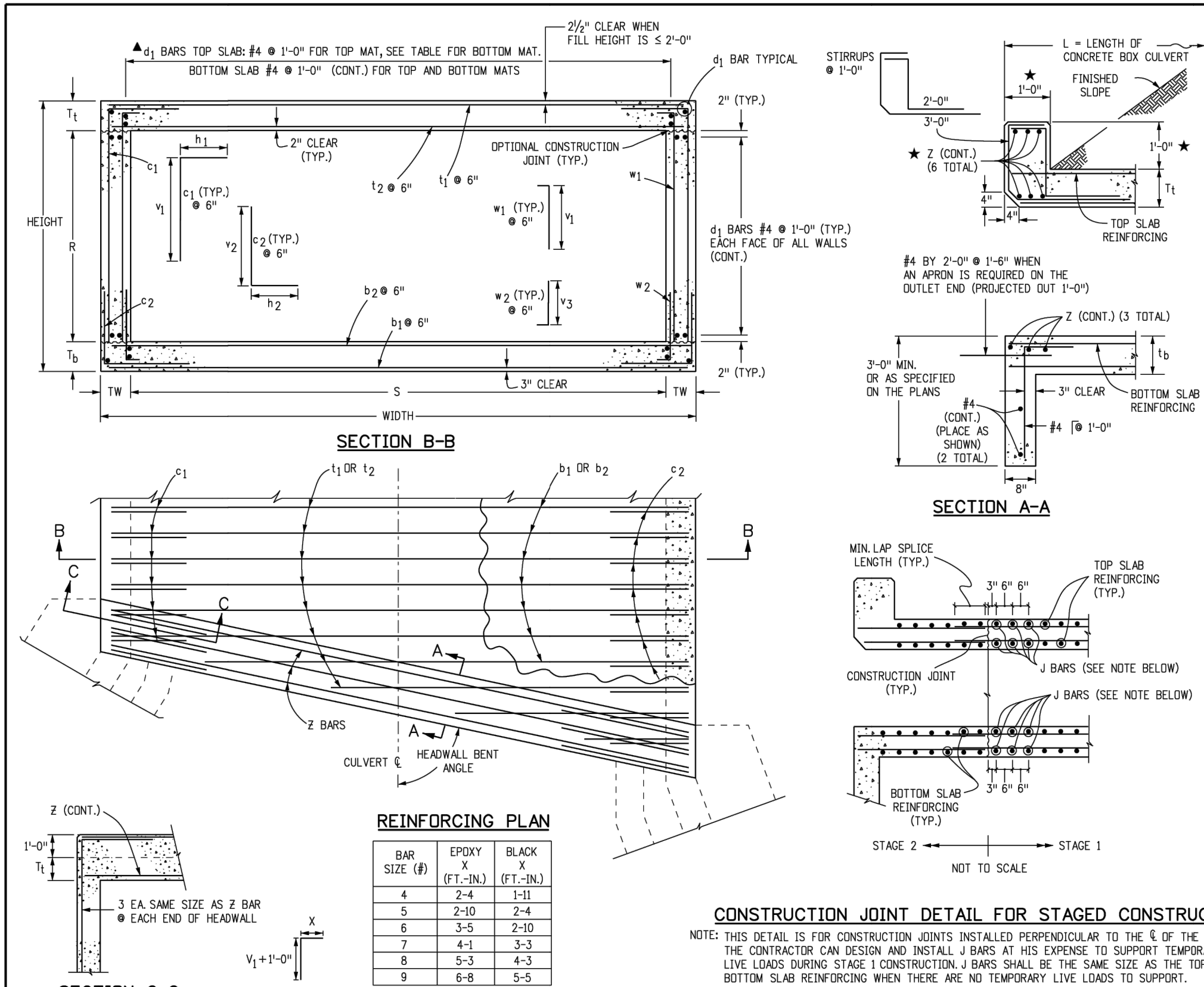
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GENERAL NOTES

