

WEBER ELEMENTARY SCHOOL GRADING AND EROSION CONTROL PLANS TRACT A, WILSONS WIDEFIELD ADDITION NO. 6 EL PASO COUNTY, STATE OF COLORADO

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 TO 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 HAS BEEN 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 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 WASHOUT 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 OF UNCONTAMINATED GROUND WATER 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 ONSITE 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 PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ONSITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER 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 AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITEE 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 KUMAR AND ASSOCIATES, INC., DATED 9/10/2020 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 A STORMWATER MANAGEMENT PLAN (SMWP), 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
WOOD -PERMITS
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530
ATTN: PERMITS UNIT



VICINITY MAP

Sheet List Table	
Sheet Number	Sheet Title
C9.0	GESQCP PLAN COVER SHEET
C9.1	INITIAL EROSION CONTROL PLAN
C9.2	INTERIM EROSION CONTROL PLAN
C9.3	FINAL EROSION CONTROL PLAN
C9.4	EROSION CONTROL DETAILS
C9.5	EROSION CONTROL DETAILS
C9.6	EROSION CONTROL DETAILS
C9.7	EROSION CONTROL DETAILS

LAND AREA:

TOTAL PROPERTY AREA: +/- 6.51 ACRES

BENCHMARK:

THIS UTILITY/FACILITY WAS UNABLE TO BE LOCATED AND IS SHOWN IN AN APPROXIMATE/ASSUMED LOCATION BASED ON RECORD DRAWINGS OR OTHER AVAILABLE INFORMATION OR FIELD EVIDENCES, THE CONTRACTOR IS TO FIELD VERIFY THE LOCATION AND ELEVATION OF THE UTILITY/FACILITY IF IT EXISTS.

LEGAL DESCRIPTION

TRACT A, WILSONS WIDEFIELD ADDITION NO. 6, ACCORDING TO REC. #59193130001, RECORDS OF EL PASO COUNTY, STATE OF COLORADO.

SOIL TYPE:

THE SOIL ON SITE IS USGS HYDROLOGIC SOIL GROUP B/C.

FLOOD ZONE DESIGNATION

FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, MAP NUMBER 0804109820, EFFECTIVE DATE DECEMBER 7, 2018 INDICATES THIS PARCEL OF LAND IS LOCATED IN ZONE X (AREA OF MINIMAL FLOOD HAZARD).

SITE INFORMATION:

TIMING:

ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:
START: SUMMER 2022
END: SUMMER 2023

EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETE:
SUMMER 2024

AREAS:

TOTAL DISTURBED AREA: 6.51 ACRES

RECEIVING WATERS:

NAME OF RECEIVING WATERS: EAST BIG JOHNSON, ULTIMATELY FOUNTAIN CREEK

DESCRIPTION OF EXISTING VEGETATION:

THE EXISTING SITE CURRENTLY CONTAINS AN EXISTING SCHOOL BUILDING, PARKING LOT, BALL FIELD, AND GROUND COVER CONSISTING OF 100% WEEDS, GRASSES, AND TREES.

DESCRIPTION OF PERMANENT BMPS:

FULL SPECTRUM EXTENDED DETENTION BASIN

SOILS INFORMATION:

SOIL GROUP: 32% B, 68% C
SOIL SLOPES: 3 H: 1V OR LESS FOR ALL UN-RETAINED AREAS

NOTES:

- NO BATCH PLANTS OR MASONRY MIX STATIONS WILL BE UTILIZED ON SITE.
- NO SPRINGS, STREAMS, WETLANDS, OR OTHER SURFACE WATER CROSS THE SITE.

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web: www.lkapartners.com

Kimley-Horn
INCORPORATED
A PROFESSIONAL CORPORATION FOR ARCHITECTURE AND PLANNING
1820 MAIN STREET
COLORADO SPRINGS, COLORADO 80911
tel: 719-575-8800 fax: 719-575-8801
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**Webster Elementary School
Addition and Alterations**
445 Jersey Lane, Colorado Springs, CO 80911
Widefield School District 3
1820 Main Street
Colorado Springs, CO 80911



Construction Documents

Drawn: JAR
Checked: EJS
Issued: 6 APRIL 2022
Revised:

Area Key Plan

<p>DEVELOPER'S STATEMENT</p> <p>I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.</p> <p>WIDEFIELD SCHOOL DISTRICT 3 DEVELOPER SIGNATURE _____ DATE _____</p>
<p>ENGINEER'S STATEMENT</p> <p>THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. SAID PLAN HAS BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR GRADING AND EROSION CONTROL PLANS. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENCE, ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARING THIS PLAN.</p> <p>ERIC GUNDERSON, P.E. #49487 - KIMLEY-HORN AND ASSOCIATES, INC. DATE _____</p>
<p>EL PASO COUNTY</p> <p>COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT. FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL, AS AMENDED.</p> <p>IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL. PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTOR'S DISCRETION.</p> <p>JENNIFER IRVINE, P.E. - COUNTY ENGINEER/ECM ADMINISTRATOR DATE _____</p>

CONTACTS:

<p>OWNER: WIDEFIELD SCHOOL DISTRICT 3 445 JERSEY LANE COLORADO SPRINGS, CO 80911</p>	<p>ENGINEER: KIMLEY-HORN AND ASSOCIATES, INC. 2 NEVADA NORTH AVE., SUITE 300 COLORADO SPRINGS, CO 80903 TEL: (719) 453-0182 CONTACT: ERIC GUNDERSON, P.E.</p>	<p>EL PASO COUNTY: EL PASO COUNTY PCD DEPARTMENT 2880 INTERNATIONAL CIRCLE, SUITE 110 COLORADO SPRINGS, CO 80910 PHONE: (719) 520-6300</p>	<p>SURVEYOR: DREXEL, BARRELL & CO. 3 SOUTH 7TH STREET COLORADO SPRINGS, CO 80905 TEL: (719) 266-0887 CONTACT: TIM MCCONNELL</p>
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GESQCP PLAN
COVER SHEET