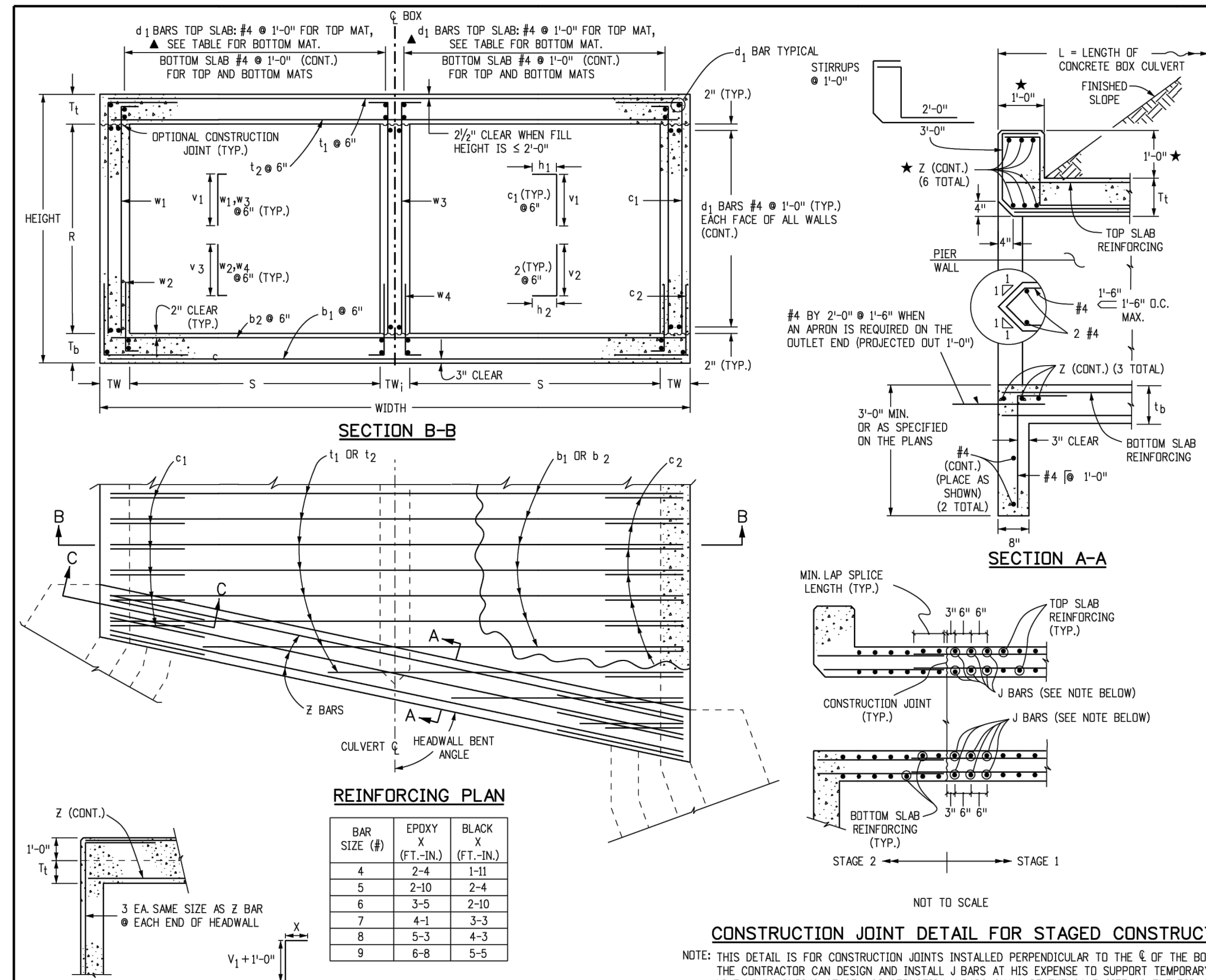
- ALL CONCRETE SHALL BE CLASS D (BOX CULVERT).
- ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS PLACED.
- ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE CONSTRUCTED ONLY IF APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL MAINTAIN THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
- STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD PLAN M-206-1.
- ANY CULVERT SPAN 20 FT. OR GREATER, A FOUNDATION INVESTIGATION AND REPORT ARE REQUIRED.
- BACKFILL SHALL NOT BEGIN UNTIL TOP SLAB HAS REACHED DESIGN STRENGTH, f_c .
- SPLICE QUANTITIES FOR LONGITUDINAL AND TRANSVERSE BARS ARE NOT INCLUDED.
- REINFORCING STEEL SHALL BE GRADE 60.
- THE MINIMUM LAP SPlice LENGTH FOR EPOXY COATED REINFORCING BARS SHALL BE:

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH	1'-3"	1'-7"	2'-5"	2'-10"	3'-8"	4'-8"	5'-11"	7'-3"
- THE MINIMUM LAP SPlice LENGTH FOR BLACK REINFORCING BARS SHALL BE:

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH	1'-3"	1'-4"	1'-7"	1'-11"	2'-6"	3'-1"	3'-11"	4'-10"
- THE ABOVE SPLICE LENGTHS ARE FOR CLASS B SPLICES.
- ALL DIMENSIONS ARE PERPENDICULAR TO THE CENTERLINE OF THE BOX.
- WINGWALLS SHALL BE TIED TO CONCRETE BOX CULVERT IN ACCORDANCE WITH STANDARD PLAN M-601-20.
- ALL TRANSVERSE REINFORCING SHALL BE NORMAL TO THE CENTERLINE OF THE BOX.
- THE FILL HEIGHT IS THE DISTANCE MEASURED FROM THE TOP OF THE TOP SLAB TO THE TOP OF PAVEMENT.
- ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED $\frac{3}{4}$ ".
- FOR FILL HEIGHTS LESS THAN 2 FT. A WATERPROOFING MEMBRANE SHALL BE PROVIDED FOR THE TOP OF THE TOP SLAB AND 18 INCHES DOWN FROM THE TOP OF THE EXTERIOR WALLS.
- FOR FILL HEIGHTS LESS THAN 2 FT, THE d_1 BARS FOR THE BOTTOM MAT OF THE TOP SLAB SHALL BE AS FOLLOWS:

S	6	8	10	12	14	16	18	20
BAR SIZE	#5	#6	#6	#5	#5	#5	#5	#5
SPACING	1'-0"	1'-0"	0'-6"	0'-6"				
- DESIGN DATA: 7TH EDITION, 2014, OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
- RATING DATA: 2ND EDITION, 2011, OF THE AASHTO MANUAL FOR BRIDGE EVALUATION
- LOADING DATA:
 - $f_c = 4,500$ psi,
 - LIVE LOAD = AASHTO LRFD, HL-93 TRUCK, HL-93 TANDEM, COLORADO PERMIT TRUCK, AND NRL DEAD LOAD CASE 1: VERTICAL EARTH LOAD = 120 LBS./CU. FT. HORIZONTAL EARTH LOAD = 30 LBS./CU. FT.
 - DEAD LOAD CASE 2: VERTICAL EARTH LOAD = 120 LBS./CU. FT. HORIZONTAL EARTH LOAD = 60 LBS./CU. FT.
 - THRUST IS NOT CONSIDERED IN THIS STANDARD, I.E. THRUST = 0.
 - WEARING SURFACE - 12 INCHES THICK CONCRETE PAVEMENT.
 - DEAD LOAD - TYPE 7 BARRIER.
 - EXTREME HEADWATER TO DEPTH RATIO IS IN ACCORDANCE WITH THE CDDT DRAINAGE MANUAL.
 - EXTREME HEADWATER TO DEPTH RATIO WAS INCLUDED IN THE DESIGN BUT EXCLUDED FROM THE RATINGS AS PER THE AASHTO MANUAL FOR BRIDGE EVALUATION.
 - LIVE LOAD SURCHARGE ON EXTERIOR WALLS = 2 FT. OF EARTH
- IF HEADWALL MOUNT GUARDRAIL IS USED (SEE STANDARD PLAN M-606-1, SHEET 19, AND THE NOTES BELOW):
 - ALL REINFORCING STEEL SHALL BE ACCORDING TO THIS BOX CULVERT PLAN.
 - ANY SPECIAL DESIGN FOR STIRRUPS WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
 - HEADWALL DIMENSION AND CONCRETE QUANTITY SHALL BE ACCORDING TO STANDARD PLAN M-606-1, SHEET 19.
 - POST ANCHORS SHALL BE PROVIDED ACCORDING TO STANDARD PLAN M-606-1, SHEET 19.
 - POST ANCHORS AND CONCRETE FOR HEADWALL MOUNT OF GUARDRAIL WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
 - POST ANCHORS WHEN REQUIRED AND ENCASED IN HEADWALL CONCRETE, SHALL CONFORM TO ASTM A 36 OR AASHTO M 169 STEEL.
- SEE M-603-3 FOR PRECAST CONCRETE BOX CULVERT DETAILS.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		SINGLE CONCRETE BOX CULVERT (CAST-IN-PLACE)		STANDARD PLAN NO. M-601-1	
Creation Date: 07/31/19	Designer Initials: JBE	Date:	Comments:	2829 West Howard Place	CDOT HQ, 3rd Floor	Denver, CO 80204	Phone: 303-757-9021 FAX: 303-757-9868	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:
Last Modification Date: 07/31/19	Detailer Initials: LTA			Project Development Branch		JBK			
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English							



GENERAL NOTES

- ALL CONCRETE SHALL BE CLASS D (BOX CULVERT).
- ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS PLACED.
- ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE CONSTRUCTED ONLY IF APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL MAINTAIN THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.
- STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD PLAN M-206-1.
- FOR ANY CULVERT SPAN 20 FT. OR GREATER, A FOUNDATION INVESTIGATION AND REPORT ARE REQUIRED.
- BACKFILL SHALL NOT BEGIN UNTIL TOP SLAB HAS REACHED DESIGN STRENGTH, f_c .
- SPLICE QUANTITIES FOR LONGITUDINAL AND TRANSVERSE BARS ARE NOT INCLUDED.
- REINFORCING STEEL SHALL BE GRADE 60.
- THE MINIMUM LAP SPlice LENGTH FOR EPOXY COATED REINFORCING BARS SHALL BE:

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH	1'-3"	1'-7"	2'-5"	2'-10"	3'-8"	4'-8"	5'-11"	7'-3"
- THE MINIMUM LAP SPlice LENGTH FOR BLACK REINFORCING BARS SHALL BE:

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH	1'-3"	1'-4"	1'-7"	1'-11"	2'-6"	3'-1"	3'-11"	4'-10"
- THE ABOVE SPLICE LENGTHS ARE FOR CLASS B SPLICES.
- ALL DIMENSIONS ARE PERPENDICULAR TO THE CENTERLINE OF THE BOX.
- WINGWALLS SHALL BE TIED TO CONCRETE BOX CULVERT IN ACCORDANCE WITH STANDARD PLAN M-601-20.
- ALL TRANSVERSE REINFORCING SHALL BE NORMAL TO THE CENTERLINE OF THE BOX.
- THE FILL HEIGHT IS THE DISTANCE MEASURED FROM THE TOP OF THE TOP SLAB TO THE TOP OF PAVEMENT.
- ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED $\frac{3}{4}$ ".
- FOR FILL HEIGHTS LESS THAN 2 FT. A WATERPROOFING MEMBRANE SHALL BE PROVIDED FOR THE TOP OF THE TOP SLAB AND 18 INCHES DOWN FROM THE TOPS OF THE EXTERIOR WALLS.
- FOR FILL HEIGHTS LESS THAN 2 FT, THE d_1 BARS FOR THE BOTTOM MAT OF THE TOP SLAB SHALL BE AS FOLLOWS:

S	6	8	10	12	14	16	18	20
BAR SIZE	#5	#6	#6	#5	#5	#5	#5	#5
SPACING	1'-0"	1'-0"	0'-6"	0'-6"				
- DESIGN DATA: 7TH EDITION, 2014, OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
- RATING DATA: 2ND EDITION, 2011, OF THE AASHTO MANUAL FOR BRIDGE EVALUATION
- LOADING DATA:
 - $f_c = 4,500$ psi,
 - LIVE LOAD = AASHTO LRFD, HL-93 TRUCK, HL-93 TANDEM, COLORADO PERMIT TRUCK AND NRL DEAD LOAD CASE 1: VERTICAL EARTH LOAD = 120 LBS./CU. FT. HORIZONTAL EARTH LOAD = 30 LBS./CU. FT.
 - DEAD LOAD CASE 2: VERTICAL EARTH LOAD = 120 LBS./CU. FT. HORIZONTAL EARTH LOAD = 60 LBS./CU. FT.
 - WEARING SURFACE - 12 IN. THICK CONCRETE PAVEMENT.
 - DEAD LOAD - TYPE 7 BARRIER.
 - THRUST IS NOT CONSIDERED IN THIS STANDARD, I.E. THRUST = 0.
 - EXTREME HEADWATER TO DEPTH RATIO IS IN ACCORDANCE WITH THE CDDT DRAINAGE MANUAL.
 - EXTREME HEADWATER TO DEPTH RATIO WAS INCLUDED IN THE DESIGN BUT EXCLUDED FROM THE RATINGS AS PER THE AASHTO MANUAL FOR BRIDGE EVALUATION.
 - LIVE LOAD SURCHARGE ON EXTERIOR WALLS = 2 FT. OF EARTH
- IF HEADWALL MOUNT GUARDRAIL IS USED (SEE STANDARD PLAN M-606-1, SHEET 19 AND THE NOTES BELOW):
 - ALL REINFORCING STEEL SHALL BE ACCORDING TO THIS BOX CULVERT PLAN.
 - ANY SPECIAL DESIGN FOR STIRRUPS WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
 - HEADWALL DIMENSION AND CONCRETE QUANTITY SHALL BE ACCORDING TO STANDARD PLAN M-606-1, SHEET 19.
 - POST ANCHORS SHALL BE PROVIDED ACCORDING TO STANDARD PLAN M-606-1, SHEET 19.
 - POST ANCHORS AND CONCRETE FOR HEADWALL MOUNT OF GUARDRAIL WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
 - POST ANCHORS WHEN REQUIRED AND ENCASED IN HEADWALL CONCRETE, SHALL CONFORM TO ASTM A 36 OR AASHTO M 169 STEEL.
- SEE M-603-3 FOR PRECAST CONCRETE BOX CULVERT DETAILS.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		DOUBLE CONCRETE BOX CULVERT (CAST-IN-PLACE)		STANDARD PLAN NO. M-601-2	
Creation Date: 07/31/19	Designer Initials: JBE	Date:	Comments:	2829 West Howard Place	CDOT HQ, 3rd Floor	Denver, CO 80204	Phone: 303-757-9021 FAX: 303-757-9868	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:
Last Modification Date: 07/31/19	Detailer Initials: LTA			Project Development Branch		JBK			
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English							

HR GREEN Xcelris.xgs-1-dhot

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CAD DATE: 7/11/2024		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
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NO.	DATE	BY	REVISION DESCRIPTION

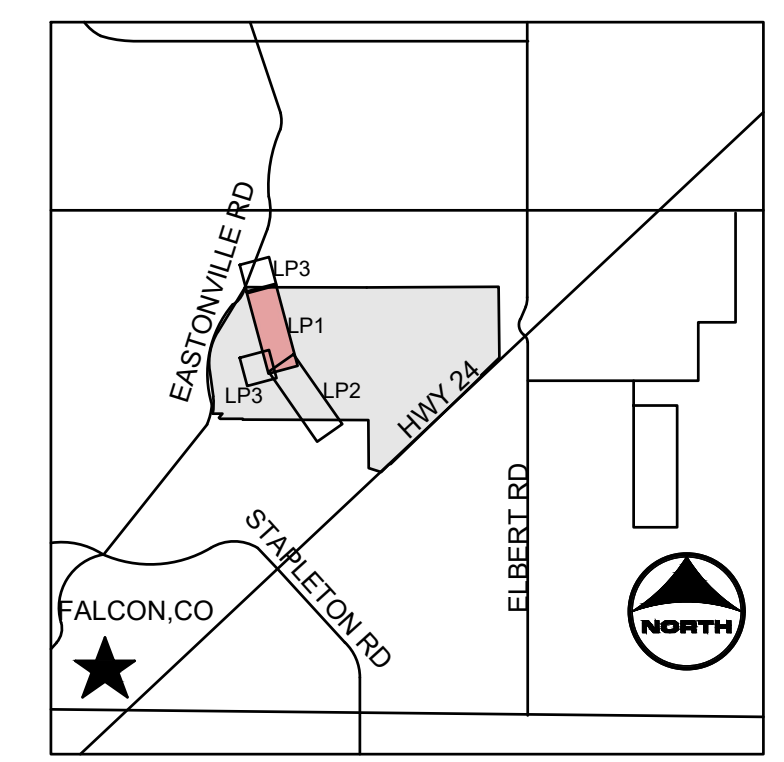
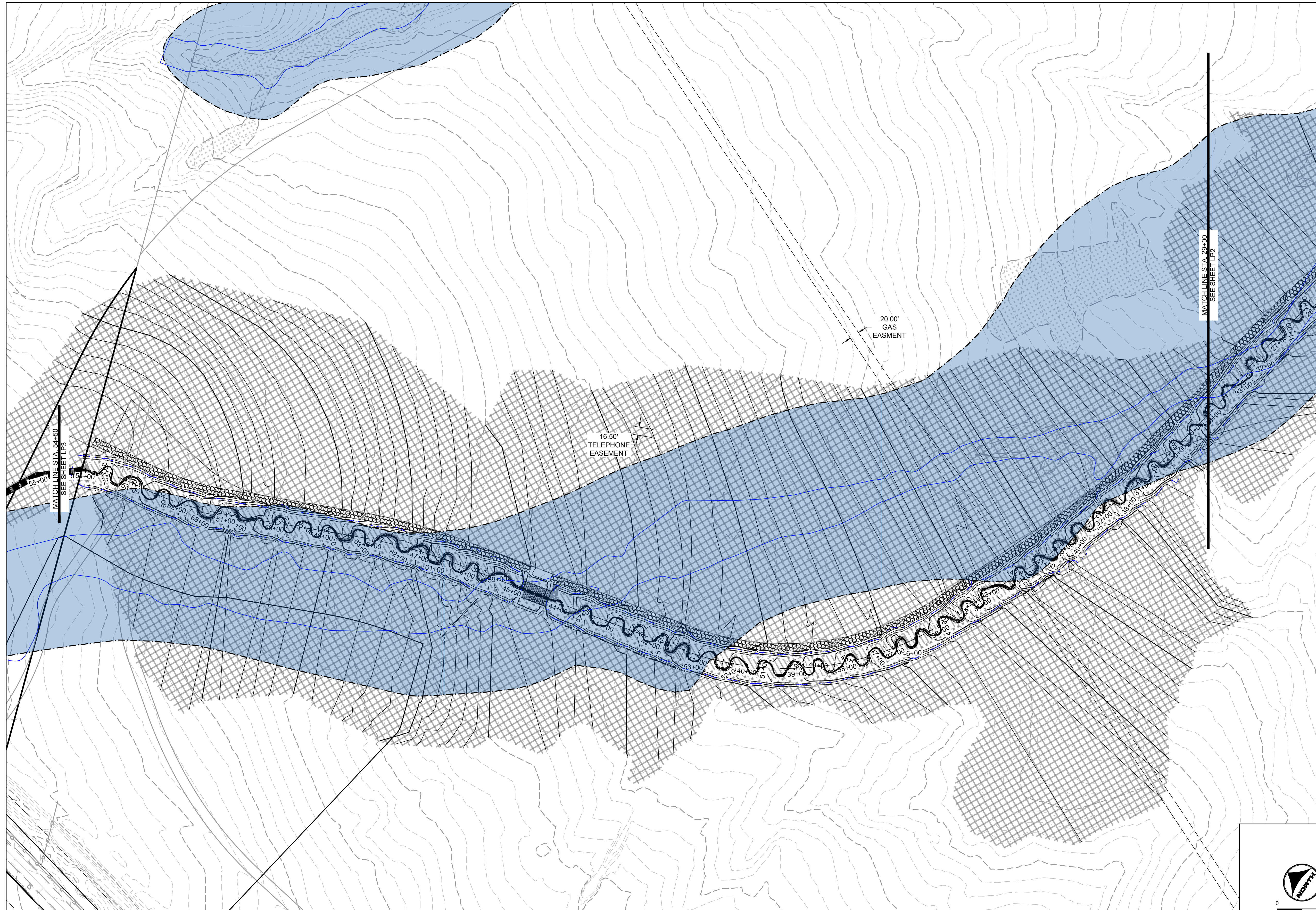
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GRANDVIEW RESERVE
DR HORTON
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CONSTRUCTION DOCUMENTS
 DETAILS