C9.0

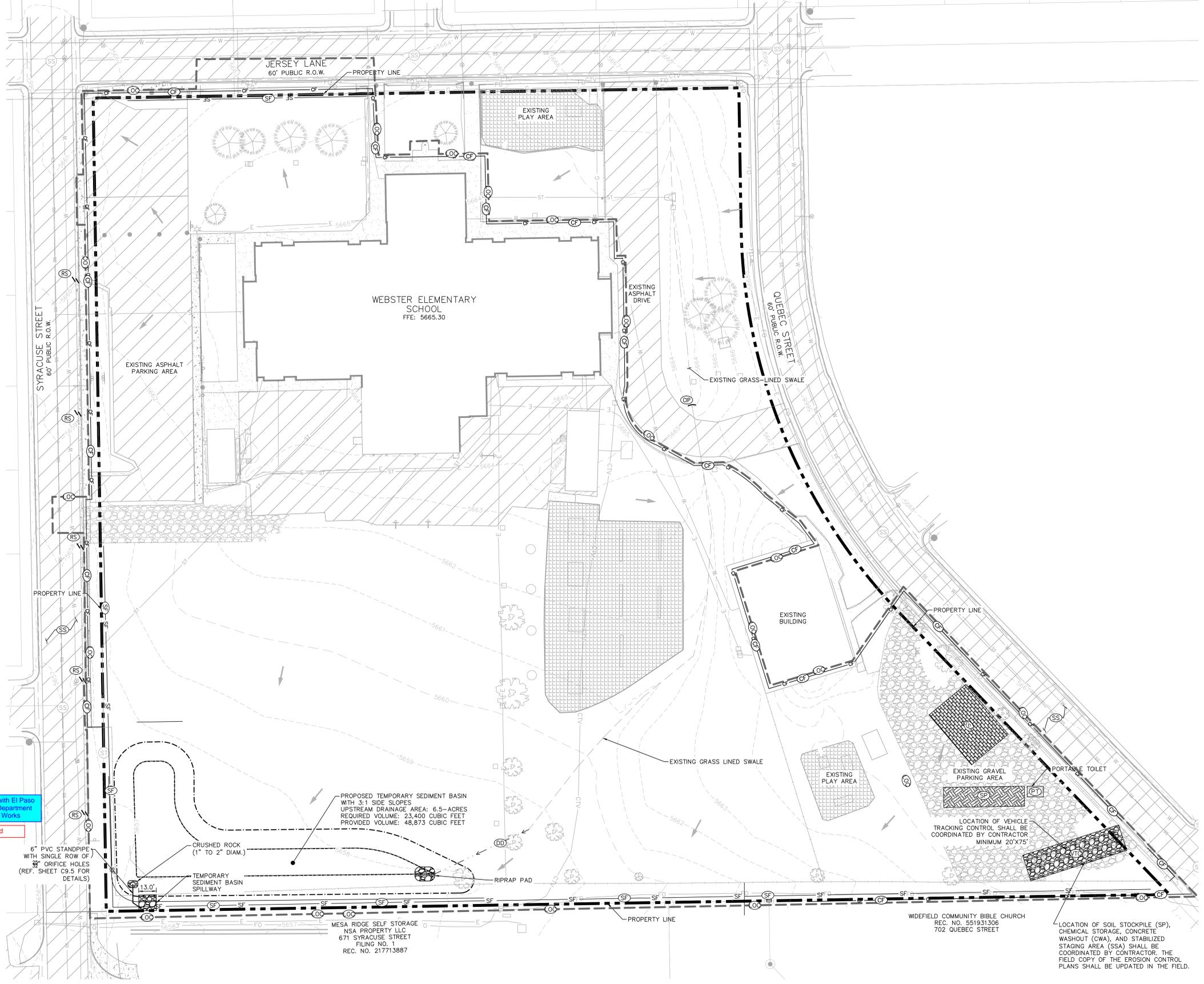
LEGEND

	PROPERTY LINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	LIMITS OF CONSTRUCTION/DISTURBANCE
	SILT FENCE
	EASEMENT
	EXISTING SANITARY SEWER
	EXISTING WATER LINE
	EXISTING STORM SEWER PIPE
	EXISTING FIBER OPTIC LINE
	EXISTING GAS LINE
	EXISTING OVERHEAD ELECTRIC LINE
	EXISTING BARBED WIRE FENCE
	ROCK SOCKS PER UDFCD DETAIL SC-5
	STABILIZED STAGING AREA
	CONCRETE WASHOUT
	CHECK DAM
	DIVERSION DITCH
	VEHICLE TRACKING CONTROL
	SOIL STOCKPILE
	INLET PROTECTION
	CULVERT INLET PROTECTION
	EXISTING FLOW DIRECTION ARROW
	PROPOSED FLOW DIRECTION ARROW
	STREET SWEEPING AND VACUUMING PER UDFCD DETAIL SM-7
	DUST CONTROL PER UDFCD DETAIL EC-14
	FINAL STABILIZATION (REFERENCE FINAL LANDSCAPING PLANS)

NOTES

- THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
- ADJACENT STREETS AND SIDEWALK SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES. CONTRACTOR SHALL PERFORM STREET SWEEPING AT ALL TIMES DURING ACTIVE TRACKING AND AT A MINIMUM ON A DAILY BASIS AT THE END OF EACH CONSTRUCTION DAY.
- TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
- PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
- CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
- CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
- ALL WORK IN THE SYRACUSE STREET, JERSEY LANE, AND QUEBEC STREET ROW REQUIRES A ROW PERMIT FROM COLORADO SPRINGS. CONTRACTOR IS RESPONSIBLE FOR APPLYING FOR AND OBTAINING ALL NECESSARY ROW PERMITS.
- CONTRACTOR SHALL REFER TO THE APPROVED GEOTECHNICAL REPORT FOR OVEREXCAVATION REQUIREMENTS AND ADDITIONAL INFORMATION.
- SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
- DEMOLITION, REMOVAL AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
- CONTRACTOR TO NOTE PROXIMITY OF EXISTING IMPROVEMENTS ADJACENT TO THE SITE AND PROVIDE NECESSARY MEASURES TO PROTECT ALL FACILITIES AND STRUCTURES IN PLACE.
- CONTRACTOR SHALL MAINTAIN STABILIZED STAGING AREA (SSA), VEHICLE TRACKING CONTROL (VTC), AND CONCRETE WASHOUT AREA (CWA) AT THE CONSTRUCTION ENTRANCE AT ALL TIMES. CONTRACTOR SHALL UPDATE THE EROSION CONTROL PLAN IN THE FIELD TO INDICATE THE LOCATION OF THE SSA, VTC, AND CWA Bmps AS EXCAVATION SEQUENCING DICTATES.
- CONTRACTOR MAY SUBSTITUTE SEDIMENT CONTROL LOGS (SCL) FOR SILT FENCE (SF) AS PERIMETER CONTROL, DEPENDING UPON SITE CONDITIONS. SCL AND SF MAY BE INTERCHANGED DEPENDING ON SITE CONDITIONS.
- CONTRACTOR SHALL OBTAIN R.O.W. PERMITS FOR ANY R.O.W. CLOSURES.
- SEE FINAL LANDSCAPING PLAN IN THE DEVELOPMENT PLAN FOR FINAL STABILIZATION MEASURES.

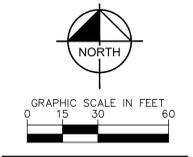
replace with El Paso County Department of Public Works
added



Construction Documents

Drawn: JAR
Checked: EUG
Issued: 6 APRIL, 2022
Revised:

Area Key Plan



INITIAL EROSION CONTROL PLAN

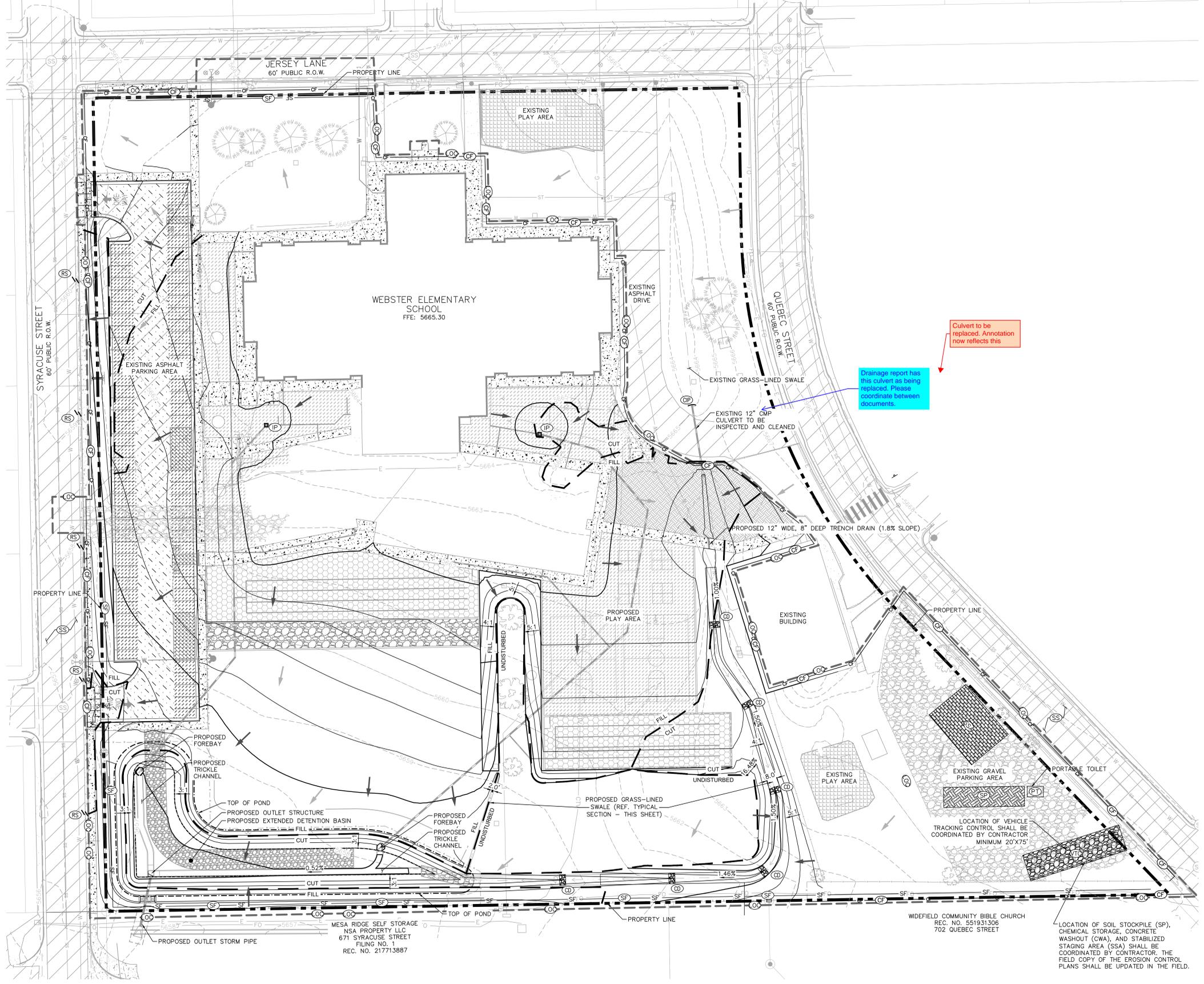
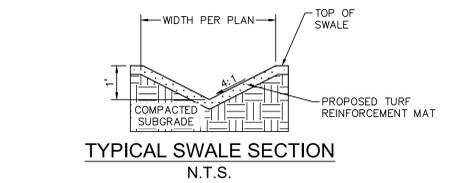
C9.1