SHEET
 DT7
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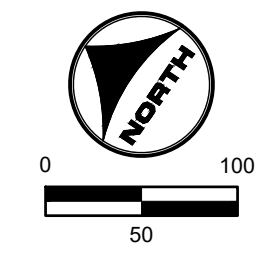
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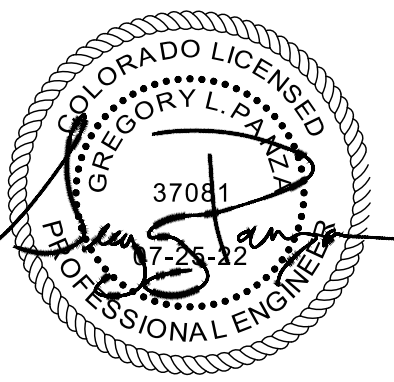
KEYMAP

GROUNDCOVER LEGEND

SYMBOL	DESCRIPTION
	UPLAND AREA SEED MIX
	RIPARIAN SEED MIX
	WETLAND SEED MIX
	MAINTENANCE TRAIL
	PROPOSED 100-YR FLOODPLAIN
	EXISTING 100 YR FLOODPLAIN



811 UNCC
CALL BEFORE
YOU DIG
811
OR
1-800-922-1987
Utility Notification
Center of Colorado



DRAWN BY: ACH JOB DATE: 5/20/2024
 APPROVED: GLP JOB NUMBER: 201662.03
 CAD DATE: 7/11/2024
 CAD FILE: J:\2020\201662.03\CAD\DWGS\CILANDSCAPE PLANS

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CONSTRUCTION DOCUMENTS
 SEEDING PLAN

SHEET
LP1
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GENERAL SEEDING PLAN NOTES:

- LANDSCAPE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND SERVICES NECESSARY TO FURNISH AND INSTALL SEEDING AS SPECIFIED HEREIN AND AS SHOWN ON THESE PLANS.
- NO MATERIAL SUBSTITUTIONS SHALL BE MADE WITHOUT LANDSCAPE ARCHITECT'S APPROVAL. ALTERNATE MATERIALS OF SIMILAR SIZE AND CHARACTER MAY BE CONSIDERED IF SPECIFIED PLANT MATERIALS CANNOT BE OBTAINED. OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REVISE PLANT LIST AS DEEMED NECESSARY.
- CONTRACTOR SHALL LOCATE ALL UTILITIES BEFORE WORK. UTILITIES HAVE BEEN SHOWN ON PLAN FOR ROUGH LOCATION OF SERVICES. LOCATE EXACT UTILITY LOCATIONS BY CONTACTING "CALL BEFORE YOU DIG" AT (800) 922-1987 OR 811. CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE HE MAY CAUSE TO UTILITIES.
- REMOVE ALL RUBBISH, EQUIPMENT, AND MATERIAL AND LEAVE THE AREA IN A NEAT, CLEAN CONDITION EACH DAY. MAINTAIN PAVED AREAS UTILIZED FOR HAULING EQUIPMENT AND MATERIALS BY OTHER TRADES IN A CLEAN AND UNOBSTRUCTED CONDITION AT ALL TIMES.
- STORAGE OF ANY MATERIALS, BUILDINGS, VEHICLES OR EQUIPMENT, FENCING AND WARNING SIGNS SHALL BE MAINTAINED THROUGHOUT THE SITE WORK AND CONSTRUCTION PERIODS BY THE CONTRACTOR.

IRRIGATION:

- ALL NATIVE LOW GROW SEEDING SHALL BE TEMPORARILY IRRIGATED UNTIL ESTABLISHMENT.
- THE CONTRACTOR SHALL PROVIDE WATER, WATERING DEVICES, AND LABOR NEEDED TO IRRIGATE PLANT MATERIALS UNTIL AUTOMATIC IRRIGATION SYSTEMS ARE OPERATIONAL AND ACCEPTED. THE CONTRACTOR SHALL SUPPLY ENOUGH WATER TO MAINTAIN THE PLANT'S HEALTHY CONDITION BASED ON SEASONAL CONSIDERATIONS

REVEGETATION NOTES:

- MATERIALS PLANTED PRIOR TO INSPECTION AND ACCEPTANCE OF PLANTS DELIVERED TO THE SITE ARE SUBJECT TO REJECTION.
- CONTRACTOR IS RESPONSIBLE FOR DETERMINING SOURCE LOCATIONS (ON- OR OFF-SITE) FOR ALL HARVESTED MATERIALS. OFF-SITE PLANT MATERIALS SHALL ONLY BE USED UPON APPROVAL.
- SEEDING OR PLANTING SHALL NOT OCCUR WHEN THE GROUND IS FROZEN, WHEN FREEZING TEMPERATURES ARE FORECASTED WITHIN 24 HOURS, OR WHEN CONDITIONS ARE OTHERWISE UNSUITABLE.
- CONTRACTOR SHALL CONDUCT A SOIL TEST FOR TOP SOIL STOCKPILED ON THE SITE PRIOR TO APPLICATION OF SOIL CONDITIONER, SEEDING OR PLANTING. SOIL TEST SAMPLES SHALL ALSO BE TAKEN APPROXIMATELY EVERY 1,000 FEET ALONG THE GRADED CHANNEL FOR THE SUBGRADE SOILS AND TESTED. A RECOMMENDED SOIL CONDITIONING AMENDMENT AND APPLICATION RATE SHALL BE DETERMINED BASED ON THE SOIL TEST RESULTS. NO SOIL CONDITIONING, SEEDING, OR PLANTING SHALL OCCUR PRIOR TO SOIL TEST AND UNTIL A SOIL CONDITIONING AMENDMENT IS ACCEPTED.
- CONTRACTOR SHALL BE REQUIRED TO SUBMIT SIGNED STATEMENTS OF GUARANTEE AND/OR CERTIFICATIONS FROM VENDORS WHO SUPPLY SEED AND SOIL CONDITIONER STATING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY FOR SEED TESTING WITHIN TWELVE (12) MONTHS PRIOR TO THE DATE OF SEEDING.
- CONTRACTOR SHALL SUBMIT A LAB TEST OF COMPOST SAMPLE TO BE USED FOR APPROVAL. LAB TEST OF COMPOST SHALL BE TAKEN FROM THE SAME SOURCE THAT IS TO BE USED ON THIS PROJECT. LAB TEST SHALL BE TAKEN A MAXIMUM OF SIX (6) MONTHS PRIOR TO APPLICATION. THE COMPOST SHALL BE TESTED IN ACCORDANCE WITH THE U.S. COMPOSTING COUNCIL'S TEST METHODS FOR EXAMINING OF COMPOSTING AND COMPOST (TMECC) MANUAL.
- ALL MATERIALS SHALL BE FURNISHED IN ORIGINAL MANUFACTURER'S SHIPPING BAGS OR CONTAINERS AND REMAIN IN THESE BAGS OR CONTAINERS UNTIL THEY ARE USED. ALL MATERIALS SHALL BE STORED IN A MANNER THAT WILL PREVENT THEM FROM COMING INTO CONTACT WITH PRECIPITATION, SURFACE WATER, OR ANY OTHER CONTAMINATING SUBSTANCE. ANY MATERIALS THAT HAVE BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE SHALL NOT BE USED.
- ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE FREE OF NOXIOUS WEEDS INCLUDING BUT NOT LIMITED TO RUSSIAN Knapweed, Diffuse Knapweed, Canada Thistle, Field Bindweed, Johnsongrass, Leafy Spurge, Kochia, OR ANY STATE OR DISTRICT CRITERIA MANUAL-LISTED NOXIOUS WEED SPECIES.

SOIL AMENDMENTS:

- PLACE TOPSOIL IN ALL WORK AREAS AND AMEND WITH 2 CUBIC YARDS PER 1,000 SQUARE FEET OF COMPOST
- SOIL AMENDMENT SOLUTIONS WILL BE COMPLETED UPON THE COMPLETION OF SOIL TESTING.
- INCORPORATE COMPOST INTO TOPSOIL TO A DEPTH OF 8 TO 12 INCHES

SEEDING:

- ALL SEED SHALL BE FURNISHED IN BAGS OR CONTAINERS CLEARLY AND PROPERLY LABELED TO SHOW THE NAME AND ADDRESS OF THE SUPPLIER, THE SEED NAME, THE LOT NUMBER, NET WEIGHT, ORIGIN, THE PERCENT OF WEED SEED CONTENT, THE GUARANTEED PERCENTAGE OF PURITY AND GERMINATION, POUNDS OF PURE LIVE SEED (PLS) OF EACH SEED SPECIES, AND THE TOTAL POUNDS OF PLS IN THE CONTAINER. ALL SEED SHALL BE GUARANTEED FOR PURITY AND GERMINATION, FREE OF NOXIOUS WEED SEED AND SUPPLIED ON A PURE LIVE SEED (PLS) BASIS.
- ALL SPECIFIED SEED MIXES SHALL CONSIST OF CERTIFIED SEED VARIETIES THAT ARE FREE OF NOXIOUS WEEDS AND HAVE BEEN TESTED FOR PURITY AND GERMINATION WITHIN SIX MONTHS OF THE PLANTING DATE. CERTIFICATION LABELS WHICH INDICATE THE SPECIES, PURITY, GERMINATION, WEED CONTENT, ORIGIN, AND TEST DATE SHALL BE SUBMITTED FOR ALL SEED MATERIALS.