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	PROPOSED GRAVEL ROAD
	EXISTING GRAVEL PARKING AREA
	EXISTING GRAVEL/MULCH PLAY AREA

NOTES

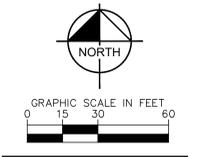
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- DEMOLITION, REMOVAL AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
- CONTRACTOR TO NOTE PROXIMITY OF EXISTING IMPROVEMENTS ADJACENT TO THE SITE AND PROVIDE NECESSARY MEASURES TO PROTECT ALL FACILITIES AND STRUCTURES IN PLACE.
- CONTRACTOR SHALL MAINTAIN STABILIZED STAGING AREA (SSA), VEHICLE TRACKING CONTROL (VTC), AND CONCRETE WASHOUT AREA (CWA) AT THE CONSTRUCTION ENTRANCE AT ALL TIMES. CONTRACTOR SHALL UPDATE THE EROSION CONTROL PLAN IN THE FIELD TO INDICATE THE LOCATION OF THE SSA, VTC, AND CWA BMPs AS EXCAVATION SEQUENCING DICTATES.
- CONTRACTOR MAY SUBSTITUTE SEDIMENT CONTROL LOGS (SCL) FOR SILT FENCE (SF) AS PERIMETER CONTROL, DEPENDING UPON SITE CONDITIONS. SCL AND SF MAY BE INTERCHANGED DEPENDING ON SITE CONDITIONS.
- CONTRACTOR SHALL OBTAIN R.O.W. PERMITS FOR ANY R.O.W. CLOSURES.
- SEE FINAL LANDSCAPING PLAN IN THE DEVELOPMENT PLAN FOR FINAL STABILIZATION MEASURES.



Construction Documents

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Area Key Plan



INTERIM EROSION CONTROL PLAN

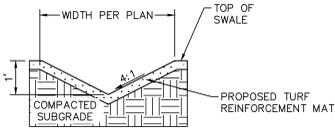
C9.2

LEGEND

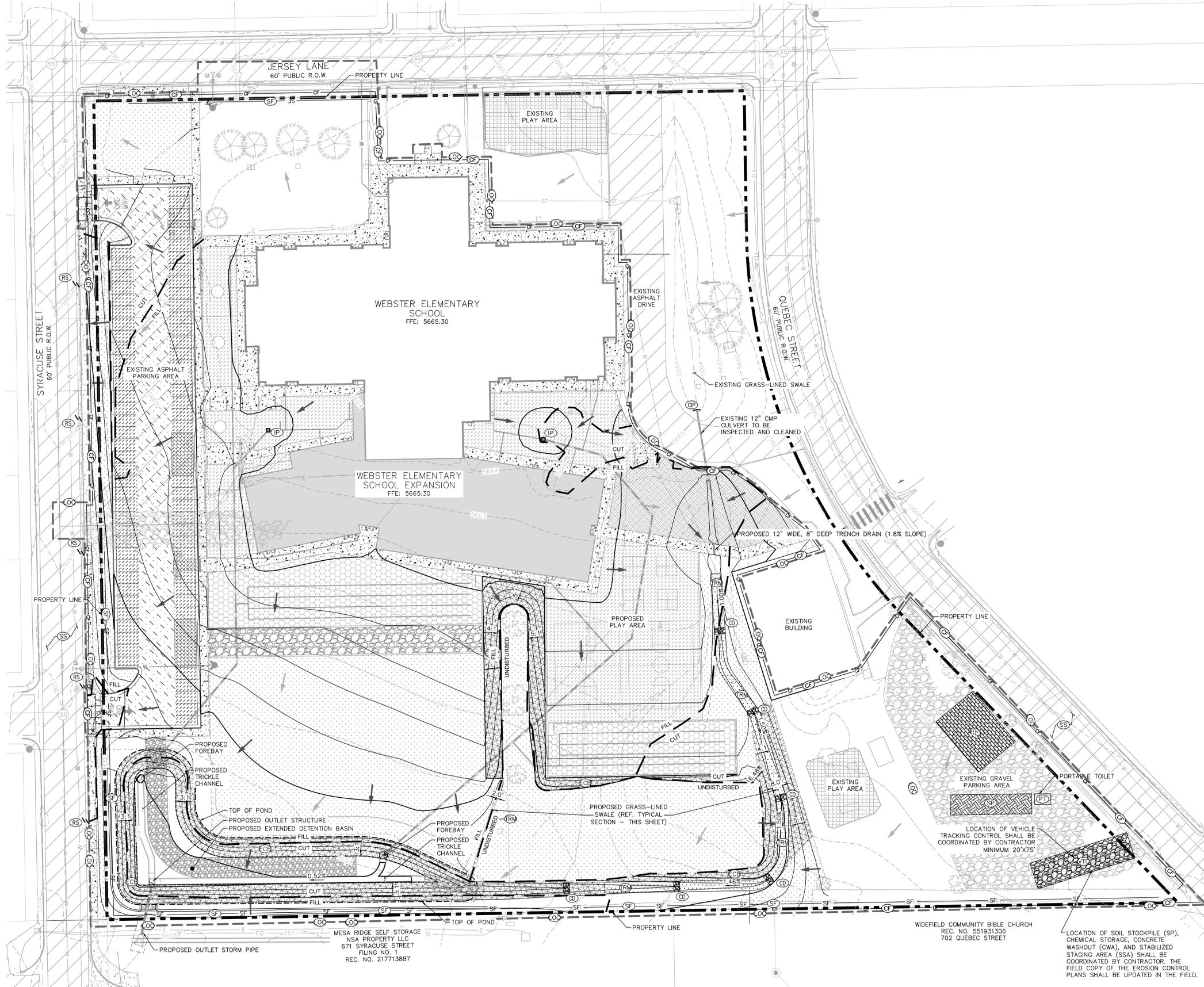
	PROPERTY LINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	LIMITS OF CONSTRUCTION/DISTURBANCE
	SILT FENCE
	CONSTRUCTION FENCE
	EASEMENT
	EXISTING SANITARY SEWER
	EXISTING WATER LINE
	EXISTING STORM SEWER PIPE
	EXISTING FIBER OPTIC LINE
	EXISTING GAS LINE
	EXISTING OVERHEAD ELECTRIC LINE
	EXISTING BARBED WIRE FENCE
	ROCK SOCKS PER UDFCD DETAIL SC-5
	STABILIZED STAGING AREA
	CONCRETE WASHOUT
	VEHICLE TRACKING CONTROL
	SOIL STOCKPILE
	EROSION CONTROL BLANKET
	TURF REINFORCEMENT MAT
	INLET PROTECTION
	CULVERT INLET PROTECTION
	EXISTING FLOW DIRECTION ARROW
	PROPOSED FLOW DIRECTION ARROW
	STREET SWEEPING AND VACUUMING PER UDFCD DETAIL SM-7
	DUST CONTROL PER UDFCD DETAIL EC-14
	FINAL STABILIZATION. (REFERENCE FINAL LANDSCAPING PLANS)
	PROPOSED ASPHALT DRIVE LANES
	PROPOSED ASPHALT PARKING AREA & NON-VEHICULAR AREA
	EXISTING CONCRETE SIDEWALK
	PROPOSED CONCRETE SIDEWALK
	PROPOSED WOOD FIBER SAFETY SURFACING
	PROPOSED GRAVEL ROAD
	EXISTING GRAVEL PARKING AREA
	EXISTING GRAVEL/MULCH PLAY AREA

NOTES

- THE INTENT OF THIS PLAN IS TO IDENTIFY THE EROSION CONTROL PRACTICES RECOMMENDED. THE CONTRACTOR SHALL REFERENCE ADDITIONAL CONSTRUCTION PLANS FOR DEMOLITION OF EXISTING AND CONSTRUCTION OF PROPOSED IMPROVEMENTS.
- ADJACENT STREETS AND SIDEWALK SHALL BE KEPT CLEAN AND FREE OF SEDIMENT AND/OR DEBRIS AT ALL TIMES. CONTRACTOR SHALL PERFORM STREET SWEEPING AT ALL TIMES DURING ACTIVE TRACKING AND AT A MINIMUM ON A DAILY BASIS AT THE END OF EACH CONSTRUCTION DAY.
- TEMPORARY STABILIZATION (TS) SHALL BE IMPLEMENTED WITHIN THE DISTURBED PORTIONS OF THE PROJECT SITE NO LATER THAN 14 DAYS FOLLOWING THE CEASE OF CONSTRUCTION ACTIVITIES WITHIN THE DISTURBED AREAS.
- PERMANENT STABILIZATION (PS) MAY BE USED WITHIN AREAS OF TEMPORARY STABILIZATION (TS) AT THE CONTRACTOR'S DISCRETION. STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH APPLICABLE TEMPORARY STABILIZATION SEQUENCING REQUIREMENTS.
- CONTRACTOR SHALL UTILIZE ROLLED EROSION CONTROL PRODUCTS ON ALL SLOPES 3H:1V OR GREATER TO ACHIEVE REQUIRED STABILIZATION.
- CONTRACTOR SHALL MAINTAIN ACCEPTABLE EROSION CONTROL PRACTICES WITHIN THE ANTICIPATED LIMITS OF CONSTRUCTION IDENTIFIED HEREIN. BEST MANAGEMENT PRACTICES AND STABILIZATION SHALL BE COMPLETED AS IDENTIFIED HEREIN IN ACCORDANCE WITH OWNER REQUIREMENTS.
- ALL WORK IN THE SYRACUSE STREET, JERSEY LANE, AND QUEBEC STREET ROW REQUIRES A ROW PERMIT FROM COLORADO SPRINGS. CONTRACTOR IS RESPONSIBLE FOR APPLYING FOR AND OBTAINING ALL NECESSARY ROW PERMITS.
- CONTRACTOR SHALL REFER TO THE APPROVED GEOTECHNICAL REPORT FOR OVEREXCAVATION REQUIREMENTS AND ADDITIONAL INFORMATION.
- SILT FENCE TO BE INSTALLED PRIOR TO COMMENCEMENT OF ONSITE GRADING AND CONSTRUCTION ACTIVITIES.
- DEMOLITION, REMOVAL AND SOIL TREATMENT SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATIONS AS NOTED IN THE APPROVED PROJECT GEOTECHNICAL REPORT.
- CONTRACTOR TO NOTE PROXIMITY OF EXISTING IMPROVEMENTS ADJACENT TO THE SITE AND PROVIDE NECESSARY MEASURES TO PROTECT ALL FACILITIES AND STRUCTURES IN PLACE.
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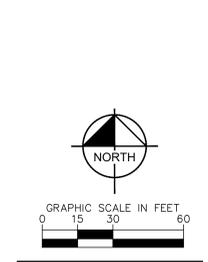
TYPICAL SWALE SECTION
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Construction Documents