SITE PREPARATION:

- ALL DISTURBED AREAS SHALL BE RIPPED TO A MINIMUM DEPTH OF EIGHT (8) INCHES, WITH NO MORE THAN A TEN (10) INCH INTERVAL BETWEEN FURROWS. SLOPES FLATTER THAN 2:1 SHALL HAVE A WELL SETTLED SEEDBED EIGHT (8) INCHES DEEP. SLOPES 2:1 OR STEEPER SHALL BE LEFT IN A ROUGHENED CONDITION.
 - SLOPES SHALL BE FREE OF SOIL CLOUDS, STICKS, STONES, AND DEBRIS IN EXCESS OF FOUR (4) INCHES IN ANY DIMENSION, AND BE BROUGHT TO THE DESIRED GRADE AND LINE. SOIL PREPARATION FOR SEEDING SHALL NOT OCCUR WHEN SOIL IS FROZEN OR IN AN EXTREME WET OR DRY CONDITION.

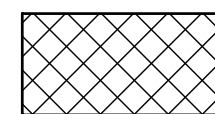
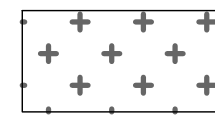
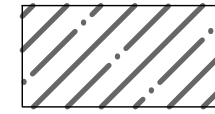
SEEDING:

- SEEDING SHALL BE RESTRICTED TO BETWEEN SPRING THAW AND JUNE 1 AND BETWEEN SEPTEMBER 1 UNTIL CONSISTENT GROUND FREEZE AND SHALL NOT BE APPLIED DURING INCLEMENT WEATHER INCLUDING RAIN AND HIGH WINDS, OR WHEN SOIL MOISTURE IS TOO HIGH TO EVENLY DISTRIBUTE SEED. SEEDING SHALL BE ACCOMPLISHED WITHIN 24 HOURS OF PREPARING THE SEEDING SURFACE.
- DRILL SEEDING OR BROADCAST SEEDING SHALL BE USED FOR REVEGETATION. AS OUTLINED BELOW, THE SIZE AND SLOPE OF THE DISTURBED AREA SHALL DETERMINE WHICH SEEDING METHOD(S) IS APPROPRIATE AND ACCEPTABLE. WHERE FEASIBLE, DRILL SEEDING IS THE REQUIRED METHOD. IF BROADCAST SEEDING IS EMPLOYED, EITHER BY HAND, SPREADER, OR OTHER APPROVED MEANS, THE SEEDING RATE (PLS LBS/ACRE) SHALL BE DOUBLED AS SHOWN ON THE DESIGN PLAN. HYDROMULCHING, HYDRAULIC SEEDING AND STRAW MULCHING WILL NOT BE ACCEPTED.
- FOR SLOPES EQUAL TO OR LESS THAN 3:1, SEED SHALL BE PLANTED USING A RANGELAND DRILL WITH A SMALL SEED/LEGUME BOX AND AN AGITATOR BOX FOR FLUFFY OR BULKY SEED. SEED ROWS SHALL BE SPACED SEVEN (7) TO TEN (10) INCHES APART, AND PLANTED ½ INCH TO ¾ INCH DEEP. THE DRILL SHALL HAVE DOUBLE-DISK FURROW OPENERS WITH DEPTH BANDS AND PACKER WHEELS. SEEDING SHALL BE ACCOMPLISHED USING BI-DIRECTIONAL DRILLING AND WITH THE SECOND DIRECTION FOLLOWING THE SLOPE CONTOUR. THE DRILL EQUIPMENT SHALL BE CALIBRATED EACH DAY OR WHENEVER THERE IS A CHANGE IN THE SEED MIX TO ENSURE PROPER SEED DISTRIBUTION AND RATE.
- FOR SLOPES GREATER THAN 3:1, SEED SHALL BE BROADCAST BY HAND OR MECHANICAL SPREADER. ALL SEED SOWN BY BROADCAST-TYPE SEEDERS SHALL BE "RAKED IN" OR COVERED WITH SOIL TO A DEPTH OF AT LEAST ¼ INCH. BROADCAST SEEDING SHALL PROCEED ON FRESHLY DISTURBED (RAKED OR HARROWED) SOIL SURFACE AND BROADCAST SEED SHALL BE IMMEDIATELY RAKED OR HARROWED INTO THE SURFACE. RAKING SHALL BE ACCOMPLISHED USING METAL-TINED GARDEN OR LANDSCAPE RAKES; NO PLASTIC LEAF RAKES SHALL BE ALLOWED. IF HARROWING IS USED, AN ENGLISH HARROW OR ITS EQUIVALENT SHALL BE REQUIRED. BROADCAST SEEDING SHALL BE AVOIDED WHEN WIND SPEED EXCEEDS 15 MILES-PER-HOUR.
- FOLLOWING SEEDING, ALL SEEDING AREAS SHALL BE WATERED SUFFICIENTLY AS TO SATURATE THE SOILS.

TOPSOIL, SEEDING, AND COCONUT FABRIC NOTES:

- WITHIN THE PROJECT AREA, ANY AREAS WITH ADEQUATE TOPSOIL (IN PLACES WHERE NOT HARVESTING SOD) SHALL BE STRIPPED AND STOCKPILED FOR REUSE.
- ALL AREAS OF SEEDING WILL RECEIVE 4" OF TOPSOIL.
- IF ONSITE CONDITIONS DO NOT YIELD ADEQUATE TOPSOIL, SOIL CONDITIONER SHALL BE APPLIED.
- IMPORTED SOIL CONDITIONER WILL BE AT A RATE OF 5 CUBIC YARDS PER 1,000 SQUARE FEET. SOIL CONDITIONER SHALL BE EVENLY DISTRIBUTED AND TILLED TO A DEPTH OF 8" MINIMUM.

GROUND COVER SQUARE FOOTAGE

SYMBOL	DESCRIPTION
	UPLAND NATIVE SEED MIX 2,623,838 SF
	RIPARIAN NATIVE SEED MIX 530,962 SF
	WETLAND NATIVE SEED MIX 327,903 SF

UPLAND NATIVE SEED MIX

Common Name	Scientific Name	Growth Season	Growth Form	% Mix	Lb/Ac (PLS ¹)
Grasses					
Blue grama	Bouteloua gracilis	Warm	Sod	25	1.8
Sand dropseed	Sporobolus cryptandrus	Warm	Bunch	20	0.2
Sideoats grama	Bouteloua curtipendula	Warm	Sod	20	6.3
Western wheatgrass	Pascopyrum smithii	Cool	Sod	15	8.2
Buffalograss	Bouteloua dactyloides	Warm	Sod	10	10.7
Inland saltgrass	Distichlis spicata	Warm	Sod	5	0.6
Herbaceous/Wildflowers					
Pasture sage	Artemisia frigida			1	0.01
Blanket flower	Gaillardia aristata			1	0.5
Prairie coneflower	Ratibida columnifera			1	0.1
Purple prairieclover	Dalea (Petalostemum) purpurea			1	0.3
Blue flax	Linum lewisii			1	0.4
TOTAL PLS POUNDS/ACRE				100	29.11
¹ PLS=PURE LIVE SEED - IF BROADCAST SEEDING, DOUBLE THE RATE					

RIPARIAN NATIVE SEED MIX

Common Name	Scientific Name	Growth Season	Growth Form	% Mix	Lb/Ac (PLS ¹)
Grasses					
Blue grama	Bouteloua gracilis	Warm	Sod	25	1.8
Sand dropseed	Sporobolus cryptandrus	Warm	Bunch	20	0.2
Switchgrass	Panicum virgatum	Warm	Sod/Bunch	20	3.2
Sideoats grama	Bouteloua curtipendula	Warm	Sod	20	6.3
Western wheatgrass	Pascopyrum smithii	Cool	Sod	15	8.2
Green needlegrass	Nasella viridula	Cool	Bunch	10	3.3
Herbaceous/Wildflowers					
Smooth aster	Aster laevis			1	0.1
Louisiana sage	Artemisia ludoviciana			1	0.1
Showy goldeneye	Heliomeris multiflora (aka Viguiera)			1	0.1
Blanket flower	Gaillardia aristata			1	0.5
Prairie coneflower	Ratibida columnifera			1	0.1
TOTAL PLS POUNDS/ACRE				100	19.3
¹ PLS=PURE LIVE SEED - IF BROADCAST SEEDING, DOUBLE THE RATE					

WETLAND NATIVE SEED MIX

Common Name	Scientific Name	Growth Season	Growth Form	% Mix	Wetland Indicator*	Lb/Ac (PLS ¹)
Grasses						
American Sloughgrass	Beckmannia syzigachne	Cool	Sod	15	OBL	0.8
Prairie cordgrass	Spartina pectinata	Warm	Sod	15	FACW	4.6
Switchgrass	Panicum virgatum	Warm	Sod/Bunch	15	FAC	2.3
Western wheatgrass	Pascopyrum smithii	Cool	Sod	10	FACU	5.5
Fowl mannagrass	Glyceria striata	Cool	Sod	10	OBL	3.3
Hardstem bulrush	Scirpus acutus			10	OBL	1.6
Baltic rush	Juncus balticus			10	OBL	0.1
Creeping spikerush	Eleocharis palustris			10	OBL	1.0
Wildflowers						
Blue vervain	Vferbena hastata			2.5	FACW	0.1
Nuttall's sunflower	Helianthus nuttallii			2.5	FAC	0.5
TOTAL PLS POUNDS/ACRE				100		19.8
¹ PLS=PURE LIVE SEED - IF BROADCAST SEEDING, DOUBLE THE RATE						

HR GREEN Xref: xgl-4-df01; FINAL EROSION CONTROL KEY: 01-XC-FINAL-EC-01_XC_RIPRAP-01-XC-PR_100WR_FP_DELINEATION; 4-dgn: 01-XC-channel; xv-row: 662; xv-dgn: 662; 01_DC_BOX_CULVERTS; 01-XC_Wingwalls

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APPROVED: GLP	JOB NUMBER: 201662.03	0 [] 1"
CAD DATE: 7/11/2024		IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.
CAD FILE: J:\2020\201662.03\CAD\dwgs\CILANDSCAPE PLANS		

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CONSTRUCTION DOCUMENTS
SEEDING NOTES

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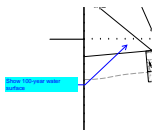
V5_CDs.pdf Markup Summary

Callout (3)



Subject: Callout
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Author: CDurham
Date: 8/1/2024 12:28:42 PM
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What does this blue line represent?



Subject: Callout
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Author: CDurham
Date: 8/1/2024 1:35:44 PM
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Space:

Show 100-year water surface



Subject: Callout
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Author: CDurham
Date: 8/1/2024 1:38:57 PM
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Show access across channel