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Area Key Plan

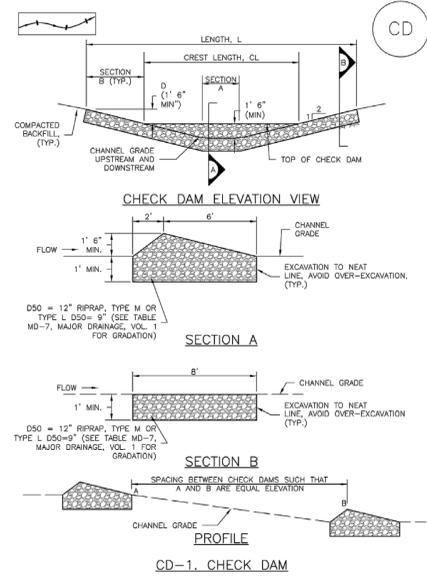


FINAL EROSION CONTROL PLAN

C9.3

Check Dams (CD)

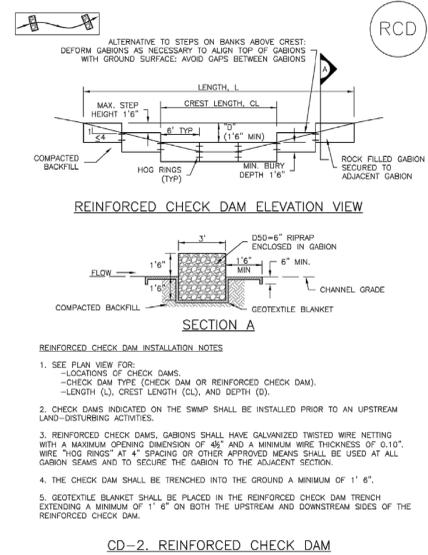
EC-12



November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 CD-3

Check Dams (CD)

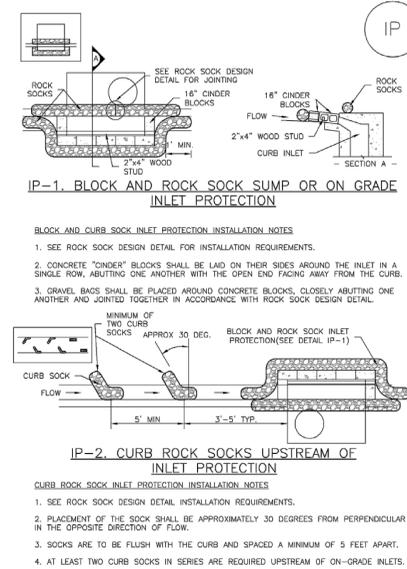
EC-12



November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 CD-5

SC-6

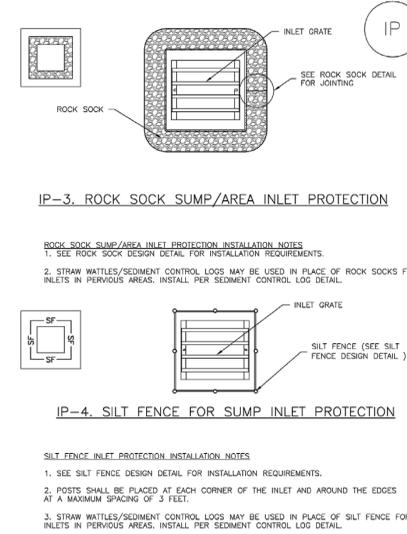
Inlet Protection (IP)



IP-4 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 August 2013

Inlet Protection (IP)

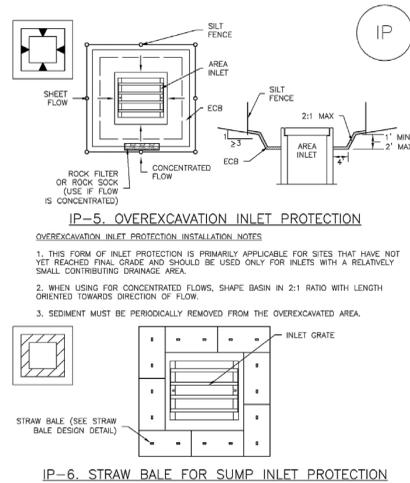
SC-6



August 2013 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 IP-5

SC-6

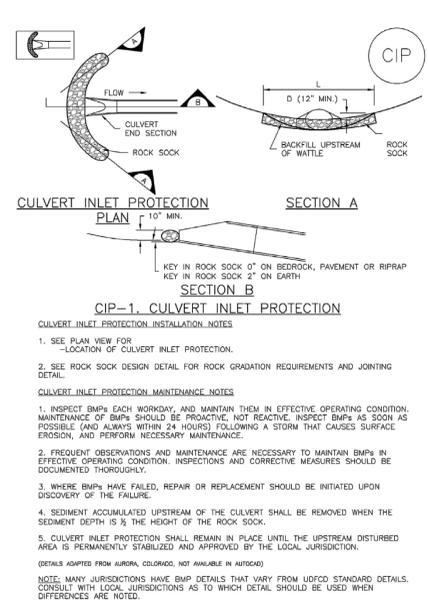
Inlet Protection (IP)



IP-6 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 August 2013

Inlet Protection (IP)

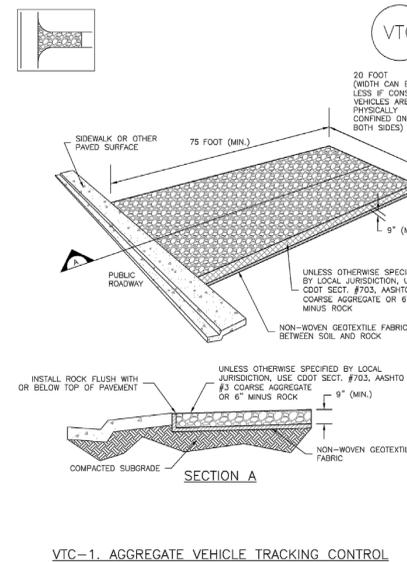
SC-6



August 2013 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 IP-7

Vehicle Tracking Control (VTC)

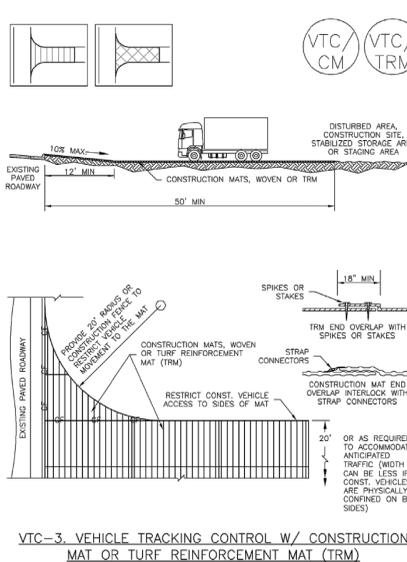
SM-4



November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 VTC-3

Vehicle Tracking Control (VTC)

SM-4



November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 VTC-5

Temporary and Permanent Seeding (TS/PS) EC-2

Seeding dates for the highest success probability of perennial species along the Front Range are generally in the spring from April through early May and in the fall after the first of September until the ground freezes. If the area is irrigated, seeding may occur in summer months, as well. See Table TS/PS-3 for appropriate seeding dates.

Table TS/PS-1. Minimum Drill Seeding Rates for Various Temporary Annual Grasses

Species* (Common name)	Growth Season*	Pounds of Pure Live Seed (PLS)/acre*	Planting Depth (inches)
1. Oats	Cool	35-50	1-2
2. Spring wheat	Cool	25-35	1-2
3. Spring barley	Cool	25-35	1-2
4. Annual ryegrass	Cool	10-15	1/2
5. Millet	Warm	3-15	1/2 - 3/4
6. Sudangrass	Warm	5-10	1/2 - 3/4
7. Sorghum	Warm	5-10	1/2 - 3/4
8. Winter wheat	Cool	20-35	1-2
9. Winter barley	Cool	20-35	1-2
10. Winter rye	Cool	20-35	1-2
11. Triticale	Cool	25-40	1-2

* Successful seeding of annual grass resulting in adequate plant growth will usually produce enough dead-plant residue to provide protection from wind and water erosion for an additional year. This assumes that the cover is not disturbed or moved closer than 8 inches.

Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1 or where access limitations exist. When hydraulic seeding is used, hydraulic mulching should be applied as a separate operation, when practical, to prevent the seeds from being encapsulated in the mulch.

† See Table TS/PS-3 for seeding dates. Irrigation, if consistently applied, may extend the use of cool season species during the summer months.

‡ Seeding rates should be doubled if seed is broadcast, or increased by 50 percent if done using a Brillion Drill or by hydraulic seeding.

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses

Common Name	Botanical Name	Growth Season*	Growth Form	Seeds/Pound	Pounds of PLS/acre
Alkali Soil Seed Mix					
Alkali sacaton	<i>Sporobolus airoides</i>	Cool	Bunch	1,750,000	0.25
Basin wildrye	<i>Elymus cinereus</i>	Cool	Bunch	165,000	2.5
Southern streambank wheatgrass	<i>Agropyron riparium 'Sodax'</i>	Cool	Sod	170,000	2.5
Jose tall wheatgrass	<i>Agropyron elongatum 'Jose'</i>	Cool	Bunch	79,000	7.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.75
Fertile Loamy Soil Seed Mix					
Ephraim crested wheatgrass	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	2.0
Dural hard fescue	<i>Festuca ovina 'duriaculata'</i>	Cool	Bunch	565,000	1.0
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Southern streambank wheatgrass	<i>Agropyron riparium 'Sodax'</i>	Cool	Sod	170,000	2.5
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	7.0
Total					15.5
High Water Table Soil Seed Mix					
Meadow foxtail	<i>Allopecurus pratensis</i>	Cool	Sod	900,000	0.5
Rudwig	<i>Agrostis alba</i>	Warm	Open sod	5,000,000	0.25
Reed canarygrass	<i>Phalaris arundinacea</i>	Cool	Sod	68,000	0.5
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Pathfinder switchgrass	<i>Panicum virgatum 'Pathfinder'</i>	Warm	Sod	389,000	1.0
Alkar tall wheatgrass	<i>Agropyron elongatum 'Alkar'</i>	Cool	Bunch	79,000	5.5
Total					10.75
Transition Turf Seed Mix*					
Ruebens Canadian bluegrass	<i>Poa compressa 'Ruebens'</i>	Cool	Sod	2,500,000	0.5
Dural hard fescue	<i>Festuca ovina 'duriaculata'</i>	Cool	Bunch	565,000	1.0
Citation perennial ryegrass	<i>Lolium perenne 'Citation'</i>	Cool	Sod	247,000	3.0
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Total					7.5

Temporary and Permanent Seeding (TS/PS) EC-2

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season*	Growth Form	Seeds/Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	<i>Schizachyrium scoparium 'Camper'</i>	Warm	Bunch	240,000	1.0
Prairie sandreed	<i>Calamovilfa longifolia</i>	Warm	Open sod	274,000	1.0
Sand dropseed	<i>Sporobolus crypandrus</i>	Cool	Bunch	5,298,000	0.25
Vaughn sideouts grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					10.25
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass†	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	1.5
Osage intermediate wheatgrass	<i>Agropyron intermedium 'Osage'</i>	Cool	Sod	115,000	5.5
Vaughn sideouts grama†	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis leys 'Lincoln'</i>	Cool	Sod	130,000	3.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.5

* All of the above seeding rates and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

† See Table TS/PS-3 for seeding dates.

‡ If site is to be irrigated, the transition turf seed rates should be doubled.

§ Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

¶ Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sideouts grama.

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1-March 15			✓	✓
March 16-April 30	4	1,2,3	✓	✓
May 1-May 15	4		✓	
May 16-June 30	4,5,6,7			
July 1-July 15	5,6,7			
July 16-August 31				
September 1-September 30		8,9,10,11		
October 1-December 31			✓	✓

Mulch
Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

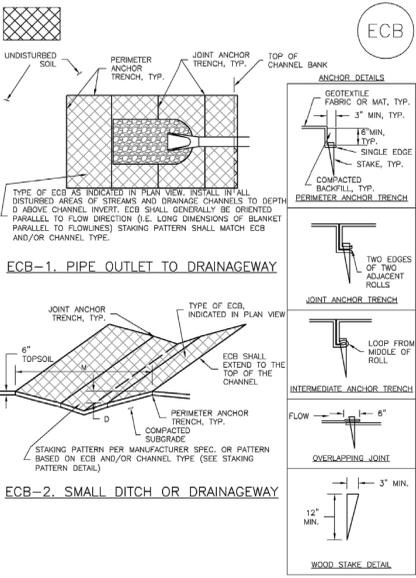
Maintenance and Removal
Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

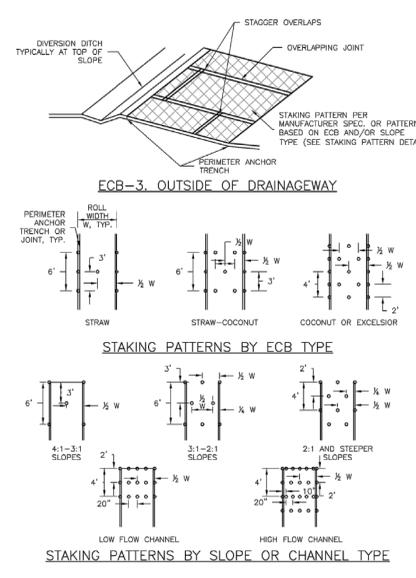
Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

EC-6 Rolled Erosion Control Products (RECP) EC-6



EC-6 Rolled Erosion Control Products (RECP) EC-6



EC-6 Rolled Erosion Control Products (RECP) EC-6

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCOONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOST PREFER TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF ROLL LENGTH FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING*
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCOONUT	30% MIN	70% MAX	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNELS.
*ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

EC-6 Rolled Erosion Control Products (RECP) EC-6

EROSION CONTROL BLANKET MAINTENANCE NOTES

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
 - FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
 - WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
 - ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
 - ANY ECB ROLLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET OR THAT REMAIN VOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.
- NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.
- (DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER, COLORADO, NOT AVAILABLE IN AUTOCAD)

EC-6 Rolled Erosion Control Products (RECP)

- **Turf Reinforcement Mat (TRM):** A rolled erosion control product composed of non-degradable synthetic fibers, filaments, nets, wire mesh, and/or other elements, processed into a permanent, three-dimensional matrix of sufficient thickness. TRMs, which may be supplemented with degradable components, are designed to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation. Note: TRMs are typically used in hydraulic applications, such as high flow ditches and channels, steep slopes, stream banks, and shorelines, where erosive forces may exceed the limits of natural, unreinforced vegetation or in areas where limited vegetation establishment is anticipated.

Tables RECP-1 and RECP-2 provide guidelines for selecting rolled erosion control products appropriate to site conditions and desired longevity. Table RECP-1 is for conditions where natural vegetation alone will provide permanent erosion control, whereas Table RECP-2 is for conditions where vegetation alone will not be adequately stable to provide long-term erosion protection due to flow or other conditions.

EC-6 Rolled Erosion Control Products (RECP)

Table RECP-2. ECTC Standard Specification for Permanent¹ Rolled Erosion Control Products
(Adapted from: Erosion Control Technology Council 2005)

Product Type	Slope Applications	Channel Applications	Minimum Tensile Strength ³
	Maximum Gradient	Maximum Shear Stress ^{4,5}	
TRMs with a minimum thickness of 0.25 inches (6.35 mm) per ASTM D 6525 and UV stability of 80% per ASTM D 4355 (500 hours exposure).	0.5:1 (H:V)	6.0 lbs/ft ² (288 Pa)	125 lbs/ft (1.82 kN/m)
	0.5:1 (H:V)	8.0 lbs/ft ² (384 Pa)	150 lbs/ft (2.19 kN/m)
	0.5:1 (H:V)	10.0 lbs/ft ² (480 Pa)	175 lbs/ft (2.55 kN/m)

¹ For TRMs containing degradable components, all property values must be obtained on the non-degradable portion of the matting alone.

² Minimum Average Roll Values, machine direction only for tensile strength determination using [ASTM D 6818](#) (Supersedes Mod. [ASTM D 5035](#) for RECPs)

³ Field conditions with high loading and/or high survivability requirements may warrant the use of a TRM with a tensile strength of 44 kN/m (3,000 lb-ft) or greater.

⁴ Required minimum shear stress TRM (fully vegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in.) soil loss) during a 30-minute flow event in large-scale testing.

⁵ Acceptable large-scale testing protocols may include [ASTM D 6460](#), or other independent testing deemed acceptable by the engineer.

Design and Installation

RECPs should be installed according to manufacturer's specifications and guidelines. Regardless of the type of product used, it is important to ensure no gaps or voids exist under the material and that all corners of the material are secured using stakes and trenching. Continuous contact between the product and the soil is necessary to avoid failure. Never use metal stakes to secure temporary erosion control products. Often wooden stakes are used to anchor RECPs; however, wood stakes may present installation and maintenance challenges and generally take a long time to biodegrade. Some local jurisdictions have had favorable experiences using biodegradable stakes.

This BMP Fact Sheet provides design details for several commonly used ECB applications, including:

- ECB-1 Pipe Outlet to Drainageway
- ECB-2 Small Ditch or Drainageway
- ECB-3 Outside of Drainageway



Construction Documents

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Area Key Plan

EROSION CONTROL DETAILS

C9.